CATALOGUE **IX**

THREADING DRILLING MILLING



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INTRODUCTION

OSG Corporation is the world's largest manufacturer of round cutting tools. Established in 1938, OSG has a longstanding reputation as a total solution round shank cutting tools provider throughout the manufacturing industry.

OSG holds the No.1 position in the Japanese cutting tool market as well as a top-ranking position globally, with a production, sales and technical network spanning 33 countries.

Beyond the Limit

OSG is a comprehensive cutting tool manufacturer known for its world-renowned taps and other product offering such as end mills, drills, and rolling dies. Moving toward an era of carbon neutrality, OSG will strive to achieve further growth as an essential player that contributes to the global manufacturing industry and the realization of a sustainable society based on its "global presence" corporate philosophy.



shaping your dreams

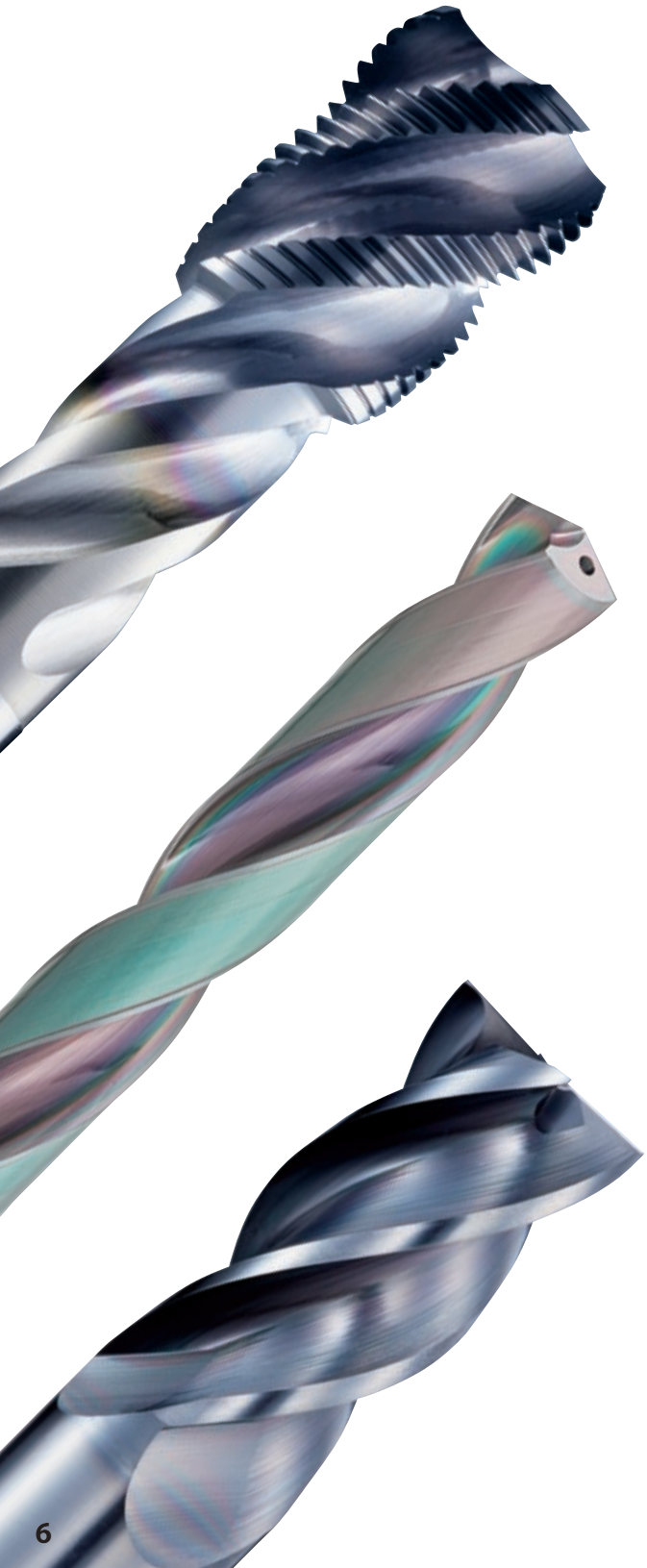
We listen to our customers, think from our customers' perspective, develop products that meet customers' needs and get them to the market first. In addition, we offer fine-tuned after-sales service, while providing information feedback to customers.

OSG derives its strengths from a business model that integrates the sales of products, technology development and manufacturing, and makes active use of know-how gained through close communication with our customers.

PRODUCT GROUP

Supporting global manufacturing with top class products and technology

OSG maintains absolute control over every aspect of its manufacturing capabilities. OSG products are produced in-house – from the production of tool material, creation of tool geometry, to the development of its own proprietary coatings – the 3 vital elements in the manufacturing of superior cutting tools.





Taps

Taps are used to cut screw threads on the inside surfaces of holes, creating the "female" half (nut) of the screw. High precision is of vital importance, particularly in areas such as automobile engines, which require precision screws. OSG offers a lineup of taps with diameters in various sizes and with specifications suitable for a wide variety of uses.



Drills

Drills are used to make holes in a wide range of surfaces. OSG has received high acclaim for the development of high-precision, high-value-added products for its use in automotive and aircraft part manufacture, which demands advanced processing techniques and zero margin of error.



End Mills

End mills are used to cut and contour molds for plastic parts, which include electric home appliances, die-casting dies for automotive parts and stamping molds. To meet today's demanding requirements (smaller size, lower weight and reduced cost), OSG has developed many carbide end mills that are excellent in both processing accuracy and durability. To further enhance performance, efforts are made in the development of new products utilizing our advanced proprietary coating technique.

Rolling Dies

Thread rolling dies are used to copy threading onto "male" screws (bolts); the process consists of rolling a metal bar between two thread rolling dies tightly pressed to each side. OSG manufactures cylindrical and flat rolling dies for screws, worms and serrations, thread rolling planetary dies and counter-flow rolling dies, in accordance with their intended use.



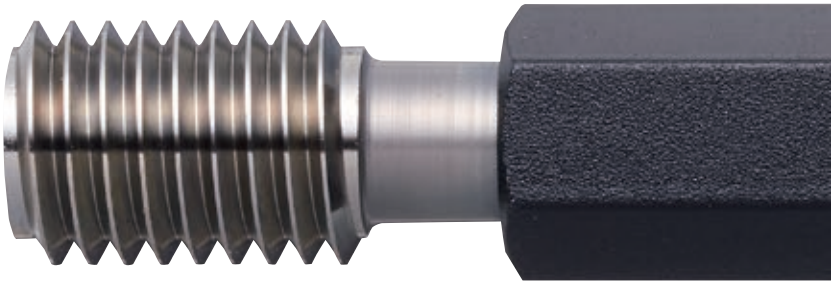


Indexable Tools

Indexable tools are used to shape metal molds and machine parts. While end mills are used for finishing, indexable tools are intended for rough cutting and contouring, and use disposable inserts attached to the tool body.

Gauges

Gauges are used to inspect the final dimensions of screw threads and holes. OSG was an early adopter of changes in the Japan Industrial Standards (JIS). Today, we offer a range of screw gauges based on ISO standards. Precision checking is an extremely important process because of the trend toward increasing product precision and compliance with international standards.



CORPORATE DATA



Capital	13.044 million yen
FY2025 Sales Amount	160.619 million yen (consolidated)
Number of Employees	7.563 (consolidated)
Stock Listings	1st Section Tokyo & Nagoya Stock Exchange
Stock Code	6136

OSG is our company name and trademark:

"O" stands for OSAWA, our founder
"S" stands for SCREW
"G" stands for GRINDING



OSG's first factory in 1938

MILESTONES

1938 — OSG Screw Grinding
Hideo Osawa established Osawa Screw Grinding Co., Ltd.

1963 — OSG Corporation
Established OSG Corporation in Aichi, Japan as international headquarters.

1968 — OSG USA
Established OSG USA, Inc. in Chicago, USA as North American headquarters.

1974 — OSG Sulamericana
Established OSG OSG Ferramentas De Precisao Ltda. in Sao Paulo, Brazil as South American headquarters.

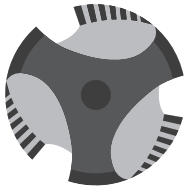
1990 — OSG Asia
Established OSG Asia PTE. Ltd. in Singapore as Asian headquarters.

1999 — OSG Europe
Established OSG Europe S.A. in Belgium as European headquarters.

2001 — OSG Shanghai
Established OSG (Shanghai) Corporation in Shanghai, China as Greater China headquarters.

2018 — OSG 80th Anniversary
Celebrated 80 years of successes.

PRODUCT DEVELOPMENT TIMELINE

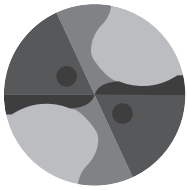


1938 — TAPS
No. 1 Market Share in Japan
No. 1 Market Share Worldwide
(approximately 30%)



1965 — HSS END MILLS
No. 1 Market Share in Japan

1975 — CARBIDE END MILLS
No. 1 Market Share in Japan

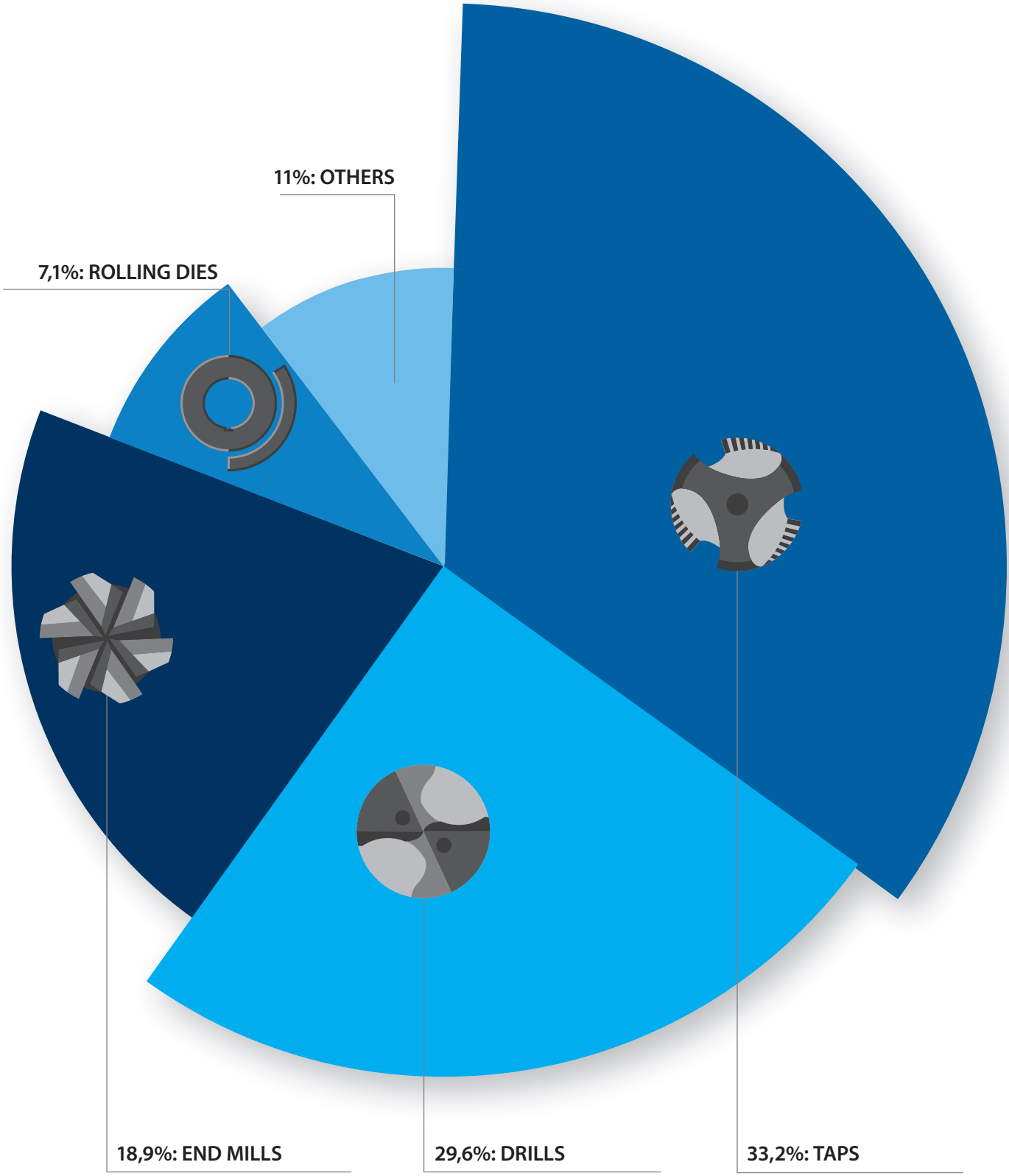


1980 — DRILLS
No. 2 Market Share in Japan

NET SALES BY PRODUCT

OSG enjoys high market share globally in four of its core product offering - taps, rolling dies, drills and end mills.

FY2023 Consolidated Results
Internal Data



ABSOLUTE QUALITY CONTROL

OSG maintains absolute control over every aspect of our manufacturing capabilities. OSG products are produced in-house – from the production of tool material, creation of tool geometry, to the development of our own proprietary coatings – the vital elements in the manufacturing of superior cutting tools.

TOOL GEOMETRY

Attribute for strength and performance

Provider: OSG Design Centre & Global Technology Centre

TOOL MATERIAL

Attribute for hardness and toughness

Provider: Nihon Hard Material



TOOL COATING

Attribute for heat and wear resistance

Provider: OSG Coating Service (OCS)

The A-Brand

The A Brand is OSG's premium tooling brand. With a commitment to only the best, the A Brand emanates innovations essential for shaping the future of global manufacturing.





A-SERIES TAPS



AT-1 - One pass thread mill
AT-2 - Thread mill for hardness steels
A-SFT & A-POT - High efficient multi-purpose tap
A-CSF & A-CHT - Carbide tap
XPF - X performer forming tap

A-SERIES DRILLS



ADF - Carbide flat drill
AD & ADO - Carbide drill
ADO-SUS - Carbide drill for stainless steel & Titanium alloy
ADO-TRS - 3-flute carbide drill
ADO-MICRO - Micro carbide drill

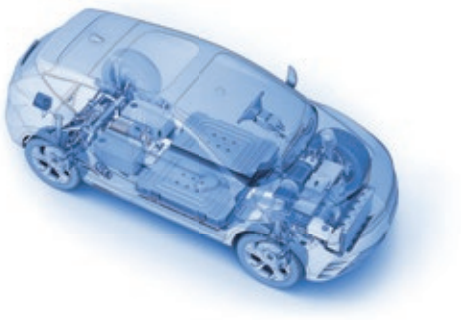
A-SERIES END MILLS



AE-VM series - Anti-vibration carbide end mill
AE-N series - Carbide end mill for Non-ferrous materials
AE-H series - Carbide end mill for hardness materials

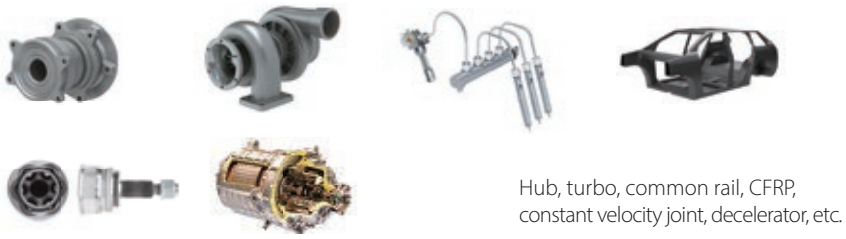
BUSINESS DOMAINS

OSG has traditionally maintained a powerful marketing presence in manufacturing industries including automotive, aerospace and mold & die. OSG also supplies products to energy-related industries including the shipbuilding industry, construction equipment industry, as well as to the manufacturers of precision equipment, such as medical devices.



AUTOMOTIVE

OSG not only supplies powerful cutting tools for the automotive industry, but also provides tailored application solutions to facilitate better processing with higher efficiency and longer durability.



Hub, turbo, common rail, CFRP, constant velocity joint, decelerator, etc.

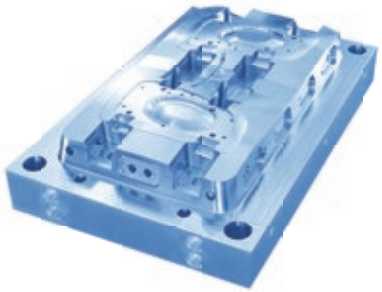


MEDICAL

OSG's cutting tools are able to achieve high precision and accuracy in the machining of titanium alloy, cobalt-chrome and stainless steel, all of which are common materials used in the processing of medical equipment components.







DIE / MOLD

In mold and die manufacturing, a part's quality is highly correlated to the performance of the overall product. OSG's end mills supply speed with size variations and unrivalled quality even for the most complicated mold production.



Work samples

AEROSPACE

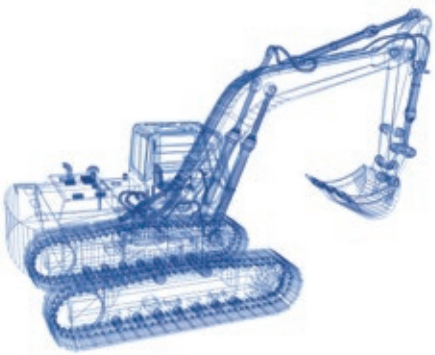


The aerospace industry's mission is to manufacture more environmentally progressive, longer-range and faster aircrafts that require lower operating costs. OSG's cutting tools share the same mission.



Wing rib, fitting, CFRP, etc.

HEAVY INDUSTRY

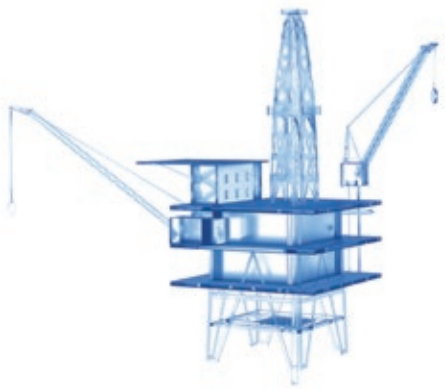


OSG offers large diameter tooling for the machining of big components, common in the heavy industry such as shipbuilding and construction machinery. OSG has developed a spectrum of products designated for various materials and sizes to help manufacturers achieve the best possible result.



Hydraulic control valve, slewing bearing, engine, etc.

ENERGY



The energy industry provides fuel necessary for our daily lives and requires precision machining of large parts and difficult-to-machine materials that can withstand various hostile conditions. OSG offers optimized cutting tool solutions for the most demanding requirements of power generation metal cutting.



Turbine rotor, turbine blade, turning circuit, etc.

THREADING



ICONS LEGEND

Thread type

M	Metric	G	G	EG UNJC	HELICOIL UNJC	EG M	HELICOIL M
UN	UN	Pg	PG	BSF	BSF	EG UNJF	HELICOIL UNJF
UNJC	UNJC	MF	Metric fine	Rc (PT)	Rc (PT)	BA	BA
EG MJ	HELICOIL MJ	UNF	UNF	UNC	UNC	NPSF	NPSF
NPT	NPT	BSW	BSW	UNJF	UNJF	MJ	MJ

Tool material

CARBIDE	Carbide	HSS-Co	HSS Cobalt (Co8)	XPM	High grade powder metallurgy HSS (XPM) (Co10+V5)
HSSE	High Vanadium HSS-EV3	PM	Powder metallurgy HSS (PM-T15) (Co5 + V5)	HSS	HSS

Coating / surface treatment

CrN	Chromium nitride	HR	Coating HR	NI-OX	Nitride Oxide	OX	Steam oxide
WX	Multilayer composite TiAlN	SC	Smooth coating	V	Multilayer coating TiCN	TiN	Coating TiN
DLC-IGUSS	DLC IGUSS coating	DUROREY	DUROREY coating	WXS	Multilayer coating WXS	VI	VI coating
EgiAs	EgiAs coating	AlCrN	AlCrN coating				

Helix angle

30°	Helix angle

Tool tolerance

ISO 2 6H	Tool tolerance	6H +0.1	Oversized +0,1 mm thread tolerance

Chamfer length

A/6	Form A (6 pitch)	B/5	Form B (5 pitch)	C/3	Form C (3 pitch)
D/5	Form D (5 pitch)	E/1,5	Form E (1,5 pitch)	8 THDS	8 pitch

ICONS LEGEND

Shank

h7 — Shank diameter tolerance

SHRINK FIT — Suitable for Shrink fit system

DIN 376 — Straight shank

DIN 371 — Reinforced shank

HB — Weldon shank

Hole specification / thread depth

For blind holes

For through holes

<1,5D — Threading depth

For blind holes - helicoil

For through holes - helicoil

Standard DIN

DIN 371 — Standard DIN

LH — Left-hand threads

Coolant

Centre through

Side through

Recommendation

P ◉ — Steel
Full recommendation

M ◉ — Stainless steel
Full recommendation

K ◉ — Cast iron
Full recommendation

P ○ — Steel
Suitable

M ○ — Stainless steel
Suitable

K ○ — Cast iron
Suitable

N ◉ — Non-ferrous materials
Full recommendation

S ◉ — Super alloys
Full recommendation

H ◉ — Hardened material
Full recommendation

N ○ — Non-ferrous materials
Suitable

S ○ — Super alloys
Suitable

H ○ — Hardened material
Suitable

A-Brand

A — A-Brand product

Page reference

Cutting conditions page reference

Product group

Cutting taps

Thread mills

Gauges

Forming taps

Round dies

Synchrofit

MATERIAL OVERVIEW

Threading | Overview DIN ISO 513

		Work Material	DIN
P	C: ≤0,2%	Low carbon steel	**1.0116** (S235J2G3) **1.0401** (C15)
	C: 0,25-0,45%	Medium carbon steel	**1.0501** (C35)
	C: ≥0,45%	High carbon steel	**1.0535** (C55) **1.0553** (S355J0)
	SCM	Alloy steel	**1.7225** (42CrMo4)
M	INOX	Stainless steel	**1.4301** (X5CrNi18-10)
K	GG	Cast iron	**0.6025** (EN-GJL-250/GG25)
	GGG	Ductile cast iron	**0.7040** (EN-GJS-400-15/GGG-40)
N	Al	Aluminium	**3.0205** (Al99)
	AC, ADC	Cast aluminium alloys	**3.2581** (G-AlSi12)
S	Ti	Titanium	**3.7164** (Ti6Al4V)
	Ni	Nickel alloys	**2.4816** (NiCr15Fe/Inconel® 600)
H	25-35HRC	Hardened steel	
	35-45HRC		
	45-52HRC		
	52-62HRC		

CFRP	CFRP
Honeycomb	Honeycomb
Graphite	Graphite

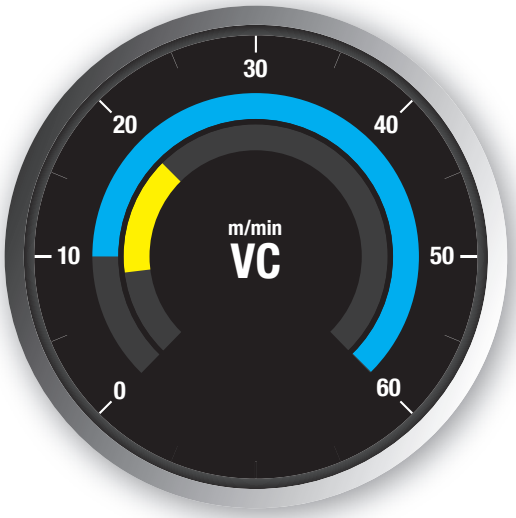
High-performance & Low-carbon Forming Tap

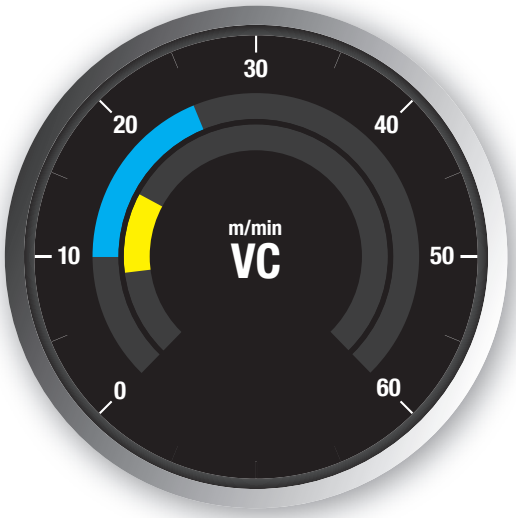
GREEN TAP



GRT

High-performance &
Low-carbon Forming Tap





A V PM

A-TAP Series



First choice in quality and performance

Powder metal cutting tap

Multilayer V coating: extreme wear resistance

High speed tapping in general steels, aluminium, stainless steels

	M A.114	MF A.173	UNC A.199	UNF A.205	BSW A.230	BSF A.232	
BA A.234	G A.237	Rc (PT) A.247	Rc (ISO) A.247	Rp A.248	NPSF A.249	NPT A.249	

M A.97	MF A.168	UNC A.197	UNF A.204	BSW A.229	BSF A.231	
BA A.233	G A.235					

OX HSSE

S-TAP Series



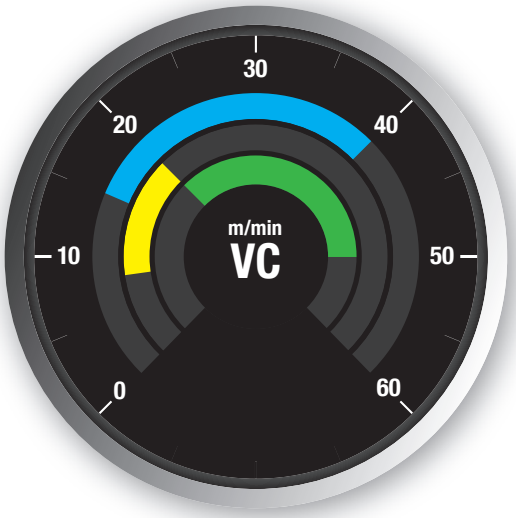
HSSE cutting tap

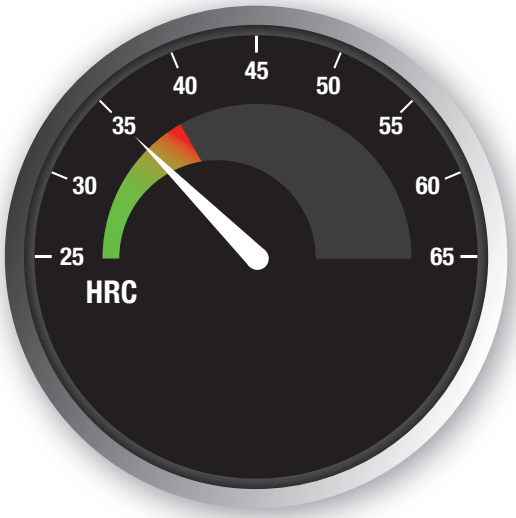
Steam oxide treatment

General purpose tapping in steels and stainless steels

M A.121	MF A.178	UNC A.199	UNF A.206	BSW A.231	BSF A.233	
BA A.235	G A.238	Rc (PT) A.248				

M A.101	MF A.170	UNC A.198	UNF A.204	BSW A.230	BSF A.232	
BA A.234	G A.236					





A | VI | PM

A-XPF Series

First choice in quality and performance

Powder metal forming tap for through and blind holes

VI coating: extreme wear resistance

High speed tapping in general steels, aluminium, stainless steels



M A.149 | MF A.187 | G A.242

A | V | HSS-Co

S-XPF Series

First choice in quality and performance

HSSE forming tap for through and blind holes

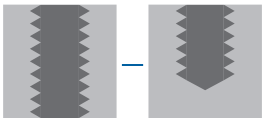
Multilayer V coating: extreme wear resistance

For general steels, stainless steels, aluminium

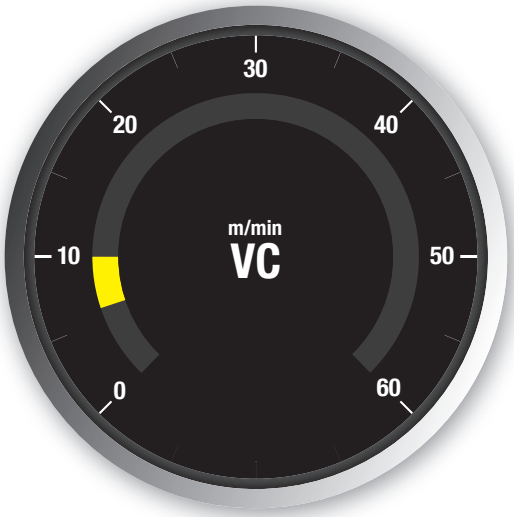


M A.152 | MF A.189 | UNC A.203 | UNF A.208 | G A.244

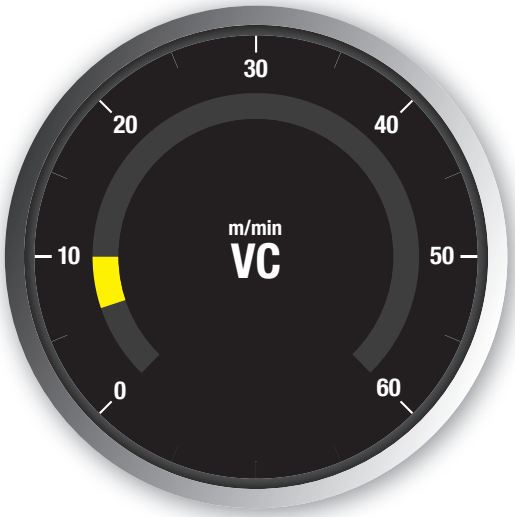




304 ▪ 304L ▪ 410 ▪ 430



316 ▪ 316L ▪ 17-4PH ▪ Super Duplex





A V PM

A-TAP Series

First choice in quality and performance

Powder metal cutting tap

Multilayer V coating: extreme wear resistance

High speed tapping in general steels, aluminium, stainless steels





M A.114 | MF A.173 | UNC A.199 | UNF A.205 | BSW A.230 | BSF A.232

BA A.234 | G A.237 | Rc (PT) A.247 | Rc (ISO) A.247 | Rp A.248 | NPSF A.249 | NPT A.249



M A.97 | MF A.168 | UNC A.197 | UNF A.204 | BSW A.229 | BSF A.231

BA A.233 | G A.235

TiN PM

M-SFT-DUPLEX

Powder metal cutting tap

TiN coating

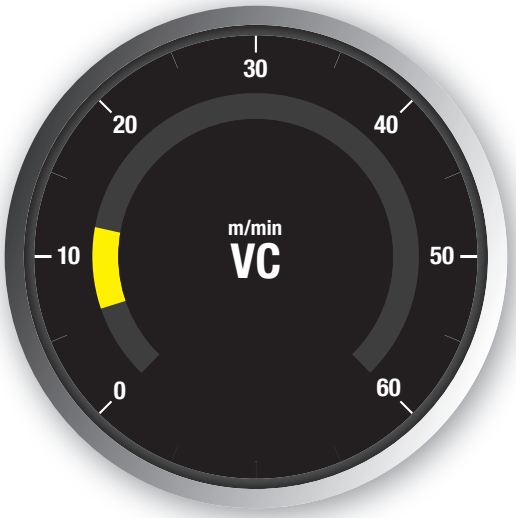
For stainless steels, DUPLEX and SUPER DUPLEX

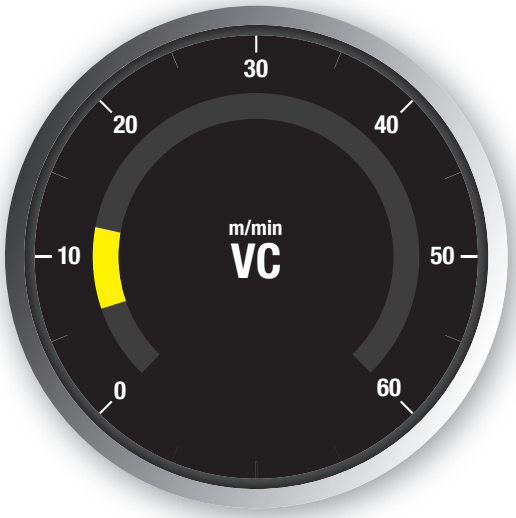
Variable helix for better chip evacuation



M A.132 | MF A.181 | UNC A.201 | UNF A.207

UNJC A.214 | UNJF A.219 | UN A.201 | G A.240





AlCrN PM

VA-XPF Series

Powder metal forming tap for through and blind holes

AlCrN coating

For general steel, stainless steels and aluminum

For higher-strength materials



M A.163 MF A.196 G A.246

TiN PM

M-NRT Series

Powder metal forming tap for through and blind holes

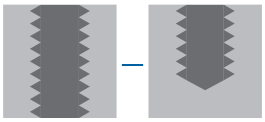
TiN coating

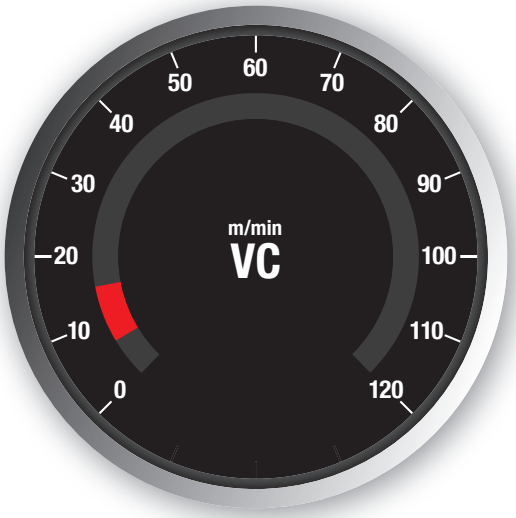
For stainless steels and aluminium

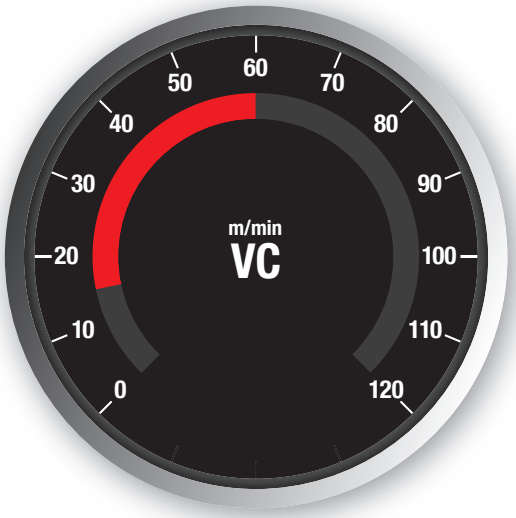


M A.166 MF A.197 G A.246











NI-OX HSSE

GG-MT

HSSE straight flute cutting tap for blind and through holes

NiOx coating

For cast iron



M MF G

A.145 A.187 A.241

V PM

VP-DC

Powder metal straight flute cutting tap for through and blind holes

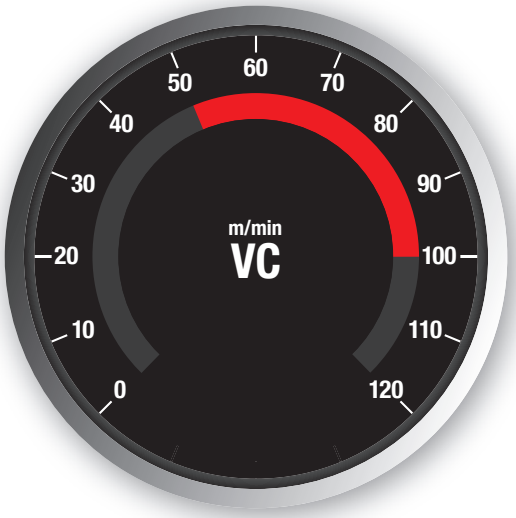
Multilayer V coating

For cast iron and aluminium cast



M MF UNC UNF G

A.141 A.184 A.202 A.207 A.241



A FX CARBIDE

A-CHT



First choice in quality and performance

Carbide straight flute cutting tap for through and blind holes

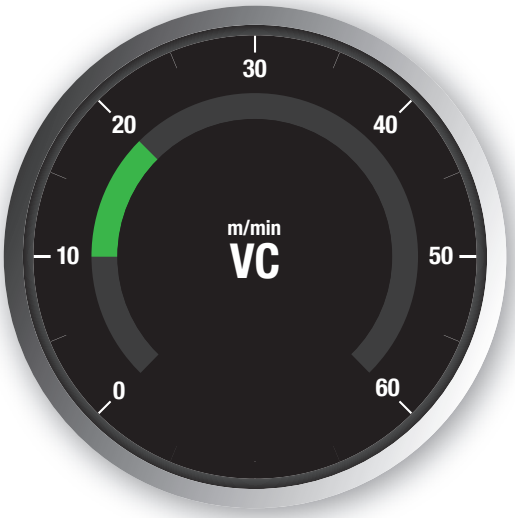
TiAlN coating

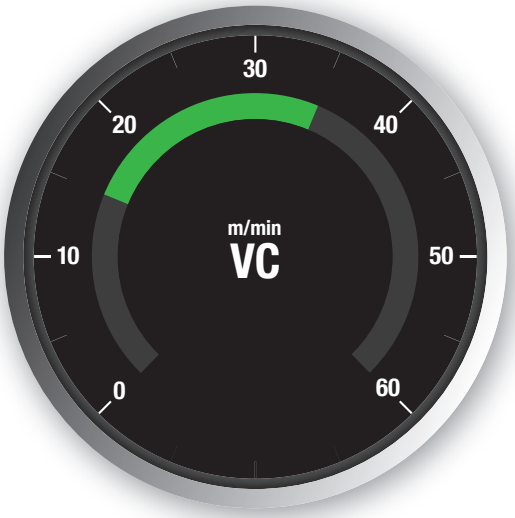
For cast iron and aluminium cast

Centre through or side through coolant

M MF

A.143 A.185





HSSE

AL Series

HSSE cutting tap

Bright finish

For aluminium and cast aluminium



M A.136 | MF A.183

M A.110

CrN HSSE

CC Series

HSSE cutting tap

CrN coating

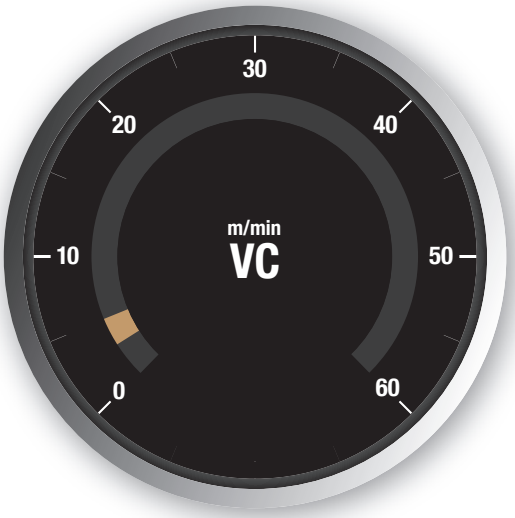
For general steels, stainless steels and aluminium

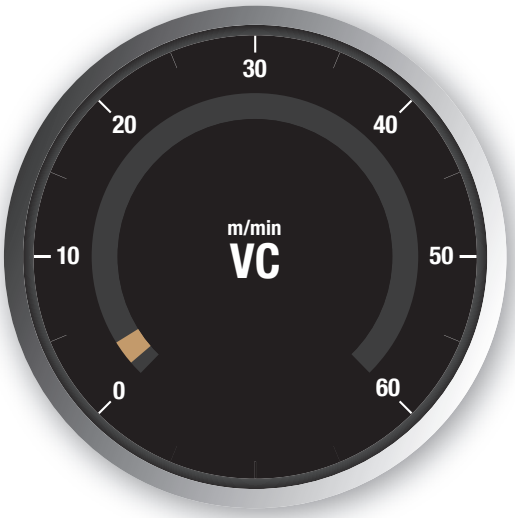
Developed for rigid tapping on CNC machines



M A.133 | MF A.182 | UNJC A.213 | UNJF A.220 | EG M A.222 | EG UNJF A.228 | G A.240

M A.108 | MF A.172





V PM

V-TI Series

Powder metal low spiral-fluted cutting tap for blind holes

Multilayer V coating

For Titanium alloys



M MJ UNJC UNJF

A.137 A.210 A.214 A.220

M UNJC UNJF

A.110 A.211 A.217

HR PM

WHR-NI Series

Powder metal low spiral-fluted cutting tap for blind holes

HR coating

For Nickel-based alloys including Inconel 718

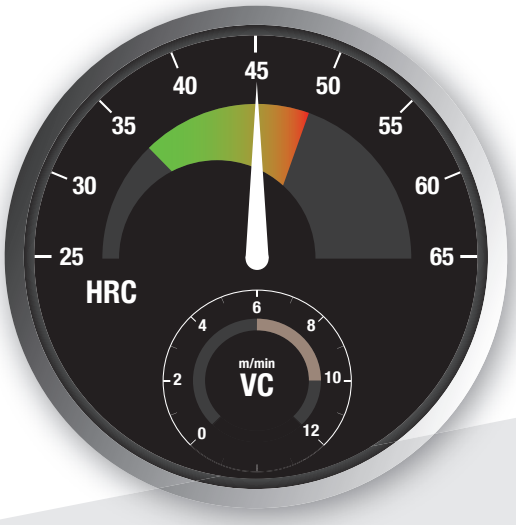


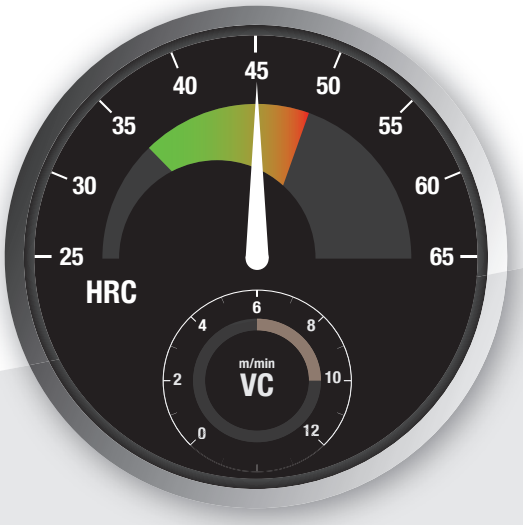
M UNJC UNJF

A.138 A.215 A.221

M UNJC UNJF

A.111 A.212 A.218





OX PM

H-TAP

Powder metal low spiral-fluted cutting tap for blind holes

Steam oxide treatment

For hardened steels up to **45 HRC**



M A.139 | MF A.183 | UNJC A.216 | UNJF A.222

EG MJ A.224 | EG UNJC A.226 | EG UNJF A.229

M A.112 | MF A.173 | UNJC A.212 | UNJF A.218

EG MJ A.223 | EG UNJC A.225 | EG UNJF A.227

V PM

VP-H

Powder metal low spiral-fluted cutting tap for blind holes

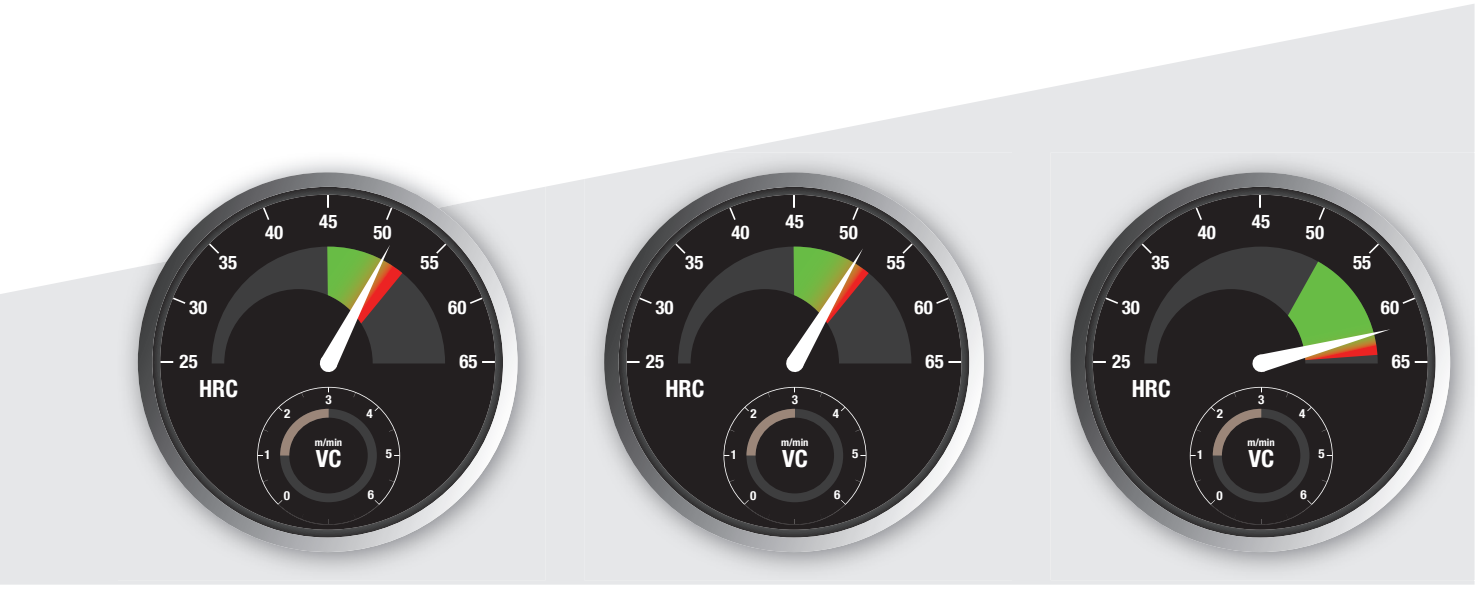
Multilayer V coating

For hardened steels up to **45 HRC**



M A.139

M A.113



V XPM

V-XPM-HT



Powder metal straight flute cutting tap for through and blind holes

Multilayer V coating

For hardened steels up to **52 HRC**

M

A.146

V CARBIDE

WH55-OT



Carbide straight flute cutting tap for through and blind holes

Multilayer V coating

For hardened steels up to **55 HRC**

M

A.147

V CARBIDE

VX-OT



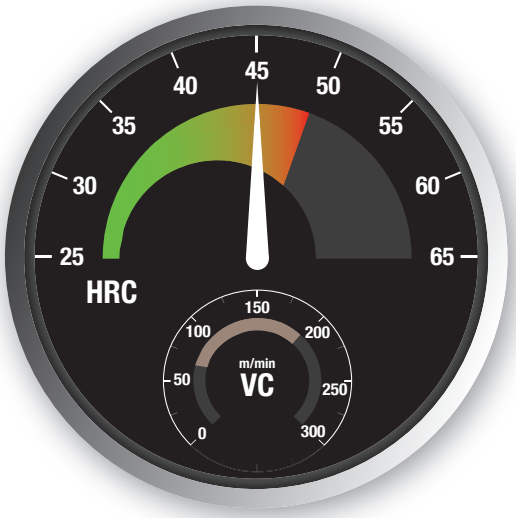
Carbide straight flute cutting tap for through and blind holes

Multilayer V coating

For hardened steels up to **62 HRC**

M G

A.148 A.242



A EgiAs CARBIDE

AT-1

First choice in quality and performance

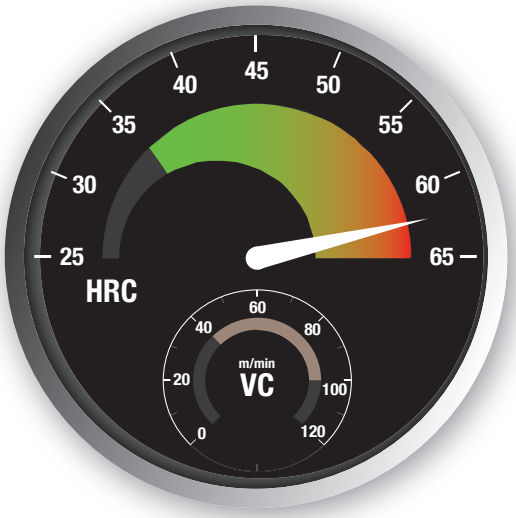
One pass thread mill

EgiAs coating

Variable helix and unequal spacing



M	MF	MJ	UNC	UNJC
A.254	A.254	A.254	A.258	A.258
UNF	UNJF	R (PT)	Rc (PT)	Rp (PS)
A.258	A.258	A.262	A.262	A.263
G (PF)	NPT			
A.263	A.264			



A DUROREY CARBIDE

AT-2

First choice in quality and performance

Thread mill with end-cutting edge for high hardness steels

DUROREY coating

Up to 65HRC



M A.254 | UNC A.259 | UNJC A.259 | UNF A.259 | UNJF A.259

Rc (PT) A.262 | NPT A.264

SELECTION CHART

Threading | Selection chart | By material

Threading | Cutting taps | Through hole

			Tolerance			A-Brand	Product series	M	MF	UNC	UNF	UN	MJ	UNJC	UNJF	EG-M	EG-MJ	EG-UNJC
-		FORM B	6HX	PM	-	V	A	A-POT	A.97	A.168	A.197	A.204						
-		FORM B	6HX	PM		V	A	A-OIL-POT	A.97	A.169								
-		FORM B	**6GX**	PM	-	V	A	A-POT 6GX	A.98	A.169								
-		FORM B	**7GX**	PM	-	V	A	A-POT 7GX	A.98									
-		FORM B	**6H +0.1**	PM	-	V	A	A-POT +0.1	A.99									
-		FORM B	6HX	PM	-	V	A	A-LT-POT	A.99									
-		FORM B	6HX	PM	-	V	A	A-POT-LH	A.100									
-		FORM B	6HX	PM	-	V	A	A-POT-HB Weldon	A.100									
-		FORM B	6H	HSSE	-	OX		S-POT	A.101	A.170	A.198	A.204						
-		FORM B	**6G**	HSSE	-	OX		S-POT 6G	A.101	A.170								
-		FORM B	**7G**	HSSE	-	OX		S-POT 7G	A.102									
-		FORM B	**6H +0.1**	HSSE	-	OX		S-POT +0.1	A.102									
-		FORM B	6H	HSSE	-	OX		S-LT-POT	A.103									
-		FORM B	6H	HSSE	-	OX		S-POT-LH	A.103									
-		FORM B	6H	HSSE	-	OX		S-POT-HB Weldon	A.104									
-		FORM B	6H	HSSE	-	OX		VA-POT	A.104	A.171	A.198	A.205			A.210	A.216			
-		FORM B	**6G**	HSSE	-	OX		VA-POT 6G	A.105									
-		FORM B	6HX	PM	-	V		Z-POT	A.105	A.171								
-		FORM B	6HX	PM		V		Z-OIL-POT	A.106									
-		FORM B	6H	HSSE	-	-		POT	A.106	A.172								
-		FORM B	6H	HSSE	-	TiN		TIN-POT	A.107									
-		FORM B	6H	HSSE	-	V		TICN-POT	A.108									
-		FORM B	6HX	HSSE	-	CrN		CC-POT	A.108	A.172								
-		FORM B	6HX	HSSE	-	CrN		CC-LT-POT	A.109									
-		FORM A	6H	HSSE	-	TiN		HS-RFT-TIN	A.109									
-		FORM B	6H	HSSE	-	-		AL-POT	A.110									
-		FORM B	6H	PM	-	V		V-TI-POT	A.110						A.211	A.217		
-		FORM B	6H	PM	-	-		E-(HL)-POT	A.111						A.211	A.217	A.223	A.225
-		FORM B	6HX	PM	-	HR		WHR-NI-POT	A.111						A.212	A.218		
-		FORM B	6H	PM	-	-		CPM-POT	A.112									
-		FORM B	6H	PM	-	OX		H-(HL)-POT	A.112	A.173					A.212	A.218	A.223	A.225
-		FORM B	6HX	PM	-	V		VP-H-POT	A.113									
-		FORM B	6HX	PM		V		VPO-H-POT	A.113									

EG-UNJF	BSW	BSF	BA	G	Rc	NPSF	NPT	PG	P				M	K		N		S		H			
									C <0,2%	0,25 < C <0,4	0,25<C <0,4	SCM	INOX	GG	GGG	Al	AC,ADC	Ti	Ni	25-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
	A.229	A.231	A.233	A.235					15-60	15-60	10-60	8-30	8-20			15-35	15-35	5-10		8-20			
									15-60	15-60	10-60	8-30	8-20			15-35	15-35	5-10		8-20			
									15-60	15-60	10-60	8-30	8-20			15-35	15-35	5-10		8-20			
									15-60	15-60	10-60	8-30	8-20			15-35	15-35	5-10		8-20			
									15-60	15-60	10-60	8-30	8-20			15-35	15-35	5-10		8-20			
									15-60	15-60	10-60	8-30	8-20			15-35	15-35	5-10		8-20			
									15-60	15-60	10-60	8-30	8-20			15-35	15-35	5-10		8-20			
									15-60	15-60	10-60	8-30	8-20			15-35	15-35	5-10		8-20			
	A.230	A.232	A.234	A.236					15-24	10-15	10-15	8-13	8-16		10-15								
									15-24	10-15	10-15	8-13	8-16		10-15								
									15-24	10-15	10-15	8-13	8-16		10-15								
									15-24	10-15	10-15	8-13	8-16		10-15								
									15-24	10-15	10-15	8-13	8-16		10-15								
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									15-24	10-15	10-15	8-13	8-16		10-15								
									15-24	15-24	15-24	8-20	8-20			20-40	20-40	10-15		8-15			
									15-24	15-24	15-24	8-20	8-20			20-40	20-40	10-15		8-15			
				A.236					12-20	8-12	8-12	8-12			8-12	15-25	15-20						
									15-24	10-15	10-15	8-13	8-16		10-15	15-25	15-20						
									15-24	10-15	10-15	8-13	8-16		10-15	15-25	15-20						
									15-25	15-25	10-25	10-25	6-15			20-40							
									15-25	15-25	10-25	10-25	6-15			20-40							
									27-32	27-32	22-27	22-27	15-20			50-100	40-100						
																15-25	15-20						
																		4-6					
A.227																			2-4				
																			2-4				
											8-13				10-15					6-10	6-10		
A.227											8-13				10-15			4-6	2-4	6-10	6-10		
											8-13				10-15			4-6	2-4	6-10	6-10		
											8-13				10-15			4-6	2-4	6-10	6-10		

SELECTION CHART

Threading | Cutting taps | Blind Hole

			Tolerance				A-Brand	Product series	M	MF	UNC	UNF	UN	MJ	UNJC	UNJF	EG-M	EG-MJ	EG-UNJC
	-	FORM C	6HX	PM	-	V	A	A-SFT	A.114	A.173	A.199	A.205							
	-	FORM C	6HX	PM		V	A	A-OIL-SFT	A.114	A.174									
	-	FORM C	**6GX**	PM	-	V	A	A-SFT 6GX	A.115	A.174									
	-	FORM C	**7GX**	PM	-	V	A	A-SFT 7GX	A.115										
	-	FORM C	**6H +0.1**	PM	-	V	A	A-SFT +0.1	A.116										
	-	**FORM E**	6HX	PM	-	V	A	A-SFT FORM E	A.116	A.175									
	-	FORM C	6HX	PM	-	V	A	A-LT-SFT	A.117										
	-	FORM C	6HX	PM	-	V	A	A-SFT-LH	A.117										
	-	FORM C	6HX	PM	-	V	A	A-SFT-HB Weldon	A.118										
	-	FORM C	6HX	PM	-	VI	A	A-SFT-INOX **NEW**	A.118	A.175									
	-	FORM C	6HX	PM	-	V	A	A-SFT-AL **NEW**	A.119	A.176									
	-	**FORM E**	6HX	PM	-	V	A	A-SFT-AL FORM E **NEW**	A.119	A.176									
	-	FORM C	6HX	CAR-BIDE		FX	A	A-CSF OIL	A.120	A.177									
	-	**FORM E**	6HX	CAR-BIDE		FX	A	A-CSF OIL FORM E	A.120	A.177									
	-	FORM C	6H	HSSE	-	0X		S-SFT	A.121	A.178	A.199	A.206							
	-	FORM C	**6G**	HSSE	-	0X		S-SFT 6G	A.121	A.178									
	-	FORM C	**7G**	HSSE	-	0X		S-SFT 7G	A.122										
	-	FORM C	**6H +0.1**	HSSE	-	0X		S-SFT +0.1	A.122										
	-	**FORM E**	6H	HSSE	-	0X		S-SFT FORM E	A.123	A.179									
	-	FORM C	6H	HSSE	-	0X		S-LT-SFT	A.123										
	-	FORM C	6H	HSSE	-	0X		S-SFT-LH	A.124										
	-	FORM C	6H	HSSE	-	0X		S-SFT-HB Weldon	A.124										
	-	FORM C	6H	HSSE	-	0X		VA-SFT	A.125	A.179	A.200	A.206				A.213	A.219		
	-	FORM C	**6G**	HSSE	-	0X		VA-SFT 6G	A.125										
	-	**FORM E**	6H	HSSE	-	0X		VA-SFT FORM E	A.126										
	-	FORM C	6H	PM	-	V		Z-SFT	A.126	A.180									
	-	FORM C	6H	PM		V		Z-OIL-SFT	A.127										
	-	FORM C	6H	HSSE	-	-		SFT	A.127	A.180									
	-	FORM C	6H	HSSE	-	TiN		TIN-SFT	A.128										
	-	FORM C	6H	HSSE	-	V		TICN-SFT	A.129										
	-	FORM C	6HX	HSSE	-	0X		HXL-SFT	A.129		A.200								
	-	FORM C	6HX	HSSE		0X		OIL-HXL-SFT	A.130										
	-	FORM C	6HX	HSSE	-	0X		VXL-SFT	A.130		A.201								
	-	FORM C	6HX	HSSE		0X		OIL-VXL-SFT	A.131										

EG-UNJF	BSW	BSF	BA	G	Rc	Rp	NPSF	NPT	P				M	K		N		S				H	
																				INCONEL 625	TI GR.2	25-35 HRC	35-45 HRC
	A.230	A.232	A.234	A.237	A.247			A.249	15-60	15-60	10-60	8-30	8-20			15-35	15-35	5-10				8-20	
									15-60	15-60	10-60	8-30	8-20			15-35	15-35	5-10				8-20	
									15-60	15-60	10-60	8-30	8-20			15-35	15-35	5-10				8-20	
									15-60	15-60	10-60	8-30	8-20			15-35	15-35	5-10				8-20	
									15-60	15-60	10-60	8-30	8-20			15-35	15-35	5-10				8-20	
						A.248	A.249		15-60	15-60	10-60	8-30	8-20			15-35	15-35	5-10				8-20	
									15-60	15-60	10-60	8-30	8-20			15-35	15-35	5-10				8-20	
									15-60	15-60	10-60	8-30	8-20			15-35	15-35	5-10				8-20	
									15-60	15-60	10-60	8-30	8-20			15-35	15-35	5-10				8-20	
				A.237					5-20	5-50	5-50	5-30	5-15			5-50							
																	5-50						
																	5-30						
														10-100	10-100		10-100						
														10-100	10-100		10-100						
	A.231	A.233	A.235	A.238					10-15	8-14	8-14	7-11	7-12		7-14								
									10-15	8-14	8-14	7-11	7-12		7-14								
									10-15	8-14	8-14	7-11	7-12		7-14								
									10-15	8-14	8-14	7-11	7-12		7-14								
									10-15	8-14	8-14	7-11	7-12		7-14								
									10-15	8-14	8-14	7-11	7-12		7-14								
									10-15	8-14	8-14	7-11	7-12		7-14								
									10-15	8-14	8-14	7-11	7-12		7-14								
									10-15	8-14	8-14	7-11	7-12		7-14								
				A.238					10-15	8-14	8-14	7-11	7-12		7-14								
									10-15	8-14	8-14	7-11	7-12		7-14								
									10-15	8-14	8-14	7-11	7-12		7-14								
									10-25	10-25	10-25	8-20	8-20			15-35	15-35	5-10				8-15	
									10-25	10-25	10-25	8-20	8-20			15-35	15-35	5-10				8-15	
				A.239					8-13	7-12	7-12	6-9			6-8	10-20	10-15						
									8-13	7-12	7-12	6-9	5-8		7-12	10-20	10-15						
									8-13	7-12	7-12	6-9	5-8		7-12	10-20	10-15						
									8-13	7-12	7-12	6-9	5-8	7-12	7-12							3-5	
									8-13	7-12	7-12	6-9	5-8	7-12	7-12							3-5	
									8-13	7-12	7-12	6-9	5-8									3-5	
									8-13	7-12	7-12	6-9	5-8									3-5	

SELECTION CHART

Threading | Cutting taps | Blind Hole

			Tolerance				A-Brand	Product series	M	MF	UNC	UNF	UN	MJ	UNJC	UNJF	EG-M	EG-MJ	EG-UNJC
	-	FORM C	6H	HSSE	-	-		SH-SFT	A.131										
	-	FORM C	6HX	PM	-	TiN		M-SFT-DUPLEX	A.132	A.181	A.201	A.207	A.201		A.214	A.219			
	-	FORM C	6HX	PM		TiN		M-OIL-SFT-DUPLEX	A.132	A.181									
	-	FORM C	6HX	PM	-	TiN		M-LT-SFT-DUPLEX	A.133										
	-	FORM C	6HX	HSSE	-	CrN		CC-(HL)-SFT	A.133	A.182					A.213	A.220	A.222		
	-	FORM C	6HX	HSSE	-	CrN		CC-LT-SFT	A.134										
	-	FORM C	6HX	HSSE	-	TiN		CC-NEO-SFT	A.134					A.209					
	-	FORM C	6HX	HSSE	-	OX		SUS-SFT	A.135	A.182									
	-	FORM C	6H	HSSE	-	TiN		HS-SFT-TIN	A.135										
	-	FORM C	6H	HSSE	-	-		AL-SFT	A.136	A.183									
	-	FORM C	6H	HSSE	-	V		US-AL-SFT	A.136										
	-	FORM C	6H	PM	-	V		V-TI-SFT	A.137					A.210	A.214	A.220			
	-	FORM C	6H	PM	-	-		E-(HL)-SFT	A.137						A.215	A.221		A.224	A.226
	-	FORM C	6HX	PM	-	HR		WHR-NI-SFT	A.138						A.215	A.221			
	-	FORM C	6H	PM	-	-		CPM-SFT	A.138										
	-	FORM C	6H	PM	-	OX		H-(HL)-SFT	A.139	A.183					A.216	A.222		A.224	A.226
	-	FORM C	6HX	PM	-	V		VP-H-SFT	A.139										
	-	FORM C	6HX	PM		V		VPO-H-SFT	A.140										
	-	FORM C	6H	HSSE		V		V-EM-SFT	A.140										

EG-UNJF	BSW	BSF	BA	G	Rc	NPSF	NPT	PG	P				M	K		N		S					H	
									C <0,2%	0,25 < C <0,4	0,25<C <0,4	SCM	INOX	GG	GGG	Al	AC,ADC	Ti	Ni	INCONEL 625	TI GR.2	25-35 HRC	35-45 HRC
				A.239						7-12	7-12	6-9		7-12	6-8		10-15						
				A.240									3-15							2-3	3-6		
													3-15							2-3	3-6		
													3-15							2-3	3-6		
A.228				A.240					15-25	15-25	10-25	10-25	6-10			15-35							
									15-25	15-25	10-25	10-25	6-10			15-35							
									15-25	15-25	10-25	10-25	6-10			15-35							
													6-10										
									27-32	27-32	22-27	22-27	15-20			50-100	40-100						
																10-20	10-15						
																100-400	100-400						
																		3-5					
A.228																			1-3				
																			1-3				
											7-12	7-12		7-12	7-12							4-8	4-8
A.229											7-12	7-12			7-12			3-5	1-3			4-8	4-8
											7-12	7-12			7-12			3-5	1-3			4-8	4-8
											7-12	7-12			7-12			3-5	1-3			4-8	4-8
																	10-15						

SELECTION CHART

Threading | Selection chart | By material

Threading | Cutting taps | Blind and Through hole

			Tolerance				A-Brand	Product series	M	MF	UNC	UNF	UN	MJ	UNJC	UNJF	EG-M	EG-MJ	EG-UNJC
		FORM C	6HX	PM	-	V		VP-DC-MT	A.141	A.184	A.202	A.207								
		FORM E	6HX	PM	-	V		VP-DC-MT FORM E	A.141										
	-	FORM C	6HX	PM		V		VPO-DC-MT Center	A.142	A.184									
-		FORM C	6HX	PM		V		VPO-DC-MT Side	A.142	A.185									
	-	**FORM E**	6HX	PM		V		VPO-DC-MT FORM E	A.143		A.202	A.208							
	-	FORM C	6HX	CAR-BIDE		FX	A	A-CHT OIL Center	A.143	A.185									
-		FORM C	6HX	CAR-BIDE		FX	A	A-CHT OIL Side	A.144	A.186									
	-	**FORM E**	6HX	CAR-BIDE		FX	A	A-CHT OIL FORM E	A.144	A.186									
		FORM C	6HX	HSSE	-	NI-OX		GG-MT	A.145	A.187									
		FORM C	6HX	HSSE		OX		OIL-TXL-MT	A.145										
		FORM C	6H	HSSE	-	OX		EX-MCT	A.146										
		FORM C	6HX	XPM	-	V		V-XPM-HT	A.146										
-		**FORM D**	6HX	XPM	-	V		V-XPM-HT FORM D	A.147										
		FORM C	6HX	CAR-BIDE	-	V		WH55-OT	A.147										
-		**FORM D**	6HX	CAR-BIDE	-	V		WH55-OT FORM D	A.148										
		FORM C	6HX	CAR-BIDE	-	V		VX-OT	A.148										
		FORM C	-	PM	-	V	A	A-TPT											
		FORM C	-	HSSE	-	OX		S-TPT											
		FORM C	-	HSSE	-	-		NPT											
		FORM C	-	HSSE	-	-		PG											

Threading | Forming taps | Blind and Through hole

		FORM C	6HX	PM	-	VI	A	A-XPF	A.149	A.187									
		FORM C	6HX	PM		V	A	A-OIL-XPF **NEW SIZE**	A.149	A.188									
		FORM C	**6GX**	PM	-	VI	A	A-XPF 6GX **NEW**	A.150	A.188									
		FORM C	**7G**	PM	-	VI	A	A-XPF 7GX **NEW**	A.150										
		FORM E	6HX	PM	-	VI	A	A-XPF FORM E **NEW**	A.151	A.189									
		FORM E	6HX	PM		VI	A	A-OIL-XPF FORM E **NEW**	A.151										
		FORM C	6HX	HSS-Co	-	V	A	S-XPF	A.152	A.189	A.203	A.208							
		FORM C	6HX	HSS-Co		V	A	S-OIL-XPF **NEW SIZE**	A.152	A.190	A.203	A.209							
		FORM C	**6GX**	HSS-Co	-	V	A	S-XPF 6GX	A.153	A.190									
		FORM C	**6GX**	HSS-Co		V	A	S-OIL-XPF 6GX	A.153	A.191									
		FORM C	**7GX**	HSS-Co	-	V	A	S-XPF 7GX	A.154										
		FORM C	**6H +0.1**	HSS-Co	-	V	A	S-XPF +0.1	A.154										
-		**FORM D**	6HX	HSS-Co	-	V	A	S-XPF FORM D	A.155	A.191									
	-	**FORM E**	6HX	HSS-Co	-	V	A	S-XPF FORM E	A.155	A.192									

EG-UNJF	BSW	BSF	BA	G	Rc	NPSF	NPT	PG	P				M	K		N		S		H			
									C <0,2%	0,25 < C <0,4	0,25<C <0,4	SCM	INOX	GG	GGG	Al	AC,ADC	Ti	Ni	25-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
				A.241							10-25	10-20		15-60	15-40		25-70			8-20	8-20		
											10-25	10-20		15-60	15-40		25-70			8-20	8-20		
											10-25	10-20		15-60	15-40		25-70			8-20	8-20		
											10-25	10-20		15-60	15-40		25-70			8-20	8-20		
											10-25	10-20		15-60	15-40		25-70			8-20	8-20		
														10-100	10-100		10-100						
														10-100	10-100		10-100						
														10-100	10-100		10-100						
				A.241										10-15	7-12								
									8-13	7-12	7-12	6-9		10-15	7-12					3-5			
									8-13	7-12	7-12	6-9		10-15	7-12		10-15						
																						1-3	
																						1-3	
																						2-4	1-3
																						2-4	1-3
				A.242																			1-3
					A.247				5-10	5-10	5-10	5-10				5-10	10-15						
					A.248				5-10	5-10	5-10	5-10				5-10	10-15						
							A.250		3-6	3-6	2-5	2-5		2-5	4-8	5-10	10-15						
								A.250	8-13	7-12	6-9				7-12	10-20	10-15						
				A.242					15-40	15-40	15-30	15-30	8-20			20-50	20-40			5-20			
				A.243					15-40	15-40	15-30	15-30	8-20			20-50	20-40			5-20			
									15-40	15-40	15-30	15-30	8-20			20-50	20-40			5-20			
									15-40	15-40	15-30	15-30	8-20			20-50	20-40			5-20			
				A.243					15-40	15-40	15-30	15-30	8-20			20-50	20-40			5-20			
				A.244					15-40	15-40	15-30	15-30	8-20			20-50	20-40			5-20			
				A.244					15-40	15-40	15-30	15-30	8-20			20-50	20-40			5-20			
				A.245					15-40	15-40	15-30	15-30	8-20			20-50	20-40			5-20			
									15-40	15-40	15-30	15-30	8-20			20-50	20-40			5-20			
									15-40	15-40	15-30	15-30	8-20			20-50	20-40			5-20			
									15-40	15-40	15-30	15-30	8-20			20-50	20-40			5-20			
									15-40	15-40	15-30	15-30	8-20			20-50	20-40			5-20			
									15-40	15-40	15-30	15-30	8-20			20-50	20-40			5-20			
									15-40	15-40	15-30	15-30	8-20			20-50	20-40			5-20			

SELECTION CHART

Threading | Forming taps | Blind and Through hole

			Tolerance				A-Brand	Product series	M	MF	UNC	UNF	UN	MJ	UNJC	UNJF	EG-M	EG-MJ	EG-UNJC
		FORM E	6HX	HSS-Co		V	A	S-OIL-XPF FORM E **NEW SIZE**	A.156	A.192									
		FORM C	6HX	HSS-Co	-	V	A	S-LT-XPF	A.156										
		FORM C	6HX	HSS-Co		V	A	S-OIL-LT-XPF	A.157	A.193									
		FORM C	6HX	HSS-Co	-	V	A	S-XPF-LH	A.157										
		FORM C	6HX	HSS-Co	-	V	A	S-XPF-HB Weldon	A.158										
		FORM C	6HX	HSS-Co	-	V	A	S-XPF-GL	A.158	A.193									
		FORM C	**6GX**	HSS-Co	-	V	A	S-XPF-GL 6GX	A.159	A.194									
		FORM C	6HX	PM	-	V		GRT **NEW**	A.159										
		FORM F	6HX	PM	-	V		GRT FORM F **NEW**	A.160										
		FORM C	6HX	CAR-BIDE		EgiAs		P-OIL-CXPF	A.160	A.194									
		FORM C	6HX	CAR-BIDE		V	A	C-OIL-XPF	A.161	A.195									
		FORM C	6HX	HSS-Co	-	V		V-NRT	A.161	A.195									
		FORM C	**6GX**	HSS-Co	-	V		V-NRT 6GX	A.162										
		FORM D	6HX	HSS-Co	-	V		V-NRT FORM D	A.162	A.196									
		FORM D	**6GX**	HSS-Co	-	V		V-NRT 6GX FORM D	A.163										
		FORM C	6HX	PM	-	AlCrN		VA-XPF **NEW**	A.163	A.196									
		FORM C	6HX	PM		AlCrN		VA-OIL-XPF **NEW**	A.164										
		FORM C	**6GX**	PM	-	AlCrN		VA-XPF 6GX **NEW**	A.164										
		FORM E	6HX	PM	-	AlCrN		VA-XPF FORM E **NEW**	A.165										
		FORM E	6HX	PM		AlCrN		VA-OIL-XPF FORM E **NEW**	A.165										
		FORM C	6HX	PM		TiN		M-NRT	A.166	A.197									
		FORM C	6HX	PM		TiN		M-OIL-NRT	A.166										
		FORM C	**6GX**	PM		TiN		M-NRT 6GX	A.167										
		FORM E	6HX	PM		TiN		M-NRT FORM E	A.167										
		FORM E	6HX	PM		TiN		M-OIL-NRT FORM E	A.168										

EG-UNJF	BSW	BSF	BA	G	Rc	NPSF	NPT	PG	P				M	K		N			S		H		
									C <0,2%	0,25 < C <0,4	0,25<C <0,4	SCM	INOX	GG	GGG		Al	AC,ADC	Ti	Ni	25-35 HRC	35-45 HRC	45-50 HRC
									15-40	15-40	15-30	15-30	8-20				20-50	20-40			5-20		
									15-40	15-40	15-30	15-30	8-20				20-50	20-40			5-20		
									15-40	15-40	15-30	15-30	8-20				20-50	20-40			5-20		
									15-40	15-40	15-30	15-30	8-20				20-50	20-40			5-20		
									15-40	15-40	15-30	15-30	8-20				20-50	20-40			5-20		
									15-40	15-40	15-30	15-30	8-20				20-50	20-40			5-20		
									15-40	15-40	15-30	15-30	8-20				20-50	20-40			5-20		
										15-40	15-30	15-30	5-15				20-40	20-40					
										15-40	15-30	15-30	5-15				20-45	20-40					
									15-40	15-40	15-30	15-30				15-30	20-50	20-40			5-20	5-20	5-20
									15-40	15-40	15-30	15-30	8-20				20-50	20-40			5-20	5-20	5-20
									10-15	10-15	10-15	8-12	5-10				10-20	10-20					
									10-15	10-15	10-15	8-12	5-10				10-20	10-20					
									10-15	10-15	10-15	8-12	5-10				10-20	10-20					
									10-15	10-15	10-15	8-12	5-10				10-20	10-20					
				A.246					20-30	20-30	15-30	10-20	6-12				10-25	15-40	1-3				
									20-30	20-30	15-30	10-20	6-12				10-25	15-40	1-3				
									20-30	20-30	15-30	10-20	6-12				10-25	15-40	1-3				
									20-30	20-30	15-30	10-20	6-12				10-25	15-40	1-3				
									20-30	20-30	15-30	10-20	6-12				10-25	15-40	1-3				
				A.246					20-30	20-30	15-30	10-20	6-12				10-25	15-40					
									20-30	20-30	15-30	10-20	6-12				10-25	15-40					
									20-30	20-30	15-30	10-20	6-12				10-25	15-40					
									20-30	20-30	15-30	10-20	6-12				10-25	15-40					
									20-30	20-30	15-30	10-20	6-12				10-25	15-40					

SELECTION CHART

Threading | Thread Mills | Blind and Through hole

			Tolerance			A-Brand	Product series	M	MF	UNJ	UN	UNC	UNF	UNJC	UNJF	EG-MJ	EG-UNJC
		-	-	CARBIDE	-	EgiAs	AT-1	A.254	A.254	A.258		A.258	A.258	A.258	A.258		
		-	-	CARBIDE		DUROREY	AT-2	A.254		A.259		A.259	A.259	A.259	A.259		
		-	-	CARBIDE		DLC-IGUSS	AT-2 R-SPEC	A.255									
		-	-	CARBIDE	-	WXS	WH-EM-PNC	A.255									
		-	-	CARBIDE		WXS	WHO-EM-PNC	A.256									
		-	-	CARBIDE	-	SC	WX-ST-PNC-3P	A.256	A.256								
		-	-	CARBIDE	-	SC	WH-VM-PNC	A.257	A.257	A.259		A.259	A.259	A.259	A.259		
		-	-	CARBIDE	-	WX	WX-PNC	A.257	A.257	A.260		A.260	A.260	A.260	A.260		
		-	-	CARBIDE		WX	WXO-ST-PNC	A.258	A.258								

Rp	BSW	BSF	BA	G	NPSF	Rc	NPSF	NPT	PG	P				M	K		N		S		H			
										C <0,2%	0,25 < C <0,4	0,25<C <0,4	SCM	INOX	GG	GGG	Al	AC,ADC	Ti	Ni	25-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC
A.263						A.262		A.264		80-160	80-160	80-160	60-120	60-120	80-160	60-120	80-160	100-300			80-200	80-200		
						A.262		A.264		35-55	80-160	80-160	60-120	35-100	35-100	35-100	35-100	35-100	35-55	35-55	35-75	35-75	35-65	35-55
																	100-300	100-300						
										35-55	80-160	80-160	60-120	35-100	35-100	35-100	35-100	35-100	35-55	35-55	35-75	35-75	35-65	35-55
										35-55	80-160	80-160	60-120	35-100	35-100	35-100	35-100	35-100	35-55	35-55	35-75	35-75	35-65	35-55
				A.261						60-90	60-90	60-90	30-60	60-90	50-100	50-70	50-100	50-100	20-60	20-60	30-60	30-60	30-60	
										60-90	60-90	60-90	30-60	60-90	50-100	50-70	50-100	50-100	20-60	20-60	30-60	30-60	30-60	
				A.261		A.263		A.265		50-75	50-75	40-70	15-30	20-40	50-100	50-65	50-70	65-130	20-60	20-60	15-30	15-30		
										80-120	80-120	80-120	80-120	40-80	50-100	50-65	50-70	65-130			60-100	60-100		

SELECTION CHART

Threading | Selection chart | By size

M



Product series			A-POT		A-OIL-POT		A-POT 6GX		A-POT 7GX		A-POT +0.1		A-LT-POT		A-POT-LH		A-POT-HB Weldon		S-POT		S-POT 6G		S-POT 7G		S-POT +0.1		S-LT-POT		S-POT-LH		S-POT-HB Weldon		VA-POT	
A-Brand			A		A		A		A		A		A		A		A															
Page			A.97		A.97		A.98		A.98		A.99		A.99		A.100		A.100		A.101		A.101		A.102		A.102		A.103		A.103		A.104		A.104	
Ø	I	Ø	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	-	-	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	-	-	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376
1	0,25	0,75	•																•															
1,1	0,25	0,85	•																•															
1,2	0,25	0,95	•																•															
1,4	0,3	1,1	•																•															
1,6	0,35	1,25	•																•															
1,7	0,35	1,35	•																•															
1,8	0,35	1,45	•																•															
2	0,4	1,6	•				•		•				•						•		•		•				•						•	
2,2	0,45	1,75	•																•														•	
2,3	0,4	1,85	•																•															
2,5	0,45	2,05	•				•		•				•						•		•		•				•						•	
2,6	0,45	2,15	•																•															
3	0,5	2,5	•	•			•		•		•		•		•		•		•	•	•		•		•		•		•		•		•	•
3,5	0,6	2,9	•																•														•	
4	0,7	3,3	•	•			•		•		•		•		•		•		•	•	•		•		•		•		•		•		•	•
4,5	0,75	3,7	•																•															
5	0,8	4,2	•	•			•		•		•		•		•		•		•	•	•		•		•		•		•		•		•	•
5,5	0,9	4,6	•																•															
6	1	5	•	•	•		•		•		•		•	•	•		•		•	•	•		•		•		•	•	•		•		•	•
7	1	6	•	•															•	•														
8	1,25	6,8	•	•	•		•		•		•		•	•	•		•		•	•	•		•		•		•	•	•		•		•	•
9	1,25	7,8	•	•															•	•														
10	1,5	8,5	•	•	•		•		•		•		•	•	•		•		•	•	•		•		•		•	•	•		•		•	•
11	1,5	9,5		•																•														
12	1,75	10,2		•		•		•		•		•		•		•		•		•		•		•		•		•		•		•		•
14	2	12		•		•		•		•		•		•		•		•		•		•		•		•		•		•		•		•
16	2	14		•		•		•		•		•		•		•		•		•		•		•		•		•		•		•		•
18	2,5	15,5		•		•								•		•		•		•		•		•		•		•		•		•		•
20	2,5	17,5		•		•								•		•		•		•		•		•		•		•		•		•		•
22	2,5	19,5		•		•										•		•		•		•		•		•		•		•		•		•
24	3	21		•		•										•		•		•		•		•		•		•		•		•		•
27	3	24																																•
30	3,5	26,5																																•
33	3,5	29,5																																•
36	4	32																																•
39	4	35																																
42	4,5	37,5																																
45	4,5	40,5																																
48	5	43																																
52	5	47																																
56	5,5	50,5																																
Blind / through																																		
			V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	V	OX	OX	OX	OX	OX	OX	OX	OX	OX	OX	OX	OX	OX	OX	OX	OX
			PM	PM	PM	PM	PM	PM	PM	PM	PM	PM	PM	PM	PM	PM	PM	PM	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE
			FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B
Tolerance			6HX	6HX	6HX	6HX	**6GX**	**6GX**	**7GX**	**7GX**	**6H +0.1**	**6H +0.1**	6HX	6HX	6HX	6HX	6HX	6HX	6H	6H	**6G**	**6G**	**7G**	**7G**	**6H +0.1**	**6H +0.1**	6H	6H	6H	6H	6H	6H	6H	6H
P			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
M			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
K																			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
N			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•																
S			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•																
H			•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•																

SELECTION CHART

Threading | Selection chart | By size

M



Product series			VA-POT 6G		Z-POT		Z-OIL-POT		POT		POT D352	TIN-POT		TICN-POT		CC-POT		CC-LT-POT		HS-RFT-TIN		AL-POT		V-TI-POT		E-POT		WHR-NI-POT		CPM-POT	
A-Brand																															
Page			A.105		A.105		A.106		A.106		A.107	A.107		A.108		A.108		A.109		A.109		A.110		A.110		A.111		A.111		A.112	
Ø	I	Ø	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 352	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	-	-	-	-	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376
1	0,25	0,75																													
1,1	0,25	0,85																													
1,2	0,25	0,95																													
1,4	0,3	1,1																													
1,6	0,35	1,25																													
1,7	0,35	1,35																													
1,8	0,35	1,45																													
2	0,4	1,6	•		•				•			•		•		•		•				•									
2,2	0,45	1,75																													
2,3	0,4	1,85																													
2,5	0,45	2,05	•		•				•			•				•		•				•									
2,6	0,45	2,15																													
3	0,5	2,5	•		•	•			•	•	•	•	•	•		•	•	•		•		•		•		•		•		•	
3,5	0,6	2,9							•			•																			
4	0,7	3,3	•		•	•			•	•	•	•	•	•		•	•	•		•		•		•		•		•		•	
4,5	0,75	3,7																													
5	0,8	4,2	•		•	•			•	•	•	•	•	•		•	•	•		•		•		•		•		•		•	
5,5	0,9	4,6																													
6	1	5	•		•	•	•		•	•	•	•	•	•		•	•	•		•		•		•		•		•		•	•
7	1	6																													
8	1,25	6,8	•		•	•	•		•	•	•	•	•	•		•	•	•		•		•		•		•		•		•	•
9	1,25	7,8																													
10	1,5	8,5	•		•	•	•		•	•	•	•	•	•		•	•	•		•		•		•		•		•		•	•
11	1,5	9,5																													
12	1,75	10,2		•		•		•		•			•		•		•	•		•			•		•		•				•
14	2	12		•		•		•		•			•		•		•						•								•
16	2	14		•		•		•		•			•		•		•						•								•
18	2,5	15,5				•		•		•			•		•		•						•								•
20	2,5	17,5				•		•		•			•		•		•						•								•
22	2,5	19,5				•				•			•		•		•														
24	3	21				•				•			•		•		•														
27	3	24				•				•			•				•														
30	3,5	26,5				•				•			•				•														
33	3,5	29,5								•																					
36	4	32								•																					
39	4	35																													
42	4,5	37,5																													
45	4,5	40,5																													
48	5	43																													
52	5	47																													
56	5,5	50,5																													
Blind / through																															
			OX		V		V		-		-	TIN		V		CrN		CrN		TIN		-		V		-		HR		-	
			HSSE		PM		PM		HSSE		HSSE	HSSE		HSSE		HSSE		HSSE		HSSE		HSSE		PM		PM		PM		PM	
			FORM B		FORM B		FORM B		FORM B		FORM B	FORM B		FORM B		FORM B		FORM B		FORM A		FORM B		FORM B		FORM B		FORM B		FORM B	
Tolerance			6G		6HX		6HX		6H		6H	6H		6H		6HX		6HX		6H		6H		6H		6H		6HX		6H	
P			•		•		•		•		•	•		•		•		•		•										•	
M			•		•		•					•		•		•		•		•											
K			•						•		•	•		•																•	
N					•		•		•		•	•		•		•		•		•		•									
S					•		•					•		•										•		•		•			
H					•		•																							•	

SELECTION CHART

Threading | Selection chart | By size

M



Product series			H-POT		VP-H-POT		VPO-H-POT		A-SFT		A-OIL-SFT		A-SFT 6GX		A-SFT 7GX		A-SFT +0.1		A-SFT FORM E		A-LT-SFT		A-SFT-LH		A-SFT-HB Weldon		A-SFT-INOX		A-SFT-AL		A-SFT-AL FORM E		A-CSF OIL	
A-Brand									A		A		A		A		A		A		A		A		A		A		A		A		A	
Page			A.112		A.113		A.113		A.114		A.114		A.115		A.115		A.116		A.116		A.117		A.117		A.118		A.118		A.119		A.119		A.120	
Ø		Ø	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	-	-	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376
1	0,25	0,75							•																									
1,1	0,25	0,85							•																									
1,2	0,25	0,95							•																									
1,4	0,3	1,1							•																									
1,6	0,35	1,25							•																									
1,7	0,35	1,35							•																									
1,8	0,35	1,45							•																									
2	0,4	1,6	•		•				•				•		•				•		•						•		•		•			
2,2	0,45	1,75							•										•								•							
2,3	0,4	1,85							•										•								•							
2,5	0,45	2,05	•		•				•				•		•				•		•						•		•		•			
2,6	0,45	2,15							•										•								•							
3	0,5	2,5	•		•				•	•			•		•		•		•	•	•		•		•		•	•	•		•			
3,5	0,6	2,9							•										•								•							
4	0,7	3,3	•		•				•	•			•		•		•		•	•	•		•		•		•	•	•		•			
4,5	0,75	3,7							•										•								•							
5	0,8	4,2	•		•				•	•			•		•		•		•	•	•		•		•		•	•	•		•		•	
5,5	0,9	4,6							•										•								•							
6	1	5	•		•		•		•	•	•		•		•		•		•	•	•	•	•		•		•	•	•		•		•	
7	1	6							•	•									•	•							•	•						
8	1,25	6,8	•		•		•		•	•	•		•		•		•		•	•	•	•	•		•		•	•	•		•		•	
9	1,25	7,8							•	•									•	•							•	•						
10	1,5	8,5	•		•		•		•	•	•		•		•		•		•	•	•	•	•		•		•	•	•		•		•	
11	1,5	9,5								•										•								•						
12	1,75	10,2		•		•		•		•		•		•		•		•		•		•		•		•		•		•		•		•
14	2	12		•		•		•		•		•		•		•				•		•		•		•		•						
16	2	14		•		•		•		•		•		•		•				•		•		•		•		•						
18	2,5	15,5		•		•		•		•		•								•		•		•		•								
20	2,5	17,5		•		•		•		•		•								•		•		•		•								
22	2,5	19,5				•		•		•		•								•				•		•								
24	3	21				•		•		•		•								•				•		•								
27	3	24				•		•				•																						
30	3,5	26,5				•		•				•																						
33	3,5	29,5				•		•				•																						
36	4	32				•		•				•																						
39	4	35										•																						
42	4,5	37,5										•																						
45	4,5	40,5										•																						
48	5	43										•																						
52	5	47										•																						
56	5,5	50,5										•																						
Blind / through																																		
			OX		V		V		V		V		V		V		V		V		V		V		V		VI		V		V		FX	
			PM		PM		PM		PM		PM		PM		PM		PM		PM		PM		PM		PM		PM		PM		PM		CARBIDE	
			FORM B		FORM B		FORM B		FORM C		FORM C		FORM C		FORM C		FORM C		**FORM E**		FORM C		FORM C		FORM C		FORM C		FORM C		**FORM E**		FORM C	
Tolerance			6H		6HX		**6H**		6HX		6HX		**6GX**		**7GX**		**6H +0.1**		6HX		6HX		6HX		6HX		6HX		6HX		6HX		6HX	
P			•		•		•		•		•		•		•		•		•		•		•		•		•							
M									•		•		•		•		•		•		•		•		•		•							
K			•		•		•																										•	
N									•		•		•		•		•		•		•		•		•		•		•		•		•	
S			•		•		•		•		•		•		•		•		•		•		•		•									
H			•		•		•		•		•		•		•		•		•		•		•		•									

SELECTION CHART

Threading | Selection chart | By size

M



Product series	A-CSF OIL FORM E	S-SFT	S-SFT 6G	S-SFT 7G	S-SFT +0.1	S-SFT FORM E	S-LT-SFT	S-SFT-LH	S-SFT-HB Weldon	VA-SFT	VA-SFT 6G	VA-SFT FORM E	Z-SFT	Z-OIL-SFT	SFT	SFT D352
A-Brand	A															
Page	A.120	A.121	A.121	A.122	A.122	A.123	A.123	A.124	A.124	A.125	A.125	A.126	A.126	A.127	A.127	A.128

Ø	I	Ø	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	-	-	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 352
1	0,25	0,75			•																								
1,1	0,25	0,85			•																								
1,2	0,25	0,95			•																								
1,4	0,3	1,1			•																								
1,6	0,35	1,25			•																								
1,7	0,35	1,35			•																								
1,8	0,35	1,45			•																								
2	0,4	1,6			•		•		•			•		•					•		•				•		•		
2,2	0,45	1,75			•							•							•										
2,3	0,4	1,85			•							•																	
2,5	0,45	2,05			•		•		•			•		•					•		•				•		•		
2,6	0,45	2,15			•							•																	
3	0,5	2,5			•	•	•		•			•	•	•		•			•	•	•		•		•	•	•	•	•
3,5	0,6	2,9			•							•							•								•		
4	0,7	3,3			•	•	•		•			•	•	•		•			•	•	•		•		•	•	•	•	•
4,5	0,75	3,7			•							•																	
5	0,8	4,2	•		•	•	•		•			•	•	•		•			•	•	•		•		•	•	•	•	•
5,5	0,9	4,6			•							•																	
6	1	5	•		•	•	•		•			•	•	•	•	•			•	•	•		•		•	•	•	•	•
7	1	6			•	•						•	•																
8	1,25	6,8	•		•	•	•		•			•	•	•	•	•			•	•	•		•		•	•	•	•	•
9	1,25	7,8			•	•						•	•																
10	1,5	8,5	•		•	•	•		•			•	•	•	•	•			•	•	•		•		•	•	•	•	•
11	1,5	9,5				•							•																
12	1,75	10,2		•		•		•		•			•		•		•			•		•		•		•		•	
14	2	12				•		•		•			•		•		•			•		•		•		•		•	
16	2	14				•		•		•			•		•		•			•		•		•		•		•	
18	2,5	15,5				•							•		•		•			•				•		•		•	
20	2,5	17,5				•							•		•		•			•				•		•		•	
22	2,5	19,5				•							•		•		•			•				•				•	
24	3	21				•							•		•		•			•				•				•	
27	3	24															•			•				•				•	
30	3,5	26,5															•			•				•				•	
33	3,5	29,5															•											•	
36	4	32															•											•	
39	4	35																											
42	4,5	37,5																											
45	4,5	40,5																											
48	5	43																											
52	5	47																											
56	5,5	50,5																											

Blind / through																
	FX	OX	OX	OX	OX	OX	OX	OX	OX	OX	OX	OX	V	V	-	-
	CARBIDE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	HSSE	PM	PM	HSSE	HSSE
	FORM E	FORM C	FORM C	FORM C	FORM C	**FORM E**	FORM C	FORM C	FORM C	FORM C	FORM C	**FORM E**	FORM C	FORM C	FORM C	FORM C
Tolerance	6HX	6H	**6G**	**7G**	**6H+0.1**	6H	6H	6H	6H	6H	**6G**	6H	6H	6H	6H	6H
P		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
M		•	•	•	•	•	•	•	•	•	•	•	•	•		
K	•	•	•	•	•	•	•	•	•	•	•	•			•	•
N	•												•	•	•	•
S													•	•		
H													•	•		

SELECTION CHART

Threading | Selection chart | By size

M



Product series			TIN-SFT		TICN-SFT		HXL-SFT	OIL-HXL-SFT		VXL-SFT	OIL-VXL-SFT	SH-SFT		M-SFT-DUPLEX		M-OIL-SFT-DUPLEX		M-LT-SFT-DUPLEX		CC-SFT		CC-LT-SFT		CC-NEO-SFT		SUS-SFT		HS-SFT-TIN		AL-SFT	
A-Brand																															
Page			A.128		A.129		A.129	A.130		A.130	A.131	A.131		A.132		A.132		A.133		A.133		A.134		A.134		A.135		A.135		A.136	
Ø	I	Ø	DIN 371	DIN 376	DIN 371	DIN 376						DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	-	-	DIN 371	DIN 376	DIN 371	DIN 376			DIN 371	DIN 376
1	0,25	0,75																													
1,1	0,25	0,85																													
1,2	0,25	0,95																													
1,4	0,3	1,1																													
1,6	0,35	1,25																												•	
1,7	0,35	1,35																													
1,8	0,35	1,45																													
2	0,4	1,6	•		•									•				•		•		•		•		•				•	
2,2	0,45	1,75																								•				•	
2,3	0,4	1,85																													
2,5	0,45	2,05	•											•				•		•		•		•		•				•	
2,6	0,45	2,15																													
3	0,5	2,5	•	•	•							•		•				•		•	•	•		•		•		•		•	
3,5	0,6	2,9	•																							•				•	
4	0,7	3,3	•	•	•							•		•				•		•	•	•		•		•		•		•	
4,5	0,75	3,7																													
5	0,8	4,2	•	•	•							•		•				•		•	•	•		•		•		•		•	
5,5	0,9	4,6																													
6	1	5	•	•	•							•		•		•		•	•	•	•	•		•		•		•		•	
7	1	6																													
8	1,25	6,8	•	•	•							•		•		•		•	•	•	•	•		•		•		•		•	
9	1,25	7,8																													
10	1,5	8,5	•	•	•							•		•		•		•	•	•	•	•		•		•		•		•	
11	1,5	9,5																													
12	1,75	10,2		•		•							•		•		•		•		•		•		•		•		•		•
14	2	12		•		•							•		•		•		•		•				•		•		•		•
16	2	14		•		•							•		•		•		•		•				•		•				•
18	2,5	15,5		•		•							•		•		•		•		•						•				•
20	2,5	17,5		•		•	•	•		•	•		•		•		•		•		•						•				•
22	2,5	19,5		•		•									•		•				•						•				
24	3	21		•		•	•	•		•	•				•		•				•						•				
27	3	24		•			•	•		•	•										•										
30	3,5	26,5		•			•	•		•	•										•										
33	3,5	29,5					•	•		•	•																				
36	4	32					•	•		•	•										•										
39	4	35					•	•		•	•																				
42	4,5	37,5					•	•		•	•																				
45	4,5	40,5																													
48	5	43					•	•		•	•																				
52	5	47					•	•		•	•																				
56	5,5	50,5					•	•		•	•																				
Blind / through																															
			TIN		V		OX	OX		OX	OX	-		TIN		TIN		TIN		CrN		CrN		TIN		OX		TIN		-	
			HSSE		HSSE		HSSE	HSSE		HSSE	HSSE	HSSE		PM		PM		PM		HSSE		HSSE		HSSE		HSSE		HSSE		HSSE	
			FORM C		FORM C		FORM C	FORM C		FORM C	FORM C	FORM C		FORM C		FORM C		FORM C		FORM C		FORM C		FORM C		FORM C		FORM C		FORM C	
Tolerance			6H		6H		6HX	6HX		6HX	6HX	6H		6HX		6HX		6HX		6HX		6HX		6HX		6HX		6H		6H	
P			•		•		•	•		•	•	•		•		•		•		•		•		•				•			
M			•		•		•	•		•	•			•		•		•		•		•		•		•		•			
K			•		•		•					•																			
N			•		•							•								•		•		•						•	
S			•		•									•		•		•													
H							•	•		•	•																				

SELECTION CHART

Threading | Selection chart | By size

M



Product series			US-AL-SFT	V-TI-SFT		E-SFT		WHR-NI-SFT		CPM-SFT		H-SFT		VP-H-SFT		VPO-H-SFT		V-EM-SFT	VP-DC-MT		VP-DC-MT FORM E		VPO-DC-MT Center		VPO-DC-MT Side		VPO-DC-MT FORM E		A-CHT OIL Center	
A-Brand																														A
Page			A.136	A.137		A.137		A.138		A.138		A.139		A.139		A.140		A.140	A.141		A.141		A.142		A.142		A.143		A.143	
Ø	I	Ø		DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376		DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376
1	0,25	0,75																												
1,1	0,25	0,85																												
1,2	0,25	0,95																												
1,4	0,3	1,1																												
1,6	0,35	1,25		•																										
1,7	0,35	1,35																												
1,8	0,35	1,45																												
2	0,4	1,6		•								•		•					•											
2,2	0,45	1,75																												
2,3	0,4	1,85																												
2,5	0,45	2,05		•								•		•					•											
2,6	0,45	2,15																												
3	0,5	2,5	•	•		•		•		•		•		•					•		•									
3,5	0,6	2,9																	•											
4	0,7	3,3	•	•		•		•		•		•		•				•	•		•									
4,5	0,75	3,7																												
5	0,8	4,2	•	•		•		•		•		•		•				•	•		•								•	
5,5	0,9	4,6																												
6	1	5	•	•		•		•		•		•		•		•		•	•		•		•		•		•		•	
7	1	6																	•											
8	1,25	6,8	•	•		•		•		•	•	•		•		•		•	•		•		•		•		•		•	
9	1,25	7,8																												
10	1,5	8,5	•	•		•		•		•	•	•		•		•		•	•		•		•		•		•		•	
11	1,5	9,5																		•										
12	1,75	10,2	•		•		•		•		•		•		•		•			•		•		•		•		•		•
14	2	12									•		•		•		•			•		•		•		•		•		
16	2	14									•		•		•		•			•		•		•		•		•		
18	2,5	15,5									•		•		•		•			•		•		•		•		•		
20	2,5	17,5									•		•		•		•			•		•		•		•		•		
22	2,5	19,5													•		•			•		•				•				
24	3	21													•		•			•		•				•				
27	3	24													•		•													
30	3,5	26,5													•		•			•										
33	3,5	29,5													•		•													
36	4	32													•		•													
39	4	35																												
42	4,5	37,5																												
45	4,5	40,5																												
48	5	43																												
52	5	47																												
56	5,5	50,5																												
Blind / through																														
			V	V		-		HR		-		OX		V		V		V	V		V		V		V		V		FX	
			HSSE	PM		PM		PM		PM		PM		PM		PM		HSSE	PM		PM		PM		PM		PM		CARBIDE	
			FORM C	FORM C		FORM C		FORM C		FORM C		FORM C		FORM C		FORM C		FORM C	FORM C		**FORM E**		FORM C		FORM C		**FORM E**		FORM C	
Tolerance			6H	6H		6H		6HX		6H		6H		6HX		6HX		6H	6HX		6HX		6HX		6HX		6HX		6HX	
P										•		•		•		•			•		•		•		•		•			
M																														
K										•		•		•		•			•		•		•		•		•		•	
N			•															•	•		•		•		•		•		•	
S				•		•		•				•		•		•														
H										•		•		•		•			•		•		•		•		•			

SELECTION CHART

Threading | Selection chart | By size

M

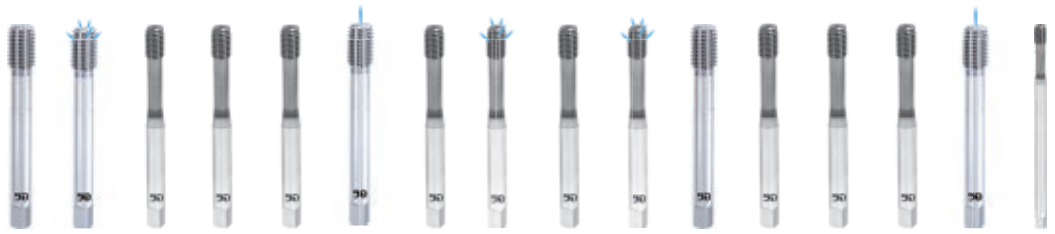


Product series			A-CHT OIL Side		A-CHT OIL FORM E		GG-MT		OIL-TXL-MT	EX-MCT	V-XPM-HT	V-XPM-HT FORM D	WH55-OT	WH55-OT FORM D	VX-OT
A-Brand			A		A										
Page			A.144		A.144		A.145		A.145	A.146	A.146	A.147	A.147	A.148	A.148
Ø	I	Ø	DIN 371	DIN 376	DIN 371	DIN 376	DIN 371	DIN 376							
1	0,25	0,75													
1,1	0,25	0,85													
1,2	0,25	0,95													
1,4	0,3	1,1													
1,6	0,35	1,25													
1,7	0,35	1,35													
1,8	0,35	1,45													
2	0,4	1,6													
2,2	0,45	1,75													
2,3	0,4	1,85													
2,5	0,45	2,05													
2,6	0,45	2,15													
3	0,5	2,5									•	•	•	•	•
3,5	0,6	2,9													
4	0,7	3,3					•	•			•	•	•	•	•
4,5	0,75	3,7													
5	0,8	4,2	•		•		•	•			•	•	•	•	•
5,5	0,9	4,6													
6	1	5	•		•		•	•		•	•	•	•	•	•
7	1	6													
8	1,25	6,8	•		•		•	•		•	•	•	•	•	•
9	1,25	7,8													
10	1,5	8,5	•		•		•	•		•	•	•	•	•	•
11	1,5	9,5													
12	1,75	10,2		•		•		•		•	•	•	•	•	•
14	2	12						•		•					
16	2	14						•		•					
18	2,5	15,5						•		•					
20	2,5	17,5						•	•	•					
22	2,5	19,5													
24	3	21							•						
27	3	24							•						
30	3,5	26,5							•						
33	3,5	29,5							•						
36	4	32							•						
39	4	35							•						
42	4,5	37,5							•						
45	4,5	40,5													
48	5	43							•						
52	5	47							•						
56	5,5	50,5							•						
Blind / through															
			FX		FX		NI-OX		OX	OX	V	V	V	V	V
			CARBIDE		CARBIDE		HSSE		HSSE	HSSE	XPM	XPM	CARBIDE	CARBIDE	CARBIDE
			FORM C		**FORM E**		FORM C		FORM C	FORM C	FORM C	FORM D	FORM C	**FORM D**	FORM C
Tolerance			6HX		6HX		6HX		6HX	6H	6HX	6HX	6HX	6HX	6HX
P									•	•					
M															
K			•		•		•		•	•					
N			•		•					•					
S															
H									•		•	•	•	•	•

SELECTION CHART

Threading | Selection chart | By size

M



					NEW SIZE	NEW	NEW	NEW	NEW	NEW		NEW SIZE							NEW SIZE	
Product series				A-XPF	A-OIL-XPF	A-XPF 6 GX	A-XPF 7 GX	A-XPF FORM E	A-OIL-XPF FORM E	S-XPF	S-OIL-XPF	S-XPF 6GX	S-OIL-XPF 6GX	S-XPF 7GX	S-XPF +0.1	S-XPF FORM D	S-XPF FORM E	S-OIL-XPF FORM E	S-LT-XPF
A-Brand				A	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A
Page				A.149	A.149	A.150	A.150	A.151	A.151	A.152	A.152	A.153	A.153	A.154	A.154	A.155	A.155	A.156	A.156
Ø	I min.	Ø max.	Ø																
1	0,25	0,89	0,90	•						•									
1,1	0,25	0,99	1,00	•						•									
1,2	0,25	1,09	1,10	•						•									
1,4	0,3	1,26	1,28	•						•									
1,6	0,35	1,45	1,48	•						•									
1,7	0,35	1,55	1,58	•						•									
1,8	0,35	1,65	1,68	•						•									
2	0,4	1,82	1,85	•		•		•		•		•		•			•		•
2,2	0,45	2,00	2,04	•						•									
2,3	0,4	2,12	2,15	•						•									
2,5	0,45	2,30	2,34	•						•		•		•			•		•
2,6	0,45	2,40	2,44	•						•									
3	0,5	2,77	2,82	•		•	•	•		•		•		•	•	•	•		•
3,5	0,6	3,23	3,28	•						•		•		•			•		
4	0,7	3,67	3,72	•	•	•	•	•	•	•	•	•		•	•	•	•	•	•
4,5	0,75	4,14	4,20	•						•									
5	0,8	4,62	4,68	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
5,5	0,9	5,06	5,13	•						•									
6	1	5,51	5,59	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
7	1	6,51	6,59	•						•									
8	1,25	7,37	7,45	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
9	1,25	8,37	8,45	•						•									
10	1,5	9,24	9,33	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
11	1,5	10,24	10,33		•						•								
12	1,75	11,1	11,2		•	•			•	•	•	•	•	•	•	•	•	•	•
14	2	12,96	13,08		•	•			•	•	•	•	•	•	•	•	•	•	•
16	2	14,96	15,08		•	•	•		•	•	•	•	•	•	•	•	•	•	
18	2,5	16,66	16,81		•	•					•								
20	2,5	18,66	18,81		•	•					•								
22	2,5	20,66	20,81		•	•					•								
24	3	22,39	22,56		•	•					•								
27	3	25,39	25,56		•	•					•								
30	3,5	28,09	28,28		•	•					•								
33	3,5	31,09	31,28			•					•								
36	4	33,8	34,01			•					•								
39	4	36,8	37,01			•					•								
42	4,5	39,52	39,73			•					•								
45	4,5	42,52	42,73			•					•								
Blind / through																			
				V	V	VI	VI	VI	VI	V	V	V	V	V	V	V	V	V	V
				PM	PM	PM	PM	PM	PM	HSS-Co	HSS-Co	HSS-Co	HSS-Co	HSS-Co	HSS-Co	HSS-Co	HSS-Co	HSS-Co	HSS-Co
				FORM C	FORM C	FORM C	FORM C	FORM E	FORM E	FORM C	FORM C	FORM C	FORM C	FORM C	FORM C	**FORM D**	**FORM E**	**FORM E**	FORM C
Tolerance				6HX	6HX	**6GX**	**7G**	6HX	6HX	6HX	6HX	**6GX**	**6GX**	**7GX**	**6HX +0.1**	6HX	6HX	6HX	6HX
P				•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
M				•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
K																			
N				•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
S																			
H				•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

SELECTION CHART

Threading | Selection chart | By size

M

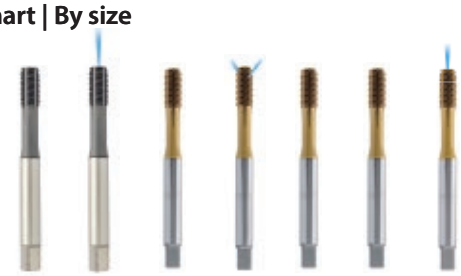


Product series	S-OIL-LT-XPF	S-XPF-LH	S-XPF-HB Weldon	S-XPF-GL	S-XPF-GL 6GX	GRT NEW	GRT FORM F NEW	P-OIL-CXPF	C-OIL-XPF	V-NRT	V-NRT 6GX	V-NRT FORM D	V-NRT 6GX FORM D	VA-XPF NEW	VA-OIL-XPF NEW	VA-XPF 6 GX NEW
A-Brand	A	A	A	A	A				A							
Page	A.157	A.157	A.158	A.158	A.159	A.159	A.160	A.160	A.161	A.161	A.162	A.162	A.163	A.163	A.164	A.164
Ø	I	Ø min.	Ø max.						DIN 2174	DIN 2174					DIN 2174	DIN 2174	DIN 2174
1	0,25	0,89	0,90					●			●				●		
1,1	0,25	0,99	1,00														
1,2	0,25	1,09	1,10					●			●						
1,4	0,3	1,26	1,28					●			●				●		
1,6	0,35	1,45	1,48								●				●		
1,7	0,35	1,55	1,58														
1,8	0,35	1,65	1,68														
2	0,4	1,82	1,85				●	●			●	●	●	●	●		●
2,2	0,45	2,00	2,04								●	●	●				
2,3	0,4	2,12	2,15														
2,5	0,45	2,30	2,34								●	●	●	●	●		●
2,6	0,45	2,40	2,44														
3	0,5	2,77	2,82		●	●	●	●	●		●	●	●	●	●		●
3,5	0,6	3,23	3,28								●	●	●	●	●		●
4	0,7	3,67	3,72		●	●	●	●	●		●	●	●	●	●		●
4,5	0,75	4,14	4,20												●		
5	0,8	4,62	4,68		●	●	●	●	●	●	●	●	●	●	●	●	●
5,5	0,9	5,06	5,13												●		
6	1	5,51	5,59	●	●	●	●	●	●	●	●	●	●	●	●	●	●
7	1	6,51	6,59												●		
8	1,25	7,37	7,45	●	●	●	●	●	●	●	●	●	●	●	●	●	●
9	1,25	8,37	8,45												●		
10	1,5	9,24	9,33	●	●	●	●	●	●	●	●	●	●	●	●	●	●
11	1,5	10,24	10,33														
12	1,75	11,1	11,2		●	●	●	●	●	●	●	●	●		●	●	●
14	2	12,96	13,08				●	●	●	●	●	●	●		●	●	●
16	2	14,96	15,08				●	●	●	●	●	●	●		●	●	●
18	2,5	16,66	16,81				●								●	●	
20	2,5	18,66	18,81				●								●	●	
22	2,5	20,66	20,81				●								●	●	
24	3	22,39	22,56				●								●	●	
27	3	25,39	25,56														
30	3,5	28,09	28,28														
33	3,5	31,09	31,28														
36	4	33,8	34,01														
39	4	36,8	37,01														
42	4,5	39,52	39,73														
45	4,5	42,52	42,73														
Blind / through																	
	V	V	V	V	V	V	V	EgiAs	V	V	V	V	V	AlCrN	AlCrN	AlCrN
	HSS-Co	HSS-Co	HSS-Co	HSS-Co	HSS-Co	PM	PM	CARBIDE	CARBIDE	HSS-Co	HSS-Co	HSS-Co	HSS-Co	PM	PM	PM
	FORM C	FORM C	FORM C	FORM C	FORM C	FORM C	**FORM F**	FORM C	FORM C	FORM C	FORM C	**FORM D**	**FORM D**	FORM C	FORM C	FORM C
Tolerance	6HX	6HX	6HX	6HX	**6GX**	6HX	6HX	6HX	6HX	6HX	**6GX**	6HX	**6GX**	6HX	6HX	**6GX**
P	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
M	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●
K																
N	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
S														●	●	●
H	●	●	●	●	●			●	●							

SELECTION CHART

Threading | Selection chart | By size

M



NEW NEW

Product series				VA-XPF FORM E	VA-OIL-XPF FORM E	M-NRT	M-OIL-NRT	M-NRT 6GX	M-NRT FORM E	M-OIL-NRT FORM-E
A-Brand										
Page				A.165	A.165	A.166	A.166	A.167	A.167	A.168
Ø	I	Ø min.	Ø max.	DIN 2174	DIN 2174	DIN 2174	DIN 2174	DIN 2174	DIN 2174	DIN 2174
1	0,25	0,89	0,90			•				
1,1	0,25	0,99	1,00							
1,2	0,25	1,09	1,10							
1,4	0,3	1,26	1,28			•				
1,6	0,35	1,45	1,48			•				
1,7	0,35	1,55	1,58							
1,8	0,35	1,65	1,68							
2	0,4	1,82	1,85	•		•		•	•	
2,2	0,45	2,00	2,04							
2,3	0,4	2,12	2,15							
2,5	0,45	2,30	2,34	•		•		•	•	
2,6	0,45	2,40	2,44							
3	0,5	2,77	2,82	•		•		•	•	
3,5	0,6	3,23	3,28	•		•		•	•	
4	0,7	3,67	3,72	•		•		•	•	
4,5	0,75	4,14	4,20			•				
5	0,8	4,62	4,68	•	•	•	•	•	•	•
5,5	0,9	5,06	5,13			•				
6	1	5,51	5,59	•	•	•	•	•	•	•
7	1	6,51	6,59			•				
8	1,25	7,37	7,45	•	•	•	•	•	•	•
9	1,25	8,37	8,45			•				
10	1,5	9,24	9,33	•	•	•	•	•	•	•
11	1,5	10,24	10,33			•				
12	1,75	11,1	11,2		•	•	•	•	•	•
14	2	12,96	13,08		•	•	•	•	•	•
16	2	14,96	15,08		•	•	•	•	•	•
18	2,5	16,66	16,81			•	•			
20	2,5	18,66	18,81			•	•			
22	2,5	20,66	20,81			•	•			
24	3	22,39	22,56			•	•			
27	3	25,39	25,56							
30	3,5	28,09	28,28							
33	3,5	31,09	31,28							
36	4	33,8	34,01							
39	4	36,8	37,01							
42	4,5	39,52	39,73							
45	4,5	42,52	42,73							
Blind / through										
				AlCrN	AlCrN	TiN	TiN	TiN	TiN	TiN
				PM	PM	PM	PM	PM	PM	PM
				FORM E	**FORM E**	FORM C	FORM C	FORM C	**FORM E**	**FORM E**
Tolerance				6HX	6HX	6HX	6HX	**6GX**	6HX	6HX
P				•	•	•	•	•	•	•
M				•	•	•	•	•	•	•
K										
N				•	•	•	•	•	•	•
S				•	•					
H										

SELECTION CHART

Threading | Selection chart | By size

MF



Product series	A-POT	A-OIL-POT	A-POT 6GX	S-POT	S-POT 6G	VA-POT	Z-POT	POT	CC-POT	H-POT	A-SFT		A-OIL-SFT	A-SFT 6GX	A-SFT FORM E		A-SFT-INOX		A-SFT-AL
A-Brand	A	A	A								A		A	A	A		A		A
Page	A.168	A.169	A.169	A.170	A.170	A.171	A.171	A.172	A.172	A.173	A.173		A.174	A.174	A.175		A.175		A.176
Ø	I	Ø	DIN 371	DIN 374	DIN 374	DIN 374	DIN 374	DIN 374	DIN 374	DIN 374	DIN 374	DIN 371	DIN 374	DIN 374	DIN 374	DIN 371	DIN 374	DIN 371	DIN 374	DIN 374
2,5	0,35	2,15	•									•				•		•		
2,6	0,35	2,25	•									•				•		•		
3	0,35	2,65	•			•		•	•		•	•				•		•		
3,5	0,35	3,15	•									•				•		•		
4	0,35	3,65	•									•				•		•		
4	0,5	3,5	•			•		•	•	•	•	•				•		•		
4,5	0,5	4	•									•				•		•		
5	0,5	4,5	•			•		•	•	•	•	•				•		•		
6	0,5	5,5	•	•		•		•	•		•	•	•			•	•	•	•	
6	0,75	5,25	•	•		•		•	•	•	•	•	•		•	•	•	•	•	
7	0,75	6,25	•									•				•		•		
8	0,75	7,25	•	•		•		•	•	•	•	•	•		•	•	•	•	•	
8	1	7	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•
9	1	8	•	•		•						•	•			•	•	•	•	
10	0,75	9,25	•	•		•		•				•	•			•	•	•	•	
10	1	9	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•
10	1,25	8,75	•	•	•	•		•	•	•	•	•	•	•	•	•	•	•	•	•
11	1	10		•		•							•				•		•	
12	1	11		•		•		•	•	•	•		•		•		•		•	•
12	1,25	10,75		•		•		•	•	•	•		•		•		•		•	•
12	1,5	10,5		•	•	•		•	•	•	•		•	•	•		•		•	•
14	1	13		•		•				•			•				•		•	
14	1,25	12,75		•		•				•			•				•		•	
14	1,5	12,5		•	•	•		•	•	•	•		•	•	•		•		•	
16	1	15		•		•				•			•				•		•	
16	1,5	14,5		•	•	•		•	•	•	•		•	•	•		•		•	
18	1	17		•		•				•			•				•		•	
18	1,5	16,5		•	•	•		•	•	•	•		•	•	•		•		•	
18	2	16								•										
20	1	19		•		•				•			•				•		•	
20	1,5	18,5		•	•	•		•	•	•	•		•	•	•		•		•	
20	2	18		•		•				•			•				•		•	
22	1	21		•		•							•				•		•	
22	1,5	20,5		•		•		•	•	•	•		•		•		•		•	
22	2	20		•		•				•			•				•		•	
24	1	23		•		•							•				•		•	
24	1,5	22,5		•		•		•	•	•	•		•		•		•		•	
24	2	22		•				•					•				•		•	
30	2	28						•												
Blind / through																				
	V	V	V	OX	OX	OX	V	-	CrN	OX	V		V	V	V		VI		V	
	PM	PM	PM	HSSE	HSSE	HSSE	PM	HSSE	HSSE	PM	PM		PM	PM	PM		PM		PM	
	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM B	FORM C		FORM C	FORM C	**FORM E**		FORM C		FORM C	
Tolerance	6HX	6HX	**6GX**	6H	**6G**	6H	6HX	6H	6HX	6H	6HX		6HX	**6GX**	6HX		6HX		6HX	
P	•	•	•	•	•	•	•	•	•	•	•		•	•	•		•			
M	•	•	•	•	•	•	•		•		•		•	•	•		•			
K				•	•	•		•		•										
N	•	•	•				•	•	•		•		•	•	•		•		•	
S	•	•	•				•			•	•		•	•	•					
H	•	•	•				•			•	•		•	•						

SELECTION CHART

MF



Product series	A-SFT-AL FORM E	A-CSF OIL	A-CSF OIL FORM E	S-SFT	S-SFT 6G	S-SFT FORM E	VA-SFT	Z-SFT	SFT	M-SFT-DUPLEX	M-OIL-SFT-DUPLEX	CC-SFT	SUS-SFT	AL-SFT	H-SFT
A-Brand	A	A	A												
Page	A.176	A.177	A.177	A.178	A.178	A.179	A.179	A.180	A.180	A.181	A.181	A.182	A.182	A.183	A.183
Ø	I	Ø	DIN 374	DIN 374	DIN 374	DIN 374	DIN 374	DIN 374	DIN 374	DIN 374	DIN 374	DIN 374	DIN 374	DIN 374	DIN 374
2,5	0,35	2,15													
2,6	0,35	2,25													
3	0,35	2,65				•		•	•	•					•
3,5	0,35	3,15													
4	0,35	3,65													
4	0,5	3,5				•		•	•	•	•				•
4,5	0,5	4													
5	0,5	4,5				•		•	•	•	•				•
6	0,5	5,5				•		•	•	•		•			•
6	0,75	5,25				•	•	•	•	•	•	•			•
7	0,75	6,25													
8	0,75	7,25				•	•	•	•	•	•	•	•		•
8	1	7	•	•	•	•	•	•	•	•	•	•	•	•	•
9	1	8				•		•							
10	0,75	9,25				•		•		•					
10	1	9	•	•	•	•	•	•	•	•	•	•	•	•	•
10	1,25	8,75	•			•	•	•	•	•	•	•	•	•	•
11	1	10				•		•							
12	1	11	•	•	•	•	•	•	•	•		•	•	•	•
12	1,25	10,75	•			•	•	•	•	•		•	•	•	•
12	1,5	10,5	•	•	•	•	•	•	•	•	•	•	•	•	•
14	1	13				•		•		•					
14	1,25	12,75				•		•		•					
14	1,5	12,5		•	•	•	•	•	•	•	•	•	•		•
16	1	15				•		•		•					
16	1,5	14,5		•	•	•	•	•	•	•	•	•	•		•
18	1	17				•		•		•					
18	1,5	16,5				•	•	•	•	•	•	•	•		•
18	2	16								•					
20	1	19				•		•		•					
20	1,5	18,5		•		•	•	•	•	•	•	•	•		•
20	2	18				•		•		•					
22	1	21				•		•							
22	1,5	20,5				•	•	•	•	•	•	•	•		•
22	2	20				•		•		•					
24	1	23				•		•							
24	1,5	22,5				•	•	•	•	•	•	•	•		•
24	2	22				•		•		•					
30	2	28								•					
Blind / through															
	V	FX	FX	OX	OX	OX	OX	V	-	TiN	TiN	CrN	OX	-	OX
	PM	CARBIDE	CARBIDE	HSSE	HSSE	HSSE	HSSE	PM	HSSE	PM	PM	HSSE	HSSE	HSSE	PM
	FORM E	FORM C	**FORM E**	FORM C	FORM C	**FORM E**	FORM C	FORM C	FORM C	FORM C	FORM C	FORM C	FORM C	FORM C	FORM C
Tolerance	6HX	6HX	6HX	6H	**6G**	6H	6H	6H	6H	**6HX**	**6HX**	6HX	**6HX**	6H	6H
P				•	•	•	•	•	•	•	•	•			•
M				•	•	•	•	•		•	•	•	•		
K		•	•	•	•	•	•		•						•
N	•	•	•					•	•			•		•	
S								•		•	•				•
H								•							•

SELECTION CHART

Threading | Selection chart | By size



MF

Product series			VP-DC-MT	VPO-DC-MT Center	VPO-DC-MT Side	A-CHT OIL Center	A-CHT OIL Side	A-CHT OIL FORM E	GG-MT
A-Brand						A	A	A	
Page			A.184	A.184	A.185	A.185	A.186	A.186	A.187
Ø	I	Ø	DIN 374	DIN 374	DIN 374	DIN 374	DIN 374	DIN 374	
2,5	0,35	2,15							
2,6	0,35	2,25							
3	0,35	2,65	•						•
3,5	0,35	3,15							•
4	0,35	3,65							
4	0,5	3,5	•						•
4,5	0,5	4							
5	0,5	4,5	•						•
6	0,5	5,5	•						•
6	0,75	5,25	•						•
7	0,75	6,25							
8	0,75	7,25	•						•
8	1	7	•	•	•	•	•		•
9	1	8							
10	0,75	9,25							
10	1	9	•	•	•	•	•	•	•
10	1,25	8,75	•	•	•				•
11	1	10							
12	1	11	•			•	•	•	•
12	1,25	10,75	•	•	•				•
12	1,5	10,5	•	•	•	•	•	•	•
14	1	13							•
14	1,25	12,75							
14	1,5	12,5	•	•	•	•	•	•	•
16	1	15							•
16	1,5	14,5	•	•	•	•	•	•	•
18	1	17							
18	1,5	16,5	•	•	•				•
18	2	16							•
20	1	19							
20	1,5	18,5	•	•	•	•	•		•
20	2	18							
22	1	21							
22	1,5	20,5	•						•
22	2	20							
24	1	23							
24	1,5	22,5	•						•
24	2	22							
30	2	28							
Blind / through									
			V	V	V	FX	FX	FX	NI-OX
			PM	PM	PM	CARBIDE	CARBIDE	CARBIDE	HSSE
			FORM C	FORM C	FORM C	FORM C	FORM C	**FORM E**	FORM C
Tolerance			6HX	6HX	6HX	6HX	6HX	6HX	6HX
P			•	•	•				
M									
K			•	•	•	•	•	•	•
N			•	•	•	•	•	•	
S									
H			•	•	•				

SELECTION CHART

Threading | Selection chart | By size

MF



Product series				A-XPF	A-OIL-XPF	A-XPF 6GX	A-XPF FORM E	S-XPF	S-OIL-XPF	S-XPF 6GX	S-OIL-XPF 6GX	S-XPF FORM D	S-XPF FORM E	S-OIL-XPF FORM E	S-OIL-LT-XPF	S-XPF-GL	S-XPF-GL 6GX	P-OIL-CXPF	C-OIL-CXPF
					NEW SIZES	NEW	NEW												
A-Brand				A	A	A	A	A	A	A	A	A	A	A	A	A	A		
Page				A.187	A.188	A.188	A.189	A.189	A.190	A.190	A.191	A.191	A.192	A.192	A.193	A.193	A.194	A.194	A.195
Ø	I	Ø min.	Ø max.	DIN 2174	DIN 2174	DIN 2174	DIN 2174	DIN 2174	DIN 2174	DIN 2174	DIN 2174	DIN 2174	DIN 2174	DIN 2174	DIN 2174	DIN 2174	DIN 2174	DIN 2174	DIN 2174
4	0,5	3,77	3,82	•				•											
5	0,5	4,77	4,82	•				•											
6	0,5	5,79	5,83	•				•											
6	0,75	5,65	5,71	•				•											
7	0,75	6,65	6,71	•				•											
8	0,5	7,79	7,83	•				•											
8	0,75	7,65	7,71	•				•											
8	1	7,51	7,59	•	•	•		•	•	•	•	•		•	•	•	•	•	•
10	1	9,51	9,59	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
10	1,25	9,37	9,45	•	•			•	•	•	•	•		•	•	•	•		
12	1	11,52	11,60	•	•	•		•	•	•	•	•		•	•	•	•		
12	1,25	11,39	11,46	•	•	•		•	•	•	•	•		•	•	•	•		
12	1,5	11,25	11,34	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
14	1	13,52	13,60	•	•			•	•										
14	1,25	13,39	13,46	•	•			•	•	•	•			•	•	•	•		
14	1,5	13,25	13,34	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
16	1	15,52	15,60	•	•			•	•										
16	1,5	15,25	15,34	•	•	•	•	•	•	•	•	•	•	•		•	•	•	•
18	1	17,52	17,60	•	•			•	•										
18	1,5	17,25	17,34	•	•	•		•	•	•	•	•		•		•	•		
20	1	19,52	19,60	•	•			•	•										
20	1,5	19,25	19,34	•	•	•		•	•	•	•	•		•		•	•		
22	1,5	21,25	21,34	•	•			•	•	•	•			•		•	•		
24	1,5	23,25	23,34	•	•			•	•	•	•			•		•	•		
Blind / through																			
				V	V	VI	V	V	V	V	V	V	V	V	V	V	V	EgiAs	V
				PM	PM	PM	PM	HSS-Co	HSS-Co	HSS-Co	HSS-Co	HSS-Co	HSS-Co	HSS-Co	HSS-Co	HSS-Co	HSS-Co	CARBIDE	CARBIDE
				FORM C	FORM C	FORM C	FORM E	FORM C	FORM C	FORM C	FORM C	**FORM D**	**FORM E**	**FORM E**	FORM C	FORM C	FORM C	FORM C	FORM C
Tolerance				6HX	6HX	**6GX**	6HX	6HX	6HX	**6GX**	**6GX**	6HX	6HX	6HX	6HX	6HX	**6GX**	6HX	6HX
P				•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
M				•	•	•	•	•	•	•	•	•	•	•	•	•	•		•
K																			
N				•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
S																			
H				•	•	•	•	•	•	•	•	•	•	•	•			•	•

SELECTION CHART

Threading | Selection chart | By size



NEW



MF

Product series				V-NRT	V-NRT FORM D	VA-XPF	M-NRT
A-Brand							
Page				A.195	A.196	A.196	A.197
Ø	I	Ø min.	Ø max.	DIN 2174	DIN 2174	DIN 2174	DIN 2174
4	0,5	3,77	3,82			•	•
5	0,5	4,77	4,82			•	•
6	0,5	5,79	5,83			•	•
6	0,75	5,65	5,71			•	•
7	0,75	6,65	6,71			•	•
8	0,5	7,79	7,83			•	•
8	0,75	7,65	7,71			•	•
8	1	7,51	7,59	•	•	•	•
10	1	9,51	9,59	•	•	•	•
10	1,25	9,37	9,45	•	•	•	•
12	1	11,52	11,60	•	•		•
12	1,25	11,39	11,46	•	•		•
12	1,5	11,25	11,34	•	•		•
14	1	13,52	13,60				•
14	1,25	13,39	13,46				•
14	1,5	13,25	13,34				•
16	1	15,52	15,60				•
16	1,5	15,25	15,34				•
18	1	17,52	17,60				•
18	1,5	17,25	17,34				•
20	1	19,52	19,60				•
20	1,5	19,25	19,34				•
22	1,5	21,25	21,34				•
24	1,5	23,25	23,34				•
Blind / through							
				V	V	AlCrN	TIN
				HSS-Co	HSS-Co	PM	PM
				FORM C	**FORM D**	FORM C	FORM C
Tolerance				6HX	6HX	6HX	6HX
P				•	•	•	•
M				•	•	•	•
K							
N				•	•	•	•
S						•	
H							

UNC / UN

Product series			A-POT	S-POT	VA-POT	A-SFT	S-SFT	VA-SFT	HXL-SFT	VXL-SFT
A-Brand			A			A				
Page			A.197	A.198	A.198	A.199	A.199	A.200	A.200	A.201
Ø	I	Ø	DIN 2184-1	DIN 2184-1	DIN 2184-1	DIN 2184-1	DIN 2184-1	DIN 2184-1		
N°.2	56	1,85	•	•		•	•			
N°.3	48	2	•	•		•	•			
N°.4	40	2,35	•	•	•	•	•	•		
N°.5	40	2,65	•	•	•	•	•	•		
N°.6	32	2,7	•	•	•	•	•	•		
N°.8	32	3,5	•	•	•	•	•	•		
N°.10	24	3,8	•	•	•	•	•	•		
N°.12	24	4,5	•	•		•	•			
1/4	20	5,1	•	•	•	•	•	•		
5/16	18	6,5	•	•	•	•	•	•		
3/8	16	7,9	•	•	•	•	•	•		
7/16	14	9,3	•	•	•	•	•	•		
1/2	13	10,7	•	•	•	•	•	•		
9/16	12	12,3	•	•	•	•	•	•		
5/8	11	13,5	•	•	•	•	•	•		
3/4	10	16,5	•	•	•	•	•	•	•	•
7/8	9	19,3	•	•	•	•	•	•	•	•
1	8	22,25	•	•	•	•	•	•	•	•
1 1/8	7	25					•		•	•
1 1/8	8	25							•	•
1 1/4	7	28					•		•	•
1 1/4	8	28							•	•
1 3/8	6	30							•	•
1 3/8	8	30							•	•
1 1/2	6	34					•		•	•
1 1/2	8	34							•	•
1 5/8	8	38,1							•	•
1 3/4	8	41,5							•	•
1 7/8	8	44,45							•	•
2	8	48							•	•
2 1/2	8	60,5							•	•
Blind / through										
			V	OX	OX	V	OX	OX	OX	OX
			PM	HSSE	HSSE	PM	HSSE	HSSE	HSSE	HSSE
			FORM B	FORM B	FORM B	FORM C	FORM C	FORM C	FORM C	FORM C
Tolerance			2BX	2B	2B	2BX	2B	2B	2B	2B
P			•	•	•	•	•	•	•	•
M			•	•	•	•	•	•	•	•
K				•	•		•	•	•	
N			•			•				
S			•			•				
H			•			•			•	•

SELECTION CHART

UNC UN



UNC



Product series			M-SFT-DUPLEX	VP-DC-MT		VPO-DC-MT FORM E		Product series				S-XPF		S-OIL-XPF	
A-Brand								A-Brand				A		A	
Page			A.201	A.202		A.202		Page				A.203		A.203	
Ø	I	Ø	DIN 2184-1	DIN 2184-1		DIN 2184-1		Ø	I	Ø ₁	Ø x.	DIN 2184-1		DIN 2184-1	
N°.2	56	1,85	•	•				N°.5	40	2,86	2,93	•			
N°.3	48	2	•	•				N°.6	32	3,09	3,17	•			
N°.4	40	2,35	•	•				N°.8	32	3,76	3,84	•			
N°.5	40	2,65	•	•				N°.10	24	4,26	4,35	•			
N°.6	32	2,7	•	•				1/4	20	5,66	5,76	•		•	
N°.8	32	3,5	•	•				5/16	18	7,18	7,29	•		•	
N°.10	24	3,8	•	•				3/8	16	8,66	8,78	•		•	
N°.12	24	4,5	•	•				7/16	14	10,12	10,27		•		•
1/4	20	5,1	•	•		•		1/2	13	11,62	11,78		•		•
5/16	18	6,5	•	•		•		9/16	12	13,14	13,28		•		•
3/8	16	7,9	•	•		•		5/8	11	14,61	14,76		•		•
7/16	14	9,3	•		•		•	3/4	10	17,65	17,80		•		•
1/2	13	10,7	•		•		•	7/8	9	20,66	20,84		•		•
9/16	12	12,3	•		•		•	1	8	23,63	23,84		•		•
5/8	11	13,5	•		•		•								
3/4	10	16,5	•		•		•								
7/8	9	19,3	•		•		•								
1	8	22,25	•		•		•								
1 1/8	7	25													
1 1/8	8	25	•												
1 1/4	7	28													
1 1/4	8	28	•												
1 3/8	6	30													
1 3/8	8	30	•												
1 1/2	6	34													
1 1/2	8	34	•												
1 5/8	8	38,1	•												
1 3/4	8	41,5	•												
1 7/8	8	44,45	•												
2	8	48	•												
2 1/2	8	60,5													
Blind / through								Blind / through							
			TIN	V		V						V		V	
			PM	PM		PM						HSS-Co		HSS-Co	
			FORM C	FORM C		FORM E						FORM C		FORM C	
Tolerance			2BX	2BX		2BX		Tolerance				2BX		2BX	
P			•	•		•		P				•		•	
M			•					M				•		•	
K				•		•		K							
N				•		•		N				•		•	
S			•					S							
H				•		•		H				•		•	

SELECTION CHART

Threading | Selection chart | By size

UNF



UNF



Product series			A-POT		S-POT		VA-POT		A-SFT		S-SFT		VA-SFT		M-SFT-DUPLEX		VP-DC-MT		VPO-DC-MT FORM E	
A-Brand			A						A											
Page			A.204		A.204		A.205		A.205		A.206		A.206		A.207		A.207		A.208	
Ø	I	Ø	DIN 2184-1				DIN 2184-1		DIN 2184-1						DIN 2184-1				DIN 2184-1	
N°.2	64	1,85	•		•				•		•				•		•			
N°.3	56	2,15	•		•				•		•				•		•			
N°.4	48	2,4	•		•				•		•				•		•			
N°.5	44	2,7	•		•				•		•				•		•			
N°.6	40	2,95	•		•		•		•		•		•		•		•			
N°.8	36	3,5	•		•				•		•				•		•			
N°.10	32	4,1	•		•		•		•		•		•		•		•			
N°.12	28	4,6	•		•				•		•				•		•			
1/4	28	5,5	•		•		•		•		•		•		•		•		•	
5/16	24	6,9	•		•		•		•		•		•		•		•		•	
3/8	24	8,5	•		•		•		•		•		•		•		•		•	
7/16	20	9,9		•		•		•		•		•		•		•		•		•
1/2	20	11,5		•		•		•		•		•		•		•		•		•
9/16	18	12,9		•		•		•		•		•		•		•		•		•
5/8	18	14,5		•		•		•		•		•		•		•		•		•
3/4	16	17,5		•		•		•		•		•		•		•		•		•
7/8	14	20,4		•		•		•		•		•		•		•		•		•
1	12	23,25		•		•		•		•		•		•		•		•		•
Blind / through																				
			V		OX		OX		V		OX		OX		TiN		V		V	
			PM		HSSE		HSSE		PM		HSSE		HSSE		PM		PM		PM	
			FORM B		FORM B		FORM B		FORM C		FORM C		FORM C		FORM C		FORM C		FORM E	
Tolerance			2BX		2B		2B		2BX		2B		2B		2BX		2BX		2BX	
P			•		•		•		•		•		•		•		•		•	
M			•		•		•		•		•		•		•					
K					•		•				•		•				•		•	
N			•						•								•		•	
S			•						•						•					
H			•						•								•		•	

Product series					S-XPF	S-OIL-XPF
A-Brand					A	A
Page					A.208	A.209
Ø	I	Ø min.	Ø max.			
N°.6	40	3,19	3,26		•	
N°.10	32	4,41	4,47		•	
1/4	28	5,87	5,94		•	•
5/16	24	7,39	7,47		•	•
3/8	24	8,98	9,06		•	•
7/16	20	10,45	10,55		•	•
1/2	20	12,04	12,14		•	•
9/16	18	13,56	13,64		•	•
5/8	18	15,15	15,23		•	•
3/4	16	18,22	18,30		•	•
7/8	14	21,27	21,38		•	•
1	12	24,26	24,37		•	•
Blind / through						
					V	V
					HSS-Co	HSS-Co
					FORM C	FORM C
Tolerance					2BX	2BX
P					•	•
M					•	•
K						
N					•	•
S						
H					•	•

SELECTION CHART

Threading | Selection chart | By size

MJ



UNJC



Product series			CC-NEO-SFT		V-TI-SFT	
A-Brand						
Page			A.209		A.210	
Ø	I	Ø	DIN 371	DIN 376	DIN 371	DIN 376
2	0,4	1,610 - 1,722	•		•	
3	0,5	2,513 - 2,653	•		•	
4	0,7	3,318 - 3,498	•		•	
5	0,8	4,221 - 4,421	•		•	
6	1	5,026 - 5,216	•		•	
8	1,25	6,782 - 6,994	•		•	
10	1,5	8,539 - 8,775	•		•	
12	1,75	10.295 - 10,560		•		•
Blind / through						
			TiN		V	
			HSSE		PM	
			FORM C		FORM C	
Tolerance			4H		4H	
P			•			
M			•			
K						
N			•			
S					•	
H						

Product series			VA-POT	V-TI-POT	E-POT	WHR-NI-POT	H-POT	VA-SFT	CC-SFT	M-SFT-DUPLEX	V-TI-SFT	E-SFT	WHR-NI-SFT	H-SFT
A-Brand														
Page			A.210	A.211	A.211	A.212	A.212	A.213	A.213	A.214	A.214	A.215	A.215	A.216
Ø	I	Ø	DIN 2184-1	DIN 2184-1	DIN 2184-1	DIN 2184-1	DIN 2184-1	DIN 2184-1	DIN 2184-1	DIN 2184-1	DIN 2184-1	DIN 2184-1	DIN 2184-1	DIN 2184-1
N°.4	40	2,35	•	•	•	•	•	•	•	•	•	•	•	•
N°.6	32	2,7	•	•	•	•	•	•	•	•	•	•	•	•
N°.8	32	3,5	•	•	•	•	•	•	•	•	•	•	•	•
N°.10	24	3,8			•	•			•	•		•	•	
N°.12	24									•				
1/4	20	5,1			•	•			•	•		•	•	
5/16	18	6,5			•	•			•	•		•	•	
3/8	16	7,9			•	•			•	•		•	•	
7/16	14	9,3			•	•			•		•	•	•	
1/2	13	10,7			•	•			•		•	•	•	
9/16	12	12,3							•		•			
5/8	11	13,5			•	•			•		•	•	•	
3/4	10	16,5			•	•			•		•	•	•	
7/8	9	19,3			•	•			•		•	•	•	
1	8	22,25			•	•			•		•	•	•	
Blind / through														
			OX	V	-	HR	OX	OX	CrN	TiN	V	-	HR	OX
			HSSE	PM	PM	PM	PM	HSSE	HSSE	PM	PM	PM	PM	PM
			FORM B	FORM B	FORM B	FORM B	FORM B	FORM C	FORM C	FORM C	FORM C	FORM C	FORM C	FORM C
Tolerance			3B	3B	3B	3B	3B	3B	3B	3BX	3B	3B	3B	3B
P			•				•	•	•	•				•
M			•					•	•	•				
K			•				•	•						•
N									•					
S				•	•	•	•			•	•	•	•	•
H							•							•

SELECTION CHART

Threading | Selection chart | By size

UNJF



Product series			VA-POT	V-TI-POT	E-POT	WHR-NI-POT	H-POT	VA-SFT	M-SFT-DUPLEX	CC-SFT	V-TI-SFT	E-SFT	WHR-NI-SFT	H-SFT
A-Brand														
Page			A.216	A.217	A.217	A.218	A.218	A.219	A.219	A.220	A.220	A.221	A.221	A.222
Ø	I	Ø	DIN 2184-1	DIN 2184-1	DIN 2184-1	DIN 2184-1	DIN 2184-1	DIN 2184-1	DIN 2184-1	DIN 2184-1	DIN 2184-1	DIN 2184-1	DIN 2184-1	DIN 2184-1
N°4	48								•					
N°6	40								•					
N°8	36								•					
N°.10	32	4,1	•	•	•	•	•	•	•	•	•	•	•	•
N°.12	28								•					
1/4	28	5,5	•	•	•	•	•	•	•	•	•	•	•	•
5/16	24	6,9	•	•	•	•	•	•	•	•	•	•	•	•
3/8	24	8,5	•	•	•	•	•	•	•	•	•	•	•	•
7/16	20	9,9	•	•	•	•	•	•		•	•	•	•	•
1/2	20	11,5	•	•	•	•	•	•		•	•	•	•	•
9/16	18	12,9			•	•				•		•	•	
5/8	18	14,5			•	•				•		•	•	
3/4	16	17,5			•	•				•		•	•	
7/8	14	20,4			•	•				•		•	•	
1	12	23,25								•				
Blind / through														
			OX	V	-	HR	OX	OX	TiN	CrN	V	-	HR	OX
			HSSE	PM	PM	PM	PM	HSSE	PM	HSSE	PM	PM	PM	PM
			FORM B	FORM B	FORM B	FORM B	FORM B	FORM C	FORM C	FORM C	FORM C	FORM C	FORM C	FORM C
Tolerance			3B	3B	3B	3B	3B	3B	3BX	3B	3B	3B	3B	3B
P			•				•	•	•	•				•
M			•					•	•	•				
K			•				•	•						•
N										•				
S				•	•	•	•		•		•	•	•	•
H							•							•

SELECTION CHART

EG M



EG MJ



EG UNJC



Product series			CC-HL-SFT		Product series			E-HL-POT	H-HL-POT	E-HL-SFT	H-HL-SFT	Product series			E-HL-POT	H-HL-POT	E-HL-SFT	H-HL-SFT
A-Brand					A-Brand							A-Brand						
Page			A.222		Page			A.223	A.223	A.224	A.224	Page			A.225	A.225	A.226	A.226
Ø	I	Ø	DIN 371	DIN 376	Ø	I	Ø	DIN 371	DIN 371	DIN 371	DIN 371	Ø	I	Ø	DIN 2184-1	DIN 2184-1	DIN 2184-1	DIN 2184-1
3	0,5	3,2	•		2	0,4	2,1	•	•	•	•	4	40	3	•	•	•	•
4	0,7	4,2	•		2,5	0,45	2,6	•	•	•	•	6	32	3,7	•	•	•	•
5	0,8	5,2	•		3	0,5	3,2	•	•	•	•	8	32	4,4	•	•	•	•
6	1	6,3	•		4	0,7	4,2	•	•	•	•							
8	1,25	8,4	•		5	0,8	5,2	•	•	•	•							
10	1,5	10,4	•		6	1	6,3	•	•	•	•							
12	1,75	12,5		•	8	1,25	8,4	•	•	•	•							
16	2	16,6		•	10	1,5	10,4	•	•	•	•							
20	2,5	20,7		•														
Blind / through					Blind / through							Blind / through						
			CrN					-	OX	-	OX				-	OX	-	OX
			HSSE					PM	PM	PM	PM				PM	PM	PM	PM
			FORM C					FORM B	FORM B	FORM C	FORM C				FORM B	FORM B	FORM C	FORM C
Tolerance			6H		Tolerance			4H	4H	4H	4H	Tolerance			3B	3B	3B	3B
P			•		P				•		•	P				•		•
M			•		M							M						
K					K				•		•	K				•		•
N			•		N							N						
S					S			•	•	•	•	S			•	•	•	•
H					H				•		•	H				•		•

SELECTION CHART

Threading | Selection chart | By size

EG UNJF



BSW



Product series			E-HL-POT	H-HL-POT	CC-HL-SFT	E-HL-SFT	H-HL-SFT	Product series			A-POT	S-POT	A-SFT	S-SFT
A-Brand								A-Brand			A		A	
Page			A.227	A.227	A.228	A.228	A.229	Page			A.229	A.230	A.230	A.231
Ø	I	Ø	DIN 2184-1	DIN 2184-1	DIN 2184-1	DIN 2184-1	DIN 2184-1	Ø	I	Ø	DIN 2184-1	DIN 2184-1	DIN 2184-1	DIN 2184-1
10	32	5,1	•	•	•	•	•	1/8	40	2,5	•	•	•	•
1/4	28	6,6	•	•	•	•	•	3/16	24	3,6	•	•	•	•
5/16	24	8,3	•	•	•	•	•	1/4	20	5	•	•	•	•
3/8	24	9,8	•	•	•	•	•	5/16	18	6,5	•	•	•	•
7/16	20	11,5	•	•		•	•	3/8	16	7,9	•	•	•	•
1/2	20	13,1	•	•		•	•	7/16	14	9,2	•	•	•	•
								1/2	12	10,5	•	•	•	•
								5/8	11	13,4	•	•	•	•
								3/4	10	16,4	•	•	•	•
								7/8	9	19,25	•	•	•	•
								1	8	22	•	•	•	•
Blind / through								Blind / through						
			-	OX	CrN	-	OX				V	OX	V	OX
			PM	PM	HSSE	PM	PM				PM	HSSE	PM	HSSE
			FORM B	FORM B	FORM C	FORM C	FORM C				FORM B	FORM B	FORM C	FORM C
Tolerance			3B	3B	3B	3B	3B	Tolerance			MED	MED	MED	MED
P				•	•		•	P			•	•	•	•
M					•			M			•	•	•	•
K				•				K				•		•
N					•			N			•		•	
S			•	•		•	•	S			•		•	
H				•			•	H			•		•	

SELECTION CHART

Threading | Selection chart | By size

BSF



BA (BS93)



Product series			A-POT	S-POT	A-SFT	S-SFT
A-Brand			A		A	
Page			A.231	A.232	A.232	A.233
Ø	I	Ø	DIN 2184-1		DIN 2184-1	
1/4	26	5,3	•	•	•	•
5/16	22	6,8	•	•	•	•
3/8	20	8,3	•	•	•	•
7/16	18	9,7	•	•	•	•
1/2	16	11	•	•	•	•
5/8	14	14	•	•	•	•
3/4	12	16,8	•	•	•	•
1	10	22,7	•	•	•	•
Blind / through						
			V	OX	V	OX
			PM	HSSE	PM	HSSE
			FORM B	FORM B	FORM C	FORM C
Tolerance			MED	MED	MED	MED
P			•	•	•	•
M			•	•	•	•
K				•		•
N			•			
S			•		•	
H			•		•	

Product series			A-POT	S-POT	A-SFT	S-SFT
A-Brand			A		A	
Page			A.233	A.234	A.234	A.235
Ø	I	Ø				
0	1	5	•	•	•	•
1	0,9	4,4	•	•	•	•
2	0,81	3,9	•	•	•	•
3	0,73	3,4	•	•	•	•
4	0,66	3	•	•	•	•
5	0,59	2,6	•	•	•	•
6	0,53	2,3	•	•	•	•
7	0,48	2	•	•	•	•
8	0,43	1,8	•	•	•	•
9	0,39	1,5	•	•	•	•
10	0,35	1,3	•	•	•	•
11	0,31	1,2	•	•	•	•
12	0,28	1	•	•	•	•
Blind / through						
			V	OX	V	OX
			PM	HSSE	PM	HSSE
			FORM B	FORM B	FORM C	FORM C
Tolerance			-	-	-	-
P			•	•	•	•
M			•	•	•	•
K				•		•
N			•		•	
S			•		•	
H			•		•	

SELECTION CHART

Threading | Selection chart | By size

G



NEW

Product series	A-POT	S-POT	POT	A-SFT	A-SFT-INOX	S-SFT	VA-SFT	SFT	SH-SFT	M-SFT DUPLEX	CC-SFT	VP-DC-MT	GG-MT	VX-OT
A-Brand	A			A	A									
Page	A.235	A.236	A.236	A.237	A.237	A.238	A.238	A.239	A.239	A.240	A.240	A.241	A.241	A.242
Ø	I	Ø	DIN 5156	DIN 5156	DIN 5156	DIN 5156	DIN 5156	DIN 5156	DIN 5156	DIN 5156	DIN 5156	DIN 5156	DIN 5156	DIN 5156
1/16	28	6,8			•	•							•		
1/8	28	8,7	•	•	•	•	•	•	•	•	•	•	•	•	•
1/4	19	11,8	•	•	•	•	•	•	•	•	•	•	•	•	•
3/8	19	15,25	•	•	•	•	•	•	•	•	•	•	•	•	•
1/2	14	19	•	•	•	•	•	•	•	•	•	•	•	•	•
5/8	14	21	•	•	•	•	•	•	•	•		•			
3/4	14	24,5	•	•	•	•	•	•	•	•		•			
7/8	14	28,25	•	•	•	•	•	•	•	•		•			
1	11	30,75	•	•	•	•	•	•	•	•		•			
1 1/8	11	35,5										•			
1 1/4	11	39,5										•			
1 1/2	11	45,25										•			
1 3/4	11	51										•			
2	11	57										•			
Blind / through															
			V	OX	-	V	VI	OX	OX	-	-	TIN	CrN	V	NI-OX	V
			PM	HSSE	HSSE	PM	PM	HSSE	HSSE	HSSE	HSSE	PM	HSSE	PM	HSSE	CARBIDE
			FORM B	FORM B	FORM B	FORM C	FORM C	FORM C	FORM C	FORM C	FORM C	FORM C	FORM C	FORM C	FORM C	FORM C
Tolerance			-	-	-	-	-	-	-	-	-	-	-	-	-	-
P			•	•	•	•	•	•	•	•	•		•	•		
M			•	•		•	•	•	•			•	•			
K				•	•			•	•	•	•			•	•	
N			•		•	•	•		•	•	•		•	•		
S			•			•						•				
H			•			•								•		•

SELECTION CHART

Threading | Selection chart | By size

G



NEW NEW NEW NEW NEW

Rc (PT)



Product series				A-XPF	A-OIL-XPF	A-XPF FORM E	A-OIL-XPF FORM E	S-XPF	S-OIL-XPF	S-XPF-GL	VA-XPF	M-NRT
A-Brand				A	A	A	A	A	A	A		
Page				A.242	A.243	A.243	A.244	A.244	A.245	A.245	A.246	A.246
Ø	I	Ø min.	Ø max.	DIN 2189	DIN 2189	DIN 2189	DIN 2189	DIN 2189	DIN 2189	DIN 2189	DIN 2189	DIN 2189
1/8	28	9,24	9,35	•	•	•	•	•		•	•	•
1/4	19	12,41	12,62	•	•	•	•	•	•	•	•	•
3/8	19	15,92	16,12	•	•	•	•	•	•	•	•	•
1/2	14	19,93	20,15	•	•	•	•	•	•	•	•	•
5/8	14	21,89	22,11					•	•	•	•	•
3/4	14	25,42	25,64					•	•	•	•	•
7/8	14	29,18	29,40					•	•	•	•	
1	11	31,92	32,20					•	•	•	•	
Blind / through												
				VI	VI	VI	VI	V	V	V	PM	TIN
				PM	PM	PM	PM	HSS-Co	HSS-Co	HSS-Co	AlCrN	PM
				FORM C	FORM C	FORM E	FORM E	FORM C	FORM C	FORM C	FORM C	FORM C
Tolerance				-	-	-	-	-	-	-	-	-
P				•	•	•	•	•	•	•	•	•
M				•	•	•	•	•	•	•	•	•
K												
N				•	•	•	•	•	•	•	•	•
S											•	
H				•	•	•		•	•	•		

Product series			A-SFT	A-TPT	S-TPT
A-Brand			A	A	
Page			A.247	A.247	A.248
Ø	I	Ø	DIN 5156	DIN 5156	DIN 5156
1/16	28	6,15	•		
1/8	28	8,3	•	•	•
1/4	19	11	•	•	•
3/8	19	14,5	•	•	•
1/2	14	18,1	•	•	•
3/4	14	23,5	•	•	•
1	11	29,6	•	•	•
Blind / through					
			V	V	OX
			PM	PM	HSSE
			FORM C	FORM C	FORM C
Tolerance			-	-	-
P			•	•	•
M					
K					
N			•	•	
S					
H					

SELECTION CHART

Rp



NEW

NPSF



NPT





Pg



Product series			A-SFT FORM E
A-Brand			A
Page			A.248
Ø	I	Ø	DIN 5156
1/16	27	6,15	•
1/8	27	8,4	•
1/4	18	11,1	•
3/8	18	14,3	•
1/2	14	17,9	•
3/4	14	23,3	•
1	11,5	29	•
Blind / through			
			V
			-
			FORM E
Tolerance			-
P			•
M			•
K			
N			•
S			•
H			•

Product series			A-SFT FORM E
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Page			A.249
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1/8	27	8,4	•
1/4	18	11,1	•
3/8	18	14,3	•
1/2	14	17,9	•
3/4	14	23,3	•
1	11,5	29	•
Blind / through			
			V
			PM
			FORM C
Tolerance			-
P			•
M			•
K			
N			•
S			•
H			•

Product series			A-SFT NPT	NPT
A-Brand			A	
Page			A.249	A.250
Ø	I	Ø	DIN 5156	DIN 2181
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1/8	27	8,4	•	•
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3/8	18	14,3	•	•
1/2	14	17,9	•	•
3/4	14	23,3	•	•
1	11,5	29	•	•
Blind / through				
			V	-
			PM	HSSE
			FORM C	FORM C
Tolerance			-	-
P			•	•
M				
K				•
N			•	•
S				
H				

Product series			PG
A-Brand			
Page			A.250
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11	18	17,25	•
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21	16	27	•
29	16	35,5	•
36	16	45,5	•
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Blind / through			
			-
			HSSE
			FORM C
Tolerance			-
P			•
M			
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	A-OIL-POT	V	A	Powder metal spiral-point cutting tap for through holes High speed tapping in general steels, aluminium, stainless steels Side through coolant	M6 - M24	A.97
	A-POT 6GX	V	A	Powder metal spiral-point cutting tap for through holes High speed tapping in general steels, aluminium, stainless steels For 6G internal thread tolerance	M2 - M16	A.98
	A-POT 7GX	V	A	Powder metal spiral-point cutting tap for through holes High speed tapping in general steels, aluminium, stainless steels For 7G internal thread tolerance	M2 - M16	A.98
	A-POT+0.1	V	A	Powder metal spiral-point cutting tap for through holes High speed tapping in general steels, aluminium, stainless steels Oversized tap for 6H +0,1mm thread tolerance	M3 - M16	A.99
	A-LT-POT	V	A	Powder metal spiral-point cutting tap for through holes High speed tapping in general steels, aluminium, stainless steels With long shank for long reach threading	M2 - M20	A.99
	A-POT-LH	V	A	Powder metal spiral-point cutting tap for through holes High speed tapping in general steels, aluminium, stainless steels For left-hand threads	M3 - M24	A.100
	A-POT-HB Weldon	V	A	Powder metal spiral-point cutting tap for through holes High speed tapping in general steels, aluminium, stainless steels With Weldon shank	M3 - M16	A.100
	S-POT	0X		HSSE spiral-point cutting tap for through holes General purpose tapping in steels and stainless steels	M1 - M24	A.101
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	S-LT-POT	0X		HSSE spiral-point cutting tap for through holes General purpose tapping in steels and stainless steels With long shank for long reach threading	M2 - M20	A.103
	S-POT-LH	0X		HSSE spiral-point cutting tap for through holes General purpose tapping in steels and stainless steels For left-hand threads	M3 -M24	A.103
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TICN-POT	V		HSSE spiral-point cutting tap for through holes For steels up to 1000 N/mm²	M2 - M24	A.108
CC-POT	CrN		HSSE spiral-point cutting tap for through holes For general steels and stainless steels Developed for rigid tapping on CNC machines	M2 - M30	A.108
CC-LT-POT	CrN		HSSE spiral-point cutting tap for through holes For general steels and stainless steels With long shank for long reach threading	M2 - M12	A.109
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V-TI-POT	V		Powder metal spiral-point cutting tap for through holes For Titanium alloys	M3 - M12	A.110
E-POT			Powder metal spiral-point cutting tap for through holes For Nickel-based alloys including Inconel 718	M3 - M12	A.111
WHR-NI-POT	HR		Powder metal spiral-point cutting tap for through holes For Nickel-based alloys including Inconel 718	M3 - M12	A.111
CPM-POT			Powder metal spiral-point cutting tap for through holes For steels up to 900 N/mm² and cast iron	M3 - M20	A.112
H-POT	OX		Powder metal spiral-point cutting tap for through holes For hardened steels up to 45 HRC	M2 - M20	A.112
VP-H-POT	V		Powder metal spiral-point cutting tap for through holes For hardened steels up to 45 HRC	M2 - M36	A.113
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	A-OIL-SFT	V	A	Powder metal spiral-fluted cutting tap for blind holes High speed tapping in general steels, aluminium, stainless steels Center through coolant	M6 - M56	A.114
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	A-SFT 7GX	V	A	Powder metal spiral-fluted cutting tap for blind holes High speed tapping in general steels, aluminium, stainless steels For 7G internal thread tolerance	M2 - M16	A.115
	A-SFT +0.1	V	A	Powder metal spiral-fluted cutting tap for blind holes High speed tapping in general steels, aluminium, stainless steels Oversized tap for 6H +0,1mm thread tolerance	M3 - M16	A.116
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	A-SFT-HB Weldon	V	A	Powder metal spiral-fluted cutting tap for blind holes High speed tapping in general steels, aluminium, stainless steels With Weldon shank	M3 - M16	A.118
	A-SFT-INOX NEW	VI	A	Powder metal spiral-fluted cutting tap for blind holes Multilayer VI coating	M2 - M24	A.118
	A-SFT-AL FORM C NEW	V	A	Powder metal spiral-fluted cutting tap for blind holes Multilayer TiCN coating	M2 - M12	A.119
	A-SFT-AL FORM E NEW	V	A	Powder metal spiral-fluted cutting tap for blind holes Multilayer TiCN coating	M2 - M12	A.119
	A-CSF OIL	FX	A	Carbide spiral-fluted cutting tap for blind holes For cast iron and aluminium cast Center through coolant	M5 - M12	A.120
	A-CSF OIL FORM E	FX	A	Carbide spiral-fluted cutting tap for blind holes For cast iron and aluminium cast Center through coolant, Form E chamfer	M5 - M12	A.120
	S-SFT	OX		HSSE spiral-flute cutting tap for blind holes General purpose tapping in steels and stainless steels	M1 - M24	A.121
	S-SFT 6G	OX		HSSE spiral-flute cutting tap for blind holes General purpose tapping in steels and stainless steels For 6G internal thread tolerance	M2 - M16	A.121
	S-SFT 7G	OX		HSSE spiral-flute cutting tap for blind holes General purpose tapping in steels and stainless steels For 7G internal thread tolerance	M2 - M16	A.122
	S-SFT+0.1	OX		HSSE spiral-flute cutting tap for blind holes General purpose tapping in steels and stainless steels Oversized tap for 6H +0,1mm thread tolerance	M3 - M16	A.122
	S-SFT FORM E	OX		HSSE spiral-flute cutting tap for blind holes General purpose tapping in steels and stainless steels Form E chamfer	M2 - M24	A.123

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Cutting taps



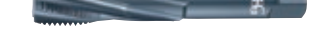


















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SFT			HSSE spiral-flute cutting tap for blind holes For general purpose applications According to DIN 352 shank reduced length	M3 - M10	A.128
TIN-SFT	TiN		HSSE spiral-flute cutting tap for blind holes For steels up to 850 N/mm^2	M2 - M30	A.128
TICN-SFT	V		HSSE spiral-flute cutting tap for blind holes For steels up to 850 N/mm^2	M2 - M24	A.129
HXL-SFT	OX		HSSE low spiral-fluted cutting tap for blind holes For steels and cast iron For horizontal applications in oil and heavy industry	M20 - M56	A.129
OIL-HXL-SFT	OX		HSSE low spiral-fluted cutting tap for blind holes For steels and cast iron Center through coolant, for horizontal applications in oil and heavy industry	M20 - M56	A.130
VXL-SFT	OX		HSSE high spiral-fluted cutting tap for blind holes For general steels For vertical applications in oil and heavy industry	M20 - M56	A.130
OIL-VXL-SFT	OX		HSSE high spiral-fluted cutting tap for blind holes For general steels Center through coolant, for vertical applications in oil and heavy industry	M20 - M56	A.131
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M-SFT-DUPLEX	TiN		Powder metal spiral-fluted cutting tap for blind holes TiN coating For stainless steels, Duplex, Super Duplex	M2 - M24	A.132
M-OIL-SFT-DUPLEX	TiN		Powder metal spiral-fluted cutting tap for blind holes TiN coating For stainless steels, Duplex, Super Duplex Center through coolant	M6 - M24	A.132
M-LT-SFT-DUPLEX	TiN		Powder metal spiral-fluted cutting tap for blind holes TiN coating For stainless steels, Duplex, Super Duplex With long shank for deep reach threading, up to 3D	M2 - M20	A.133

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	CC-NEO-SFT	TiN		HSSE spiral-flute cutting tap for blind holes For general steels, stainless steels and aluminium Variable helix for better chip evacuation	M2 - M16	A.134
	SUS-SFT	OX		HSSE high spiral-fluted cutting tap for blind holes For stainless steels	M2 - M24	A.135
	HS-SFT-TIN	TiN		HSSE spiral-flute cutting tap for blind holes For high speed tapping in various materials	M3 - M12	A.135
	AL-SFT			HSSE spiral-flute cutting tap for blind holes For aluminium and cast aluminium	M1,6 - M20	A.136
	US-AL-SFT	V		HSSE spiral-flute cutting tap for blind holes For high speed tapping in aluminium and cast aluminium Developed for rigid tapping on CNC machines	M3 - M12	A.136
	V-TI-SFT	V		Powder metal low spiral-fluted cutting tap for blind holes For Titanium alloys	M1,6 - M12	A.137
	E-SFT			Powder metal low spiral-fluted cutting tap for blind holes For Nickel-based alloys including Inconel 718	M3 - M12	A.137
	WHR-NI-SFT	HR		Powder metal low spiral-fluted cutting tap for blind holes For Nickel-based alloys including Inconel 718	M3 - M12	A.138
	CPM-SFT			Powder metal low spiral-fluted cutting tap for blind holes For steels up to 900 N/mm² and cast iron	M3 - M20	A.138
	H-SFT	OX		Powder metal low spiral-fluted cutting tap for blind holes For hardened steels up to 45 HRC	M2 - M20	A.139
	VP-H-SFT	V		Powder metal low spiral-fluted cutting tap for blind holes For hardened steels up to 45 HRC	M2 - M36	A.139
	VPO-H-SFT	V		Powder metal spiral-fluted cutting tap for blind holes For hardened steels up to 45 HRC Center through coolant	M6 - M36	A.140
	V-EM-SFT	V		HSSE spiral-flute cutting tap for blind holes For die cast aluminium Center through coolant, with end cut, for pre-formed cast holes	M4 - M16	A.140

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VPO-DC-MT Center	V		Powder metal straight flute cutting tap for blind holes For cast iron and aluminium cast Synchro taps at cutting speeds > 30 m/min, with Center through coolant	M6 - M20	A.142
VPO-DC-MT Side	V		Powder metal straight flute cutting tap for through and blind holes For cast iron and aluminium cast Synchro taps at cutting speeds > 30 m/min, with side through coolant	M6 - M20	A.142
VPO-DC-MT FORM E	V		Powder metal straight flute cutting tap for blind holes For cast iron and aluminium cast Synchro taps at cutting speeds > 30 m/min, Center coolant through, chamfer Form E	M6 - M24	A.143
A-CHT OIL Center	FX	A	Carbide straight flute cutting tap for blind holes For cast iron and aluminium cast Center through coolant	M5 - M12	A.143
A-CHT OIL Side	FX	A	Carbide straight flute cutting tap for through and blind holes For cast iron and aluminium cast Side through coolant	M5 - M12	A.144
A-CHT OIL FORM E	FX	A	Carbide straight flute cutting tap for blind holes For cast iron and aluminium cast Center through coolant Form E chamfer	M5 - M12	A.144
GG-MT	NI-OX		HSSE straight flute cutting tap for blind and through holes For cast iron	M4 - M20	A.145
OIL-TXL-MT	OX		HSSE straight flute cutting tap for blind and through holes For cast iron and general steels For vertical and horizontal applications, side through coolant Up to M56	M20 - M56	A.145
EX-MCT	OX		HSSE low left-hand helix for blind and through holes For cast iron, cast aluminium and general steels Long shank for long reach tapping	M6 - M20	A.146
V-XPM-HT	V		Powder metal straight flute cutting tap for through and blind holes For hardened steels up to 52 HRC Highly wear resistant XPM tool substrate	M3 - M12	A.146
V-XPM-HT FORM D	V		Powder metal straight flute cutting tap for through and blind holes For hardened steels up to 52 HRC, Chamfer Form D Highly wear resistant XPM tool substrate	M3 - M12	A.147
WH55-OT	V		Carbide straight flute cutting tap for blind and through holes For hardened steels up to 55 HRC	M3 - M12	A.147
WH55-OT FORM D	V		Carbide straight flute cutting tap for through holes For hardened steels up to 55 HRC Chamfer Form D	M3 - M12	A.148
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	A-XPF 6GX NEW	VI	A	Powder metal forming tap for through and blind holes High speed tapping in general steels, aluminium, stainless steels	M2 - M16	A.150
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	A-XPF FORM E NEW	VI	A	Powder metal forming tap for through and blind holes High speed tapping in general steels, aluminium, stainless steels	M2 - M16	A.151
	A-OIL-XPF FORM E NEW	VI	A	Powder metal forming tap for through and blind holes High speed tapping in general steels, aluminium, stainless steels Center through coolant	M4 - M16	A.151
	S-XPF	V	A	HSSE forming tap for through and blind holes For general steels, stainless steels, aluminium	M1 - M30	A.152
	S-OIL-XPF NEW SIZE	V	A	HSSE forming tap for through and blind holes For general steels, stainless steels, aluminium Side through coolant	M4 - M45	A.152
	S-XPF 6GX	V	A	HSSE forming tap for through and blind holes For general steels, stainless steels, aluminium For 6G internal thread tolerance	M2 - M16	A.153
	S-OIL-XPF 6GX	V	A	HSSE forming tap for through and blind holes For general steels, stainless steels, aluminium For 6G internal thread tolerance, side through coolant	M5 - M16	A.153
	S-XPF 7GX	V	A	HSSE forming tap for through and blind holes For general steels, stainless steels, aluminium For 7G internal thread tolerance	M2 - M16	A.154
	S-XPF+0.1	V	A	HSSE forming tap for through and blind holes For general steels, stainless steels, aluminium Oversized tap for 6H +0,1mm thread tolerance	M3 - M16	A.154
	S-XPF FORM D	V	A	HSSE forming tap for through holes For general steels, stainless steels, aluminium Chamfer Form D	M3 - M16	A.155
	S-XPF FORM E	V	A	HSSE forming tap for through and blind holes For general steels, stainless steels, aluminium Chamfer Form E	M2 - M16	A.155
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	S-XPF-LH	V	A	HSSE forming tap for through and blind holes For general steels, stainless steels, aluminium For left-hand threads	M3 - M24	A.157
	S-XPF-HB Weldon	V	A	HSSE forming tap for through and blind holes For general steels, stainless steels, aluminium With Weldon shank	M3 - M16	A.158
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	V-NRT FORM D	V		HSSE forming tap for through holes For general steels, stainless steels, aluminium Chamfer Form D	M2 - M12	A.162
	V-NRT 6GX FORM D	V		HSSE forming tap for through holes For general steels, stainless steels, aluminium For 6G internal thread tolerance, chamfer Form D	M2 - M10	A.163
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	VA-XPF 6GX NEW	AlCrN		Powder metal forming tap for through and blind holesAlCrN coating For general steels, stainless steels and aluminium	M2 - M16	A.164
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	VA-OIL-XPF FORM E NEW	AlCrN		Powder metal forming tap for through and blind holesAlCrN coating For general steels, stainless steels and aluminium Center through coolant	M5 - M16	A.165
	M-NRT	TiN		Powder metal forming tap for through and blind holes For stainless steel and aluminium	M1 - M24	A.166
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	M-NRT 6GX	TiN		Powder metal forming tap for through and blind holes For stainless steel and aluminium For 6G internal thread tolerance	M2 - M16	A.167
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Product series		A-Brand	Features	Range	Page
A-POT	V	A	Powder metal spiral-point cutting tap for through holes High speed tapping in general steels, aluminium, stainless steels	MF2,5 - MF24	A.168
A-OIL-POT	V	A	Powder metal spiral-point cutting tap for through holes High speed tapping in general steels, aluminium, stainless steels Side through coolant	MF8 - MF20	A.169
A-POT 6GX	V	A	Powder metal spiral-point cutting tap for through holes High speed tapping in general steels, aluminium, stainless steels For 6G internal thread tolerance	MF6 - MF24	A.169
S-POT	OX		HSSE spiral-point cutting tap for through holes General purpose tapping in steels and stainless steels	MF3 - MF24	A.170
S-POT 6G	OX		HSSE spiral-point cutting tap for through holes General purpose tapping in steels and stainless steels For 6G internal thread tolerance	MF6 - MF24	A.170
VA-POT	OX		HSSE spiral-point cutting tap for through holes General purpose tapping in steels and stainless steels	MF3 - MF24	A.171
Z-POT	V		Powder metal spiral-point cutting tap for through holes High speed tapping in steels and stainless steels	MF3 - MF24	A.171
POT	-		HSSE spiral-point cutting tap for through holes For general purpose applications	MF4 - MF30	A.172
CC-POT	CrN		HSSE spiral-point cutting tap for through holes For general steels and stainless steels Developed for rigid tapping on CNC machines	MF6 - MF24	A.172
H-POT	OX		Powder metal spiral-point cutting tap for through holes For hardened steels up to 45 HRC	MF3 - MF24	A.173

Metric Fine - Blind hole

Cutting taps









Product series		A-Brand	Features	Range	Page
A-SFT	V	A	Powder metal spiral-fluted cutting tap for blind holes High speed tapping in general steels, aluminium, stainless steels	MF2,5 - MF24	A.173
A-OIL-SFT	V	A	Powder metal spiral-fluted cutting tap for blind holes High speed tapping in general steels, aluminium, stainless steels Center through coolant	MF8 - MF20	A.174
A-SFT 6GX	V	A	Powder metal spiral-fluted cutting tap for blind holes High speed tapping in general steels, aluminium, stainless steels For 6G internal thread tolerance	MF6 - MF24	A.174
A-SFT FORM E	V	A	Powder metal spiral-fluted cutting tap for blind holes High speed tapping in general steels, aluminium, stainless steels Form E chamfer	MF2,5 - MF24	A.175
A-SFT-INOX NEW	VI	A	Powder metal spiral-fluted cutting tap for blind holes Multilayer VI coating	MF2,5 - MF24	A.175
A-SFT-AL FORM C NEW	V	A	Powder metal spiral-fluted cutting tap for blind holes Multilayer TiCN coating	MF8 - MF12	A.176
A-SFT-AL FORM E NEW	V	A	Powder metal spiral-fluted cutting tap for blind holes Multilayer TiCN coating	MF8 - MF12	A.176

Metric Fine - Blind hole

Cutting taps















Product series		A-Brand	Features	Range	Page
A-CSF OIL	FX	A	Carbide spiral-fluted cutting tap for blind holes For cast iron and aluminium cast Center through coolant	MF8 - MF20	A.177
A-CSF OIL FORM E	FX	A	Carbide spiral-fluted cutting tap for blind holes For cast iron and aluminium cast Center through coolant Form E chamfer	MF8 - MF16	A.177
S-SFT	OX		HSSE spiral-flute cutting tap for blind holes General purpose tapping in steels and stainless steels	MF3 - MF24	A.178
S-SFT 6G	OX		HSSE spiral-flute cutting tap for blind holes General purpose tapping in steels and stainless steels For 6G internal thread tolerance	MF6 - MF24	A.178
S-SFT FORM E	OX		Powder metal spiral-fluted cutting tap for blind holes High speed tapping in general steels, aluminium, stainless steels Form E chamfer	MF3 - MF24	A.179
VA-SFT	OX		HSSE spiral-flute cutting tap for blind holes General purpose tapping in steels and stainless steels	MF3 - MF24	A.179
Z-SFT	V		Powder metal spiral-fluted cutting tap for blind holes High speed tapping in general steels and stainless steels	MF3 - MF24	A.180
SFT			HSSE spiral-flute cutting tap for blind holes For general purpose applications	MF4 - MF30	A.180
M-SFT-DUPLEX	TiN		Powder metal spiral-fluted cutting tap for blind holes TiN coating For stainless steels, Duplex, Super Duplex	M6 - M24	A.181
M-OIL-SFT-DUPLEX	TiN		Powder metal spiral-fluted cutting tap for blind holes TiN coating For stainless steels, Duplex, Super Duplex Center through coolant	M8 - M20	A.181
CC-SFT	CrN		HSSE spiral-flute cutting tap for blind holes For general steels, stainless steels and aluminium Developed for rigid tapping on CNC machines	MF6 - MF24	A.182
SUS-SFT	OX		HSSE high spiral-fluted cutting tap for blind holes For stainless steels	MF8 - MF24	A.182
AL-SFT			HSSE spiral-flute cutting tap for blind holes For aluminium and cast aluminium	MF8 - MF12	A.183
H-SFT	OX		Powder metal low spiral-fluted cutting tap for blind holes For hardened steels up to 45 HRC	MF3 - MF24	A.183

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Threading

Metric Fine - Through & Blind hole

Cutting taps



Product series		A-Brand	Features	Range	Page
VP-DC-MT	V		Powder metal straight flute cutting tap for through and blind holes For cast iron and aluminium cast Synchro taps at cutting speeds > 30 m/min	MF3 - MF24	A.184
VPO-DC-MT Center	V		Powder metal straight flute cutting tap for blind holes For cast iron and aluminium cast Synchro taps at cutting speeds > 30 m/min Center through coolant	MF8 - MF20	A.184
VPO-DC-MT Side	V		Powder metal straight flute cutting tap for through holes For cast iron and aluminium cast Synchro taps at cutting speeds > 30 m/min Side through coolant	MF8 - MF20	A.185
A-CHT OIL Center	FX	A	Carbide straight flute cutting tap for blind holes For cast iron and aluminium cast Center through coolant	MF8 - MF20	A.185
A-CHT OIL Side	FX	A	Carbide straight flute cutting tap for through holes For cast iron and aluminium cast Side through coolant	MF8 -MF20	A.186
A-CHT OIL FORM E	FX	A	Carbide straight flute cutting tap for blind holes For cast iron and aluminium cast Center through coolant Form E chamfer	MF10 - MF16	A.186
GG-MT	NI-0X		HSSE straight flute cutting tap for blind and through holes For cast iron	MF3 - MF24	A.187

Metric Fine - Forming

Forming taps



Product series		A-Brand	Features	Range	Page
A-XPF	V	A	Powder metal forming tap for through and blind holes High speed tapping in general steels, aluminium, stainless steels Powder metal for long tool life	MF4 - MF24	A.187
A-OIL-XPF NEW SIZES	V	A	Powder metal forming tap for through and blind holes High speed tapping in general steels, aluminium, stainless steels Side through coolant	MF8 - MF24	A.188
A-XPF 6 GX NEW	VI	A	Powder metal forming tap for through and blind holes High speed tapping in general steels, aluminium, stainless steels	MF8 - MF20	A.188
A-XPF FORM E NEW	VI	A	Powder metal forming tap for through and blind holes High speed tapping in general steels, aluminium, stainless steels	MF10 - MF16	A.189
S-XPF	V	A	HSSE forming tap for through and blind holes For general steels, stainless steels, aluminium	MF4 - MF24	A.189
S-OIL-XPF	V	A	HSSE forming tap for through and blind holes For general steels, stainless steels, aluminium Side through coolant	MF8 - MF24	A.190
S-XPF 6GX	V	A	HSSE forming tap for through and blind holes For general steels, stainless steels, aluminium For 6G internal thread tolerance	MF8 - MF24	A.190
S-OIL-XPF 6GX	V	A	HSSE forming tap for through and blind holes For general steels, stainless steels, aluminium Side through coolant For 6G internal thread tolerance	MF8 - MF24	A.191
S-XPF FORM D	V	A	HSSE forming tap for through holes For general steels, stainless steels, aluminium Chamfer Form D	MF8 - MF20	A.191

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Metric Fine - Forming

Forming taps













Product series		A-Brand	Features	Range	Page
S-XPF FORM E	V	A	HSSE forming tap for through and blind holes For general steels, stainless steels, aluminium Chamfer Form E	MF10 - MF16	A.192
S-OIL-XPF FORM E	V	A	HSSE forming tap for blind holes For general steels, stainless steels, aluminium Center through coolant Chamfer Form E	MF8 - MF24	A.192
S-OIL-LT-XPF	V	A	HSSE forming tap for through and blind holes For general steels, stainless steels, aluminium With long shank for long reach threading, side through coolant	MF8 - MF14	A.193
S-XPF-GL	V	A	HSSE forming tap for through and blind holes For general steels, stainless steels, aluminium Without oil grooves for higher rigidity	MF8 - MF24	A.193
S-XPF-GL 6GX	V	A	HSSE forming tap for through and blind holes For general steels, stainless steels, aluminium Without oil grooves for higher rigidity, For 6G internal thread tolerance	MF8 - MF24	A.194
P-OIL-CXPF	EgiAs		Carbide forming tap for blind holes EgiAs coating Center through coolant	MF8 - MF16	A.194
C-OIL-XPF	V	A	Carbide forming tap for through and blind holes For general steels, stainless steels, aluminium Side through coolant	MF8 - MF16	A.195
V-NRT	V		HSSE forming tap for through and blind holes For general steels, stainless steels, aluminium	MF8 - MF12	A.195
V-NRT FORM D	V		HSSE forming tap for through holes For general steels, stainless steels, aluminium Chamfer Form D	MF8 - MF12	A.196
VA-XPF NEW	AlCrN		Powder metal forming tap for through and blind holes AlCrN coating For general steels, stainless steels, aluminium	MF4 - MF24	A.196
M-NRT	TiN		Powder metal forming tap for through and blind holes For stainless steel and aluminium	MF4 - MF24	A.197

UNC - Through hole

Cutting taps





Product series		A-Brand	Features	Range	Page
A-POT	V	A	Powder metal spiral-point cutting tap for through holes High speed tapping in general steels, aluminium, stainless steels	N.2 - 1"	A.197
S-POT	OX		HSSE spiral-point cutting tap for through holes General purpose tapping in steels and stainless steels	N.2 - 1"	A.198
VA-POT	OX		HSSE spiral-point cutting tap for through holes General purpose tapping in steels and stainless steels	N.4 - 1"	A.198

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Threading

UNC - Blind hole

Cutting taps



Product series		A-Brand	Features	Range	Page
A-SFT	V	A	Powder metal spiral-fluted cutting tap for blind holes High speed tapping in general steels, aluminium, stainless steels	N.2 - 1"	A.199
S-SFT	OX		HSSE spiral-flute cutting tap for blind holes General purpose tapping in steels and stainless steels	N.2 - 1 1/2	A.199
VA-SFT	OX		HSSE spiral-flute cutting tap for blind holes General purpose tapping in steels and stainless steels	N.4 - 1"	A.200
HXL-SFT	OX		HSSE low spiral-fluted cutting tap for blind holes For steels and cast iron For horizontal applications in oil and heavy industry	3/4 - 2 1/2	A.200
VXL-SFT	OX		HSSE high spiral-fluted cutting tap for blind holes For general steels For vertical applications in oil and heavy industry	3/4 - 2 1/2	A.201
M-SFT-DUPLEX	TiN		Powder metal spiral-fluted cutting tap for blind holes TiN coating For stainless steels, Duplex, Super Duplex	N.2 - 2"	A.201
VPO-DC-MT FORM E	V		Powder metal straight flute cutting tap for through and blind holes For cast iron and aluminium cast Synchro taps at cutting speeds > 30 m/min	1/4 - 1"	A.202

UNC - Through & Blind hole

Cutting taps



Product series		A-Brand	Features	Range	Page
VP-DC-MT	V		Powder metal straight flute cutting tap for through and blind holes For cast iron and aluminium cast Synchro taps at cutting speeds > 30 m/min	N.2 - 1"	A.202

UNC - Forming

Forming taps



Product series		A-Brand	Features	Range	Page
S-XPF	V	A	HSSE forming tap for through and blind holes For general steels, stainless steels, aluminium	N.5 - 1"	A.203
S-OIL-XPF	V	A	HSSE forming tap for through and blind holes For general steels, stainless steels, aluminium Side through coolant	1/4 - 1"	A.203

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UNF - Through hole

Cutting taps



Product series		A-Brand	Features	Range	Page
A-POT	V	A	Powder metal spiral-point cutting tap for through holes High speed tapping in general steels, aluminium, stainless steels	N.2 - 1"	A.204
S-POT	OX		HSSE spiral-point cutting tap for through holes General purpose tapping in steels and stainless steels	N.2 - 1"	A.204
VA-POT	OX		HSSE spiral-point cutting tap for through holes General purpose tapping in steels and stainless steels	N.6 - 1"	A.205

UNF - Blind hole

Cutting taps



Product series		A-Brand	Features	Range	Page
A-SFT	V	A	Powder metal spiral-fluted cutting tap for blind holes High speed tapping in general steels, aluminium, stainless steels	N.2 - 1"	A.205
S-SFT	OX		HSSE spiral-flute cutting tap for blind holes General purpose tapping in steels and stainless steels	N.2 - 1"	A.206
VA-SFT	OX		HSSE spiral-flute cutting tap for blind holes General purpose tapping in steels and stainless steels	N.6 - 1"	A.206
M-SFT-DUPLEX	TiN		Powder metal spiral-fluted cutting tap for blind holes TiN coating For stainless steels, Duplex, Super Duplex	N.2 - 1"	A.207
VPO-DC-MT FORM E	V		Powder metal straight flute cutting tap for through and blind holes For cast iron and aluminium cast Synchro taps at cutting speeds > 30 m/min	1/4 - 1"	A.208

UNF - Through & Blind hole

Cutting taps



Product series		A-Brand	Features	Range	Page
VP-DC-MT	V		Powder metal straight flute cutting tap for through and blind holes For cast iron and aluminium cast Synchro taps at cutting speeds > 30 m/min	N.2 - 1"	A.207

UNF - Forming

Forming taps



Product series		A-Brand	Features	Range	Page
S-XPF	V	A	HSSE forming tap for through and blind holes For general steels, stainless steels, aluminium	N.6 - 1"	A.208
S-OIL-XPF	V	A	HSSE forming tap for through and blind holes For general steels, stainless steels, aluminium Side through coolant	1/4 - 1"	A.209

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MJ - Blind hole

Cutting taps





Product series		A-Brand	Features	Range	Page
CC-NEO-SFT	TiN		HSSE spiral-flute cutting tap for blind holes For general steels, stainless steels and aluminium Variable helix for better chip evacuation	MJ2 - MJ12	A.209
V-TI-SFT	V		Powder metal low spiral-fluted cutting tap for blind holes For Titanium alloys	MJ2 - MJ12	A.210

UNJC - Through hole

Cutting taps











Product series		A-Brand	Features	Range	Page
VA-POT	OX		HSSE spiral-point cutting tap for through holes General purpose tapping in steels and stainless steels	N.4 - N.8	A.210
V-TI-POT	V		Powder metal spiral-point cutting tap for through holes For Titanium alloys	N.4 - N.8	A.211
E-POT			Powder metal spiral-point cutting tap for through holes For Nickel-based alloys including Inconel 718	N.4 - 1"	A.211
WHR-NI-POT	HR		Powder metal spiral-point cutting tap for through holes For Nickel-based alloys including Inconel 718	N.4 - 1"	A.212
H-POT	OX		Powder metal spiral-point cutting tap for through holes For hardened steels up to 45 HRC	N.4 - N.8	A.212

UNJC - Blind hole

Cutting taps















Product series		A-Brand	Features	Range	Page
VA-SFT	OX		HSSE spiral-flute cutting tap for blind holes General purpose tapping in steels and stainless steels	N.4 - N.8	A.213
CC-SFT	CrN		HSSE spiral-flute cutting tap for blind holes For general steels, stainless steels and aluminium Developed for rigid tapping on CNC machines	N.4 - 1"	A.213
M-SFT-DUPLEX	TiN		Powder metal spiral-fluted cutting tap for blind holes TiN coating For stainless steels, Duplex, Super Duplex	N.4- 1"	A.214
V-TI-SFT	V		Powder metal low spiral-fluted cutting tap for blind holes For Titanium alloys	N.4 - N.8	A.214
E-SFT			Powder metal low spiral-fluted cutting tap for blind holes For Nickel-based alloys including Inconel 718	N.4 - 1"	A.215
WHR-NI-SFT	HR		Powder metal low spiral-fluted cutting tap for blind holes For Nickel-based alloys including Inconel 718	N.4 - 1"	A.215
H-SFT	OX		Powder metal low spiral-fluted cutting tap for blind holes For hardened steels up to 45 HRC	N.4 - N.8	A.216

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UNJF - Through hole

Cutting taps



Product series		A-Brand	Features	Range	Page
VA-POT	OX		HSSE spiral-point cutting tap for through holes General purpose tapping in steels and stainless steels	N.10 - 1/2	A.216
V-TI-POT	V		Powder metal spiral-point cutting tap for through holes For Titanium alloys	N.10 - 1/2	A.217
E-POT			Powder metal spiral-point cutting tap for through holes For Nickel-based alloys including Inconel 718	N.10 - 7/8	A.217
WHR-NI-POT	HR		Powder metal spiral-point cutting tap for through holes For Nickel-based alloys including Inconel 718	N.10 - 7/8	A.218
H-POT	OX		Powder metal spiral-point cutting tap for through holes For hardened steels up to 45 HRC	N.10 - 1/2	A.218

UNJF - Blind hole

Cutting taps



Product series		A-Brand	Features	Range	Page
VA-SFT	OX		HSSE spiral-flute cutting tap for blind holes General purpose tapping in steels and stainless steels	N.10 - 1/2	A.219
M-SFT-DUPLEX	TiN		Powder metal spiral-fluted cutting tap for blind holes TiN coating For stainless steels, Duplex, Super Duplex	N.4 - 1"	A.219
CC-SFT	CrN		HSSE spiral-flute cutting tap for blind holes For general steels, stainless steels and aluminium Developed for rigid tapping on CNC machines	N.10 - 1"	A.220
V-TI-SFT	V		Powder metal low spiral-fluted cutting tap for blind holes For Titanium alloys	N.10 - 1/2	A.220
E-SFT			Powder metal low spiral-fluted cutting tap for blind holes For Nickel-based alloys including Inconel 718	N.10 - 7/8	A.221
WHR-NI-SFT	HR		Powder metal low spiral-fluted cutting tap for blind holes For Nickel-based alloys including Inconel 718	N.10 - 7/8	A.221
H-SFT	OX		Powder metal low spiral-fluted cutting tap for blind holes For hardened steels up to 45 HRC	N.10 - 1/2	A.222

HELICOIL M - Blind hole

Cutting taps



Product series		A-Brand	Features	Range	Page
CC-HL-SFT	CrN		HSSE spiral-flute cutting tap for blind holes For general steels, stainless steels and aluminium Developed for rigid tapping on CNC machines, for thread insert	M3 - M20	A.222

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Threading

HELICOIL MJ - Through hole

Cutting taps



Product series		A-Brand	Features	Range	Page
E-HL-POT			Powder metal spiral-point cutting tap for through holes For Nickel-based alloys including Inconel 718 For thread insert	MJ2 - MJ10	A.223
H-HL-POT	0X		Powder metal spiral-point cutting tap for through holes For hardened steels up to 45 HRC For thread insert	MJ2 - MJ10	A.223

HELICOIL MJ - Blind hole

Cutting taps



Product series		A-Brand	Features	Range	Page
E-HL-SFT			Powder metal low spiral-fluted cutting tap for blind holes For Nickel-based alloys including Inconel 718 For thread insert	MJ2 - MJ10	A.224
H-HL-SFT	0X		Powder metal spiral-fluted cutting tap for blind holes For hardened steels up to 45 HRC For thread insert	MJ2 - MJ10	A.224

HELICOIL UNJC - Through hole

Cutting taps



Product series		A-Brand	Features	Range	Page
E-HL-POT			Powder metal spiral-point cutting tap for through holes For Nickel-based alloys including Inconel 718 For thread insert	N.4 -N.8	A.225
H-HL-POT	0X		Powder metal spiral-point cutting tap for through holes For hardened steels up to 45 HRC For thread insert	N.4 -N.8	A.225

HELICOIL UNJC - Blind hole

Cutting taps



Product series		A-Brand	Features	Range	Page
E-HL-SFT			Powder metal low spiral-fluted cutting tap for blind holes For Nickel-based alloys including Inconel 718 For thread insert	N.4 -N.8	A.226
H-HL-SFT	0X		Powder metal low spiral-fluted cutting tap for blind holes For hardened steels up to 45 HRC For thread insert	N.4 -N.8	A.226

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HELICOIL UNJF - Through hole

Cutting taps



Product series		A-Brand	Features	Range	Page
E-HL-POT			Powder metal spiral-point cutting tap for through holes For Nickel-based alloys including Inconel 718 For thread insert	N.10 - 1/2	A.227
H-HL-POT	0X		Powder metal spiral-point cutting tap for through holes For hardened steels up to 45 HRC For thread insert	N.10 - 1/2	A.227

HELICOIL UNJF - Blind hole

Cutting taps



Product series		A-Brand	Features	Range	Page
CC-HL-SFT			HSSE spiral-flute cutting tap for blind holes For general steels, stainless steels and aluminium Developed for rigid tapping on CNC machines, for thread insert	N.10 - 3/8	A.228
E-HL-SFT			Powder metal low spiral-fluted cutting tap for blind holes For Nickel-based alloys including Inconel 718 For thread insert	N.10 - 1/2	A.228
H-HL-SFT			Powder metal low spiral-fluted cutting tap for blind holes For hardened steels up to 45 HRC For thread insert	N.10 - 1/2	A.229

BSW - Through hole

Cutting taps



Product series		A-Brand	Features	Range	Page
A-POT	V	A	Powder metal spiral-point cutting tap for through holes High speed tapping in general steels, aluminium, stainless steels	1/8 - 1"	A.229
S-POT	0X		HSSE spiral-point cutting tap for through holes General purpose tapping in steels and stainless steels	1/8 - 1"	A.230

BSW - Blind hole

Cutting taps



Product series		A-Brand	Features	Range	Page
A-SFT	V	A	Powder metal spiral-fluted cutting tap for blind holes High speed tapping in general steels, aluminium, stainless steels	1/8 - 1"	A.230
S-SFT	0X		HSSE spiral-flute cutting tap for blind holes General purpose tapping in steels and stainless steels	1/8 - 1"	A.231

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BSF - Through hole

Cutting taps



Product series		A-Brand	Features	Range	Page
A-POT	V	A	Powder metal spiral-point cutting tap for through holes High speed tapping in general steels, aluminium, stainless steels	1/4 - 1"	A.231
S-POT	OX		HSSE spiral-point cutting tap for through holes General purpose tapping in steels and stainless steels	1/4 - 1"	A.232

BSF - Blind hole

Cutting taps



Product series		A-Brand	Features	Range	Page
A-SFT	V	A	Powder metal spiral-fluted cutting tap for blind holes High speed tapping in general steels, aluminium, stainless steels	1/4 - 1"	A.232
S-SFT	OX		HSSE spiral-point cutting tap for blind holes General purpose tapping in steels and stainless steels	1/4 - 1"	A.233

BA - Through hole

Cutting taps



Product series		A-Brand	Features	Range	Page
A-POT	V	A	Powder metal spiral-point cutting tap for through holes High speed tapping in general steels, aluminium, stainless steels	N.0 - N.12	A.233
S-POT	OX		HSSE spiral-point cutting tap for through holes General purpose tapping in steels and stainless steels	N.0 - N.12	A.234

BA - Blind hole

Cutting taps



Product series		A-Brand	Features	Range	Page
A-SFT	V	A	Powder metal spiral-fluted cutting tap for blind holes High speed tapping in general steels, aluminium, stainless steels	N.0 - N.12	A.234
S-SFT	OX		HSSE spiral-flute cutting tap for blind holes General purpose tapping in steels and stainless steels	N.0 - N.12	A.235

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G - Through hole

Cutting taps



Product series		A-Brand	Features	Range	Page
A-POT	V	A	Powder metal spiral-point cutting tap for through holes High speed tapping in general steels, aluminium, stainless steels	1/8 - 1"	A.235
S-POT	OX		HSSE spiral-point cutting tap for through holes General purpose tapping in steels and stainless steels	1/8 - 1"	A.236
POT			HSSE spiral-point cutting tap for through holes For general purpose applications	1/8 - 1"	A.236

G - Blind hole

Cutting taps



Product series		A-Brand	Features	Range	Page
A-SFT	V	A	Powder metal spiral-fluted cutting tap for blind holes High speed tapping in general steels, aluminium, stainless steels	1/16 - 1"	A.237
A-SFT-INOX NEW	VI	A	Powder metal spiral-fluted cutting tap for blind holes Multilayer VI coating	1/16 - 1"	A.237
S-SFT	OX		HSSE spiral-flute cutting tap for blind holes General purpose tapping in steels and stainless steels	1/8 - 1"	A.238
VA-SFT	OX		HSSE spiral-flute cutting tap for blind holes General purpose tapping in steels and stainless steels	1/8 - 1"	A.238
SFT	OX		HSSE spiral-flute cutting tap for blind holes For general purpose applications	1/8 - 1"	A.239
SH-SFT			HSSE low spiral-fluted cutting tap for blind holes For alloyed steels ≥ 1100N/mm^2 Short chip creation	1/8 - 1/2	A.239
M-SFT-DUPLEX	TiN		Powder metal spiral-fluted cutting tap for blind holes TiN coating For stainless steels, Duplex, Super Duplex	1/8 - 1"	A.240
CC-SFT	CrN		HSSE spiral-flute cutting tap for blind holes For general steels, stainless steels and aluminium Developed for rigid tapping on CNC machines	1/8 - 1/2	A.240

G - Through & Blind hole

Cutting taps



Product series		A-Brand	Features	Range	Page
VP-DC-MT	V		Powder metal straight flute cutting tap for through and blind holes For cast iron and cast aluminium Synchro taps at cutting speeds > 30 m/min	1/16 - 2"	A.241
GG-MT	Ni-Ox		HSSE straight flute cutting tap for blind and through holes NiOx coating For cast iron	1/8 - 1/2	A.241
VX-OT	V		Carbide straight flute cutting tap for blind and through holes For hardened steels up to 62 HRC	1/8 - 1/2	A.242

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Threading

G - Forming

Forming taps



Product series		A-Brand	Features	Range	Page
A-XPF NEW	VI	A	Powder metal forming tap for through and blind holes For general steels, stainless steels, aluminium	1/8 - 1/2	A.242
A-OIL-XPF NEW	VI	A	Powder metal forming tap for through and blind holes For general steels, stainless steels, aluminium Side through coolant	1/8 - 1/2	A.243
A-XPF FORM E NEW	VI	A	Powder metal forming tap for through and blind holes For general steels, stainless steels, aluminium	1/8 - 1/2	A.243
A-OIL-XPF FORM E NEW	VI	A	Powder metal forming tap for through and blind holes H igh speed tapping in general steels, aluminium, stainless steels Center through coolant	1/8 - 1/2	A.244
S-XPF	V	A	HSSE forming tap for through and blind holes For general steels, stainless steels, aluminium	1/8 - 1"	A.244
S-OIL-XPF	V	A	HSSE forming tap for through and blind holes For general steels, stainless steels, aluminium Side through coolant	1/4 - 1"	A.245
S-XPF-GL	V	A	HSSE forming tap for through and blind holes For general steels, stainless steels, aluminium Without oil grooves for higher rigidity	1/8 - 1"	A.245
VA-XPF NEW	AlCrN		Powder metal forming tap for through and blind holesAlCrN coating For general steels, stainless steels and aluminium	1/8 - 1"	A.246
M-NRT	TiN		Powder metal forming tap for through and blind holes For stainless steel and aluminium	1/8 - 3/4	A.246

Rc (BSPT) - Through & Blind hole

Cutting taps



Product series		A-Brand	Features	Range	Page
A-SFT RC	V	A	Powder metal spiral flute cutting tap for blind holes High speed tapping in general steels and aluminium RC (ISO) tapered 1:16	1/16 - 1"	A.247
A-TPT	V	A	Powder metal straight flute cutting tap for through and blind holes High speed tapping in general steels and aluminium RC (BSPT) tapered 1:16	1/8 - 1"	A.247
S-TPT	OX		HSSE straight flute cutting tap for through and blind holes For general steels and aluminium RC (BSPT) tapered 1:16	1/8 - 1"	A.248

Rp - Blind hole

Cutting taps



Product series		A-Brand	Features	Range	Page
A-SFT FORM E NEW	V	A	Powder metal spiral flute cutting tap for blind holes High speed tapping in general steels, aluminium, stainless steels	1/16 - 1"	A.248

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Threading

NPSF - Blind hole

Cutting taps



Product series		A-Brand	Features	Range	Page
A-SFT FORM E	V	A	Powder metal spiral flute cutting tap for blind holes High speed tapping in general steels, aluminium, stainless steels	1/16 - 1"	A.249

NPT - Through & Blind hole

Cutting taps



Product series		A-Brand	Features	Range	Page
A-SFT NPT	V	A	Powder metal spiral-fluted cutting tap for blind holes High speed tapping in general steels and aluminium Tapered 1:16	1/16 - 1"	A.249
NPT			HSSE straight flute cutting tap for through and blind holes For general steels, aluminium and cast iron Tapered 1:16	1/16 - 1"	A.250

PG - Through & Blind hole

Cutting taps



Product series		A-Brand	Features	Range	Page
PG			HSSE straight flute cutting tap for through and blind holes For general steels, aluminium and cast iron For PG thread	7 - 48	A.250

Serial Form - Through & Blind hole

Cutting taps



Product series		A-Brand	Features	Range	Page
HT			HSS straight flute cutting tap for through and blind holes For general steels, aluminium and cast iron Progressive thread, set of 3 taps with short shank	M2 - M20	A.251
HT-VA-OX	OX		HSSE straight flute cutting tap for through and blind holes For general steels, aluminium and cast iron Progressive thread, set of 3 taps with short shank	M2 - M20	A.251

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Threading

Tapping Holder

Tapping Holder



Product series		A-Brand	Features	Range	Page
SynchroMaster			Tap holder synchronized For tapping sizes from M3 to M12 HSK type, for ER16 collet type	-	A.252
SynchroMaster			Tap holder synchronized For tapping sizes from M3 to M12 BT type, for ER16 collet type	-	A.252
SynchroMaster			Tap holder synchronized For tapping sizes from M3 to M12 Straight shank type, for ER16 collet type	-	A.252

Tap Extension

Taps Extension



Product series		A-Brand	Features	Range	Page
Tap extension shank NEW			Short tap extensions Without internal coolant supply For machining deeper threads with standard threading tools	4,5-33	A.253
Tap extension shank NEW			Long tap extensions Without internal coolant supply For machining deeper threads with standard threading tools	4,5-33	A.253

Thread Mill

Thread Mill



Product series		A-Brand	Features	Range	Page
AT-1	EgiAs	A	One pass thread mill Milling for internal thread	M6 - M24	A.254
AT-2	DUROREY	A	Thread milling without pre-drilled hole for hardened materials Left-hand (spindle rotation left) Up to 65HRC	M3 - M20	A.254
AT-2 R-SPEC	DLC-IGUSS	A	Thread milling without pre-drilled hole Left-hand (spindle rotation left), 2 flutes For aluminium	M3 - M12	A.255
WH-EM-PNC	WXS		Thread milling without pre-drilled hole Left-hand (spindle rotation left)	M3 - M12	A.255
WHO-EM-PNC	WXS		Thread milling without pre-drilled hole for hardened materials Left-hand (spindle rotation left) Center through coolant Up to 62HRC	M3 - M16	A.256
WX-ST-PNC-3P	SC WXS		Carbide thread milling cutter with 3 crest thread length For all materials and hardened steels up to 50 HRC	M1,8 - M20	A.256
WH-VM-PNC	SC WXS		Carbide thread milling cutter for small sizes For all materials and hardened steels up to 50 HRC	M1 - M5	A.257
WX-PNC	WX		Carbide thread milling cutter For all materials	M6 - M27	A.257
WXO-ST-PNC	WX		Carbide thread milling cutter with Center through coolant For all materials and hardened steels up to 45 HRC	M6 - M27	A.258

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Threading

Thread Mill

Thread Mill



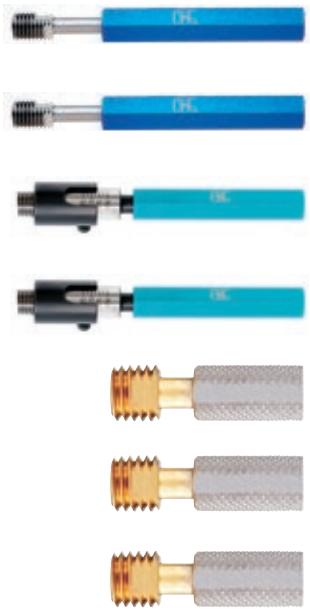
Product series		A-Brand	Features	Range	Page
AT-1	EgiAs	A	One pass thread mill Milling for internal thread	1/4 - 1	A.258
AT-2	DUROREY	A	Thread milling without pre-drilled hole for hardened materials Left-hand (spindle rotation left) Up to 65HRC	No.8 - 1/2	A.259
WH-VM-PNC	WXS		Carbide thread milling cutter for small sizes For all materials and hardened steels up to 50 HRC	N.8	A.259
WX-PNC	WX		Carbide thread milling cutter For all materials	1/4 - 7/8	A.260
WHO-EM-PNC	WXS		Thread milling without pre-drilled hole For hardened steels up to 62 HRC and stainless steel	G1/16 - G1/2	A.260
WX-ST-PNC-3P	WXS		Carbide thread milling cutter with 3 crest thread length For all materials and hardened steels up to 50 HRC	G1/8 - G2	A.261
WX-PNC	WX		Carbide thread milling cutter For all materials	1/16 - 3/8	A.261
AT-1	EgiAs	A	One pass thread mill Milling for internal thread	1/16 - 2	A.262
AT-2	DUROREY	A	Thread milling without pre-drilled hole for hardened materials Left-hand (spindle rotation left) Up to 65HRC	Rc 1/16 - Rc 1	A.262
WX-PNC	WX		Carbide thread milling cutter For all materials	Rc1/8 - Rc 2	A.263
AT-1	EgiAs	A	One pass thread mill Milling for internal thread	Rp 1/16 - Rp 2	A.263
AT-1	EgiAs	A	One pass thread mill Milling for internal thread	NPT 1/16 - NPT 2	A.264
AT-2	DUROREY	A	Thread milling without pre-drilled hole for hardened materials Left-hand (spindle rotation left) Up to 65HRC	NPT 1/16 -NPT 1	A.264
WX-PNC	WX		Carbide thread milling cutter For all materials	NPT 1/16 -NPT 2	A.265

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Threading

Thread Gauge

Thread Gauge



Product series		A-Brand	Features	Range	Page
E-DCT			Diameter correction tool for thread mill Reduce the set up and machining time	M(J)3 - M(J)20	A.265
E-DCT			Diameter correction tool for thread mill Reduce the set up and machining time	1/4 - 3/4 EG-UNJC 1/4 - 3/4 EG-UNJF	A.266
DCT			Diameter correction tool for thread mill Reduce the set up and machining time Measurable range 100% ~-50% tolerance of thread size 6H	M6 - M24	A.266
DCT			Diameter correction tool for thread mill Reduce the set up and machining time Measurable range 100% ~-50% tolerance of thread size 3B	5/16UNJF	A.267
DCT75			Diameter correction tool for thread mill Reduce the set up and machining time Measurable range 100% ~-50% tolerance of thread size 6H	M6 - M16	A.267
DCT75			Diameter correction tool for thread mill Reduce the set up and machining time Measurable range 100% ~-50% tolerance of thread size 3B	1/4UNC - 1/2UNC 1/4UNF - 1/2UNF	A.268
DCT75			Diameter correction tool for thread mill Reduce the set up and machining time Measurable internal thread class R screw and PT screw	Rc1/16 - Rc3/8	A.268

Serial Solid Circular Dies

Serial Solid Circular Dies



Product series		A-Brand	Features	Range	Page
DIN 223B			HSS solid circular dies DIN223B With spiral entry for forward chip ejection Chamfer lead on both sides	M3 - M20	A.270
DIN 223B			HSS solid circular dies DIN223B With spiral entry for forward chip ejection Chamfer lead on both sides	1/8 - 1/2	A.270

ISO 13399 LEGEND

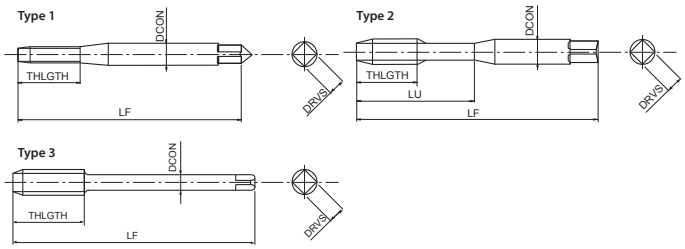
ISO code	Description
APMX	Depth of cut maximum
BD	Body diameter
DC	Cutting diameter
DCON	Connection diameter
DCONMS	Connection diameter machine side
DCONWS	Connection diameter workpiece side
DN	Neck diameter
DRVS	Drive size
LF	Functional length
LH	Head length
LS	Shank length
LU	Usable length
NOF	Flute count
OAL	Overall length
P	Pitch
PHD	Premachined hole diameter
TD	Thread diameter
THCHL	Thread chamfer length
THCHT	Thread chamfer type form
THLGTH	Thread length
TP_TPI	Thread pitch/thread per inch

A-POT

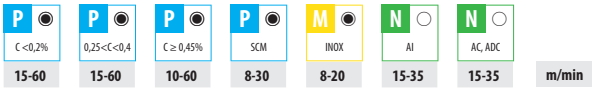
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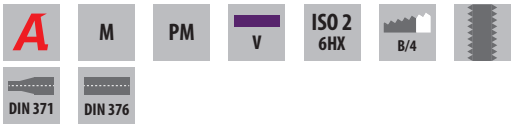
Threading | Cutting taps | Metric





- First choice in quality and performance
- Powder metal spiral-point cutting tap for through holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels





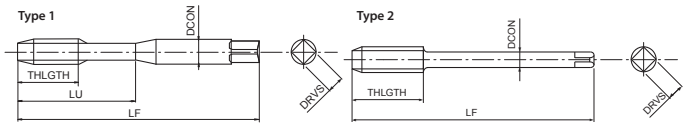
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48145111	1	0,25	40	5	-	2,5	2,1	2	1	371
48145112	1,1	0,25	40	5	-	2,5	2,1	2	1	371
48145113	1,2	0,25	40	5	-	2,5	2,1	2	1	371
48145115	1,4	0,3	40	7	-	2,5	2,1	2	1	371
48145118	1,6	0,35	40	8	-	2,5	2,1	2	1	371
48145119	1,7	0,35	40	8	-	2,5	2,1	2	1	371
48145120	1,8	0,35	40	8	-	2,5	2,1	2	1	371
48145125	2	0,4	45	8	-	2,8	2,1	2	1	371
48145127	2,2	0,45	45	9	-	2,8	2,1	2	1	371
48145128	2,3	0,4	45	9	-	2,8	2,1	2	1	371
48145133	2,5	0,45	50	9	-	2,8	2,1	2	1	371
48145136	2,6	0,45	50	9	-	2,8	2,1	2	1	371
48145138	3	0,5	56	11	18	3,5	2,7	3	2	371
48145142	3,5	0,6	56	12	20	4	3	3	2	371
48145144	4	0,7	63	13	21	4,5	3,4	3	2	371
48145147	4,5	0,75	70	16	25	6	4,9	3	2	371
48145149	5	0,8	70	16	25	6	4,9	3	2	371
48145152	5,5	0,9	80	17	30	6	4,9	3	2	371
48145155	6	1	80	19	30	6	4,9	3	2	371
48145158	7	1	80	19	30	7	5,5	3	2	371
48145161	8	1,25	90	22	35	8	6,2	3	2	371
48145165	9	1,25	90	22	35	9	7	3	2	371
48145169	10	1,5	100	24	39	10	8	3	2	371
48145139	3	0,5	56	11	-	2,2	-	3	3	376
48145185	4	0,7	63	13	-	2,8	2,1	3	3	376
48145150	5	0,8	70	16	-	3,5	2,7	3	3	376
48145187	6	1	80	19	-	4,5	3,4	3	3	376
48145159	7	1	80	19	-	5,5	4,3	3	3	376
48145188	8	1,25	90	22	-	6	4,9	3	3	376
48145166	9	1,25	90	22	-	7	5,5	3	3	376
48145189	10	1,5	100	24	-	7	5,5	3	3	376
48145175	11	1,5	100	24	-	8	6,2	3	3	376
48145179	12	1,75	110	28	-	9	7	3	3	376
48145191	14	2	110	30	-	11	9	3	3	376
48145202	16	2	110	32	-	12	9	3	3	376
48145214	18	2,5	125	34	-	14	11	3	3	376
48145228	20	2,5	140	34	-	16	12	3	3	376
48145238	22	2,5	140	34	-	18	14,5	3	3	376
48145247	24	3	160	38	-	18	14,5	3	3	376

A-OIL-POT

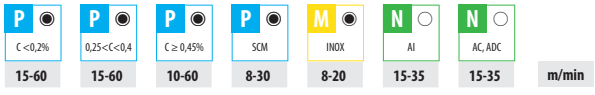
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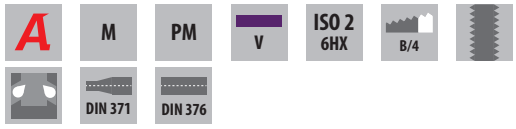
Threading | Cutting taps | Metric





- First choice in quality and performance
- Powder metal spiral-point cutting tap for through holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels
- Side through coolant





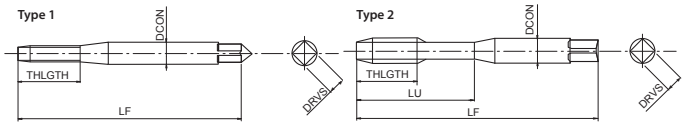
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48214155	6	1	80	19	30	6	4,9	3	1	371
48214161	8	1,25	90	22	35	8	6,2	3	1	371
48214169	10	1,5	100	24	39	10	8	3	1	371
48214179	12	1,75	110	28	-	9	7	3	2	376
48214191	14	2	110	30	-	11	9	3	2	376
48214202	16	2	110	32	-	12	9	3	2	376
48214214	18	2,5	125	34	-	14	11	3	2	376
48214228	20	2,5	140	34	-	16	12	3	2	376
48214238	22	2,5	140	34	-	18	14,5	3	2	376
48214247	24	3	160	38	-	18	14,5	3	2	376

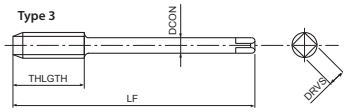
A-POT 6GX

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Threading | Cutting taps | Metric







- First choice in quality and performance
- Powder metal spiral-point cutting tap for through holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels
- For 6G internal thread tolerance

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-60	15-60	10-60	8-30	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC
5-10	8-20

A	M	PM	V	ISO 3 6GX	B/4	
DIN 371	DIN 376					

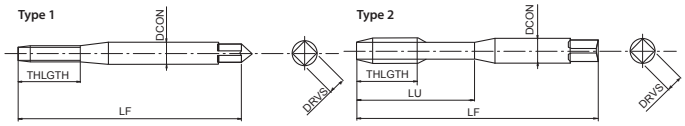
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48205125	2	0,4	0.019	45	8	-	2,8	2,1	2	1	371
48205133	2,5	0,45	0.02	50	9	-	2,8	2,1	2	1	371
48205138	3	0,5	0.02	56	11	18	3,5	2,7	3	2	371
48205144	4	0,7	0.022	63	13	21	4,5	3,4	3	2	371
48205149	5	0,8	0.024	70	16	25	6	4,9	3	2	371
48205155	6	1	0.026	80	19	30	6	4,9	3	2	371
48205161	8	1,25	0.028	90	22	35	8	6,2	3	2	371
48205169	10	1,5	0.032	100	24	39	10	8	3	2	371
48205179	12	1,75	0.034	110	28	-	9	7	3	3	376
48205191	14	2	0.038	110	30	-	11	9	3	3	376
48205202	16	2	0.038	110	32	-	12	9	3	3	376

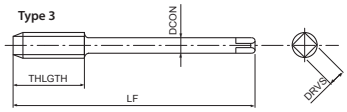
A-POT 7GX

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Threading | Cutting taps | Metric







- First choice in quality and performance
- Powder metal spiral-point cutting tap for through holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels
- For 7G internal thread tolerance

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-60	15-60	10-60	8-30	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC
5-10	8-20

A	M	PM	V	7GX	B/4	
DIN 371	DIN 376					

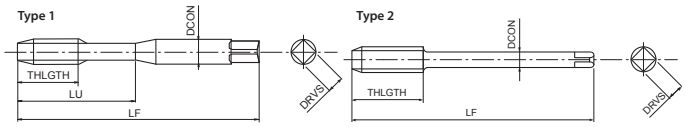
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48206133	2,5	0,45	0.04	50	9	-	2,8	2,1	2	1	371
48206138	3	0,5	0.04	56	11	18	3,5	2,7	3	2	371
48206144	4	0,7	0.044	63	13	21	4,5	3,4	3	2	371
48206149	5	0,8	0.048	70	16	25	6	4,9	3	2	371
48206155	6	1	0.052	80	19	30	6	4,9	3	2	371
48206161	8	1,25	0.056	90	22	35	8	6,2	3	2	371
48206169	10	1,5	0.064	100	24	39	10	8	3	2	371
48206179	12	1,75	0.068	110	28	-	9	7	3	3	376
48206191	14	2	0.076	110	30	-	11	9	3	3	376
48206202	16	2	0.076	110	32	-	12	9	3	3	376

A-POT +0.1

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Threading | Cutting taps | Metric





- First choice in quality and performance
- Powder metal spiral-point cutting tap for through holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels
- Oversized tap for 6H +0,1mm thread tolerance

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-60	15-60	10-60	8-30	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC
5-10	8-20

A	M	PM	V	6H +0.1	B/4	
DIN 371	DIN 376					

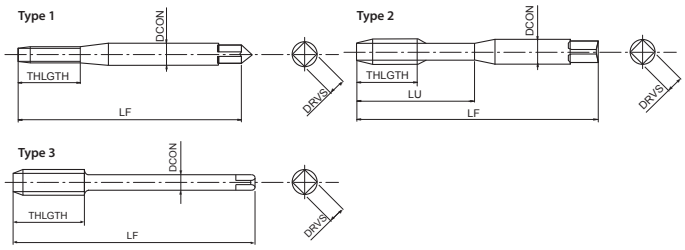
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48259138	3	0,5	56	11	18	3,5	2,7	3	1	371
48259144	4	0,7	63	13	21	4,5	3,4	3	1	371
48259149	5	0,8	70	16	25	6	4,9	3	1	371
48259155	6	1	80	19	30	6	4,9	3	1	371
48259161	8	1,25	90	22	35	8	6,2	3	1	371
48259169	10	1,5	100	24	39	10	8	3	1	371
48259179	12	1,75	110	28	-	9	7	3	2	376
48259202	16	2	110	32	-	12	9	3	2	376

A-LT-POT

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Threading | Cutting taps | Metric





- First choice in quality and performance
- Powder metal spiral-point cutting tap for through holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels
- With long shank for long reach threading

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-60	15-60	10-60	8-30	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC
5-10	8-20

A	M	PM	V	ISO 2 6HX	B/4	
DIN 371	DIN 376					

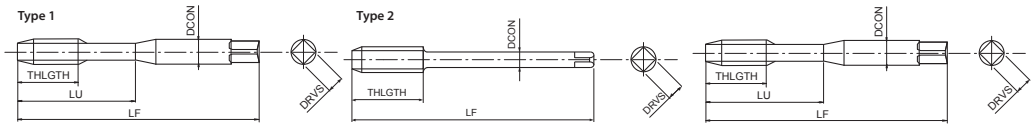
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48210125	2	0,4	80	8	-	2,8	2,1	2	1	371
48210133	2,5	0,45	100	9	-	2,8	2,1	2	1	371
48210138	3	0,5	100	11	18	3,5	2,7	3	2	371
48210144	4	0,7	125	13	21	4,5	3,4	3	2	371
48210149	5	0,8	160	16	25	6	4,9	3	2	371
48210155	6	1	160	19	30	6	4,9	3	2	371
48210161	8	1,25	180	22	35	8	6,2	3	2	371
48210169	10	1,5	200	24	39	10	8	3	2	371
48211155	6	1	160	19	-	4,5	3,4	3	3	376
48211161	8	1,25	180	22	-	6	4,9	3	3	376
48211169	10	1,5	200	24	-	7	5,5	3	3	376
48211179	12	1,75	200	28	-	9	7	3	3	376
48211191	14	2	200	30	-	11	9	3	3	376
48211202	16	2	200	32	-	12	9	3	3	376
48211214	18	2,5	200	34	-	14	11	3	3	376
48211228	20	2,5	200	34	-	16	12	3	3	376

A-POT-LH

INDEX

Threading | Cutting taps | Metric





- First choice in quality and performance
- Powder metal spiral-point cutting tap for through holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels
- For left-hand threads

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-60	15-60	10-60	8-30	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC
5-10	8-20

A	M	PM	V	ISO 2 6HX	B/4	
DIN 371	DIN 376	LH				

EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48218138	3	0,5	56	11	18	3,5	2,7	3	1	371
48218144	4	0,7	63	13	21	4,5	3,4	3	1	371
48218149	5	0,8	70	16	25	6	4,9	3	1	371
48218155	6	1	80	19	30	6	4,9	3	1	371
48218161	8	1,25	90	22	35	8	6,2	3	1	371
48218169	10	1,5	100	24	39	10	8	3	1	371
48218179	12	1,75	110	28	-	9	7	3	2	376
48218191	14	2	110	30	-	11	9	3	2	376
48218202	16	2	110	32	-	12	9	3	2	376
48218214	18	2,5	125	34	-	14	11	3	2	376
48218228	20	2,5	140	34	-	16	12	3	2	376
48218238	22	2,5	140	34	-	18	14,5	3	2	376
48218247	24	3	160	38	-	18	14,5	3	2	376

A-POT-HB Weldon

INDEX

Threading | Cutting taps | Metric



- First choice in quality and performance
- Powder metal spiral-point cutting tap for through holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels
- With Weldon shank

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-60	15-60	10-60	8-30	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC
5-10	8-20

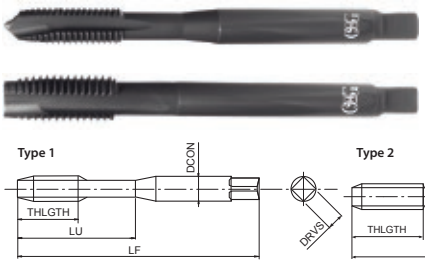
A	M	PM	V	ISO 2 6HX	B/4	
DIN 371	DIN 376	DIN 1835	HB			

EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	DIN
48221138	3	0,5	56	11	18	6	4,9	3	371/1835
48221144	4	0,7	63	13	21	6	4,9	3	371/1835
48221149	5	0,8	70	16	25	6	4,9	3	371/1835
48221155	6	1	80	19	30	6	4,9	3	371/1835
48221161	8	1,25	90	22	35	8	6,2	3	371/1835
48221169	10	1,5	100	24	39	10	8	3	371/1835
48221179	12	1,75	110	28	46	12	9	3	376/1835
48221191	14	2	110	30	49	14	11	3	376/1835
48221202	16	2	110	32	56	16	12	3	376/1835

S-POT

INDEX

Threading | Cutting taps | Metric



- HSSE spiral-point cutting tap for through holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
15-24	10-15	10-15	8-13	8-16	10-15	m/min

M	HSSE	0X	ISO 2 6H	ISO 1 5H≤M1,4	B/4		
DIN 371	DIN 376						

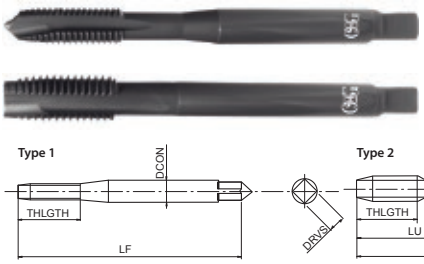
* Tolerance 5H

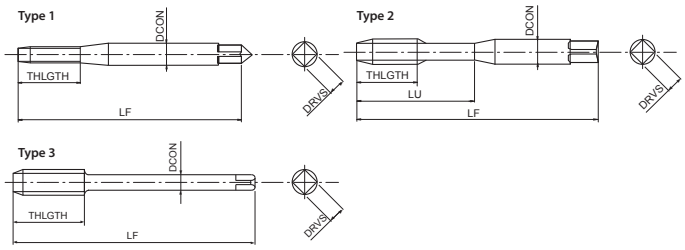
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48224111*	1	0,25	40	5	-	2,5	2,1	2	1	371
48224112*	1,1	0,25	40	5	-	2,5	2,1	2	1	371
48224113*	1,2	0,25	40	5	-	2,5	2,1	2	1	371
48224115*	1,4	0,3	40	7	-	2,5	2,1	2	1	371
48224118	1,6	0,35	40	8	-	2,5	2,1	2	1	371
48224119	1,7	0,35	40	8	-	2,5	2,1	2	1	371
48224120	1,8	0,35	40	8	-	2,5	2,1	2	1	371
48224125	2	0,4	45	8	-	2,8	2,1	2	1	371
48224127	2,2	0,45	45	9	-	2,8	2,1	2	1	371
48224128	2,3	0,4	45	9	-	2,8	2,1	2	1	371
48224133	2,5	0,45	50	9	-	2,8	2,1	2	1	371
48224136	2,6	0,45	50	9	-	2,8	2,1	2	1	371
48224138	3	0,5	56	11	18	3,5	2,7	3	1	371
48224142	3,5	0,6	56	12	20	4	3	3	1	371
48224144	4	0,7	63	13	21	4,5	3,4	3	1	371
48224147	4,5	0,75	70	16	25	6	4,9	3	1	371
48224149	5	0,8	70	16	25	6	4,9	3	1	371
48224152	5,5	0,9	80	17	30	6	4,9	3	1	371
48224155	6	1	80	19	30	6	4,9	3	1	371
48224158	7	1	80	19	30	7	5,5	3	1	371
48224161	8	1,25	90	22	35	8	6,2	3	1	371
48224165	9	1,25	90	22	35	9	7	3	1	371
48224169	10	1,5	100	24	39	10	8	3	1	371
48224140	3	0,5	56	11	-	2,2	-	3	2	376
48224185	4	0,7	63	13	-	2,8	2,1	3	2	376
48224150	5	0,8	70	16	-	3,5	2,7	3	2	376
48224187	6	1	80	19	-	4,5	3,4	3	2	376
48224159	7	1	80	19	-	5,5	4,3	3	2	376
48224188	8	1,25	90	22	-	6	4,9	3	2	376
48224166	9	1,25	90	22	-	7	5,5	3	2	376
48224189	10	1,5	100	24	-	7	5,5	3	2	376
48224175	11	1,5	100	24	-	8	6,2	3	2	376
48224179	12	1,75	110	28	-	9	7	3	2	376
48224191	14	2	110	30	-	11	9	3	2	376
48224202	16	2	110	32	-	12	9	3	2	376
48224214	18	2,5	125	34	-	14	11	3	2	376
48224228	20	2,5	140	34	-	16	12	3	2	376
48224238	22	2,5	140	34	-	18	14,5	3	2	376
48224247	24	3	160	38	-	18	14,5	3	2	376

S-POT 6G

INDEX

Threading | Cutting taps | Metric





- HSSE spiral-point cutting tap for through holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels
- For 6G internal thread tolerance

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
15-24	10-15	10-15	8-13	8-16	10-15	m/min

M	HSSE	0X	ISO 3 6G	B/4		DIN 371
DIN 376						

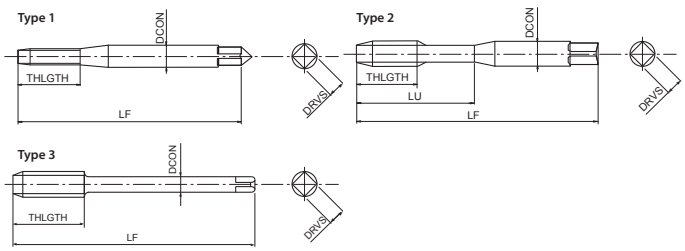
EDP	TD	TP	oversize	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48272125	2	0,4	0.019	45	8	-	2,8	2,1	2	1	371
48272133	2,5	0,45	0.02	50	9	-	2,8	2,1	2	1	371
48272138	3	0,5	0.02	56	11	18	3,5	2,7	3	2	371
48272144	4	0,7	0.022	63	13	21	4,5	3,4	3	2	371
48272149	5	0,8	0.024	70	16	25	6	4,9	3	2	371
48272155	6	1	0.026	80	19	30	6	4,9	3	2	371
48272161	8	1,25	0.028	90	22	35	8	6,2	3	2	371
48272169	10	1,5	0.032	100	24	39	10	8	3	2	371
48272179	12	1,75	0.034	110	28	-	9	7	3	3	376
48272191	14	2	0.038	110	30	-	11	9	3	3	376
48272202	16	2	0.038	110	32	-	12	9	3	3	376

S-POT 7G

INDEX

Threading | Cutting taps | Metric





- HSSE spiral-point cutting tap for through holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels
- For 7G internal thread tolerance

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
15-24	10-15	10-15	8-13	8-16	10-15	m/min

M | HSSE | 0X | 7G | B/4 | | DIN 371 | DIN 376

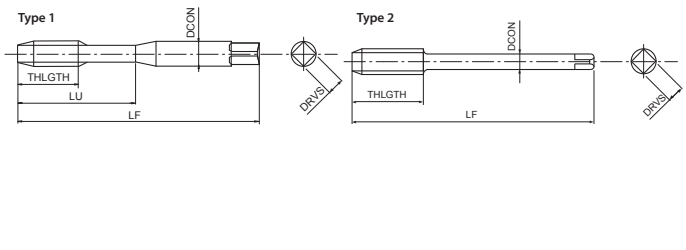
EDP	TD	TP	oversize	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48273125	2	0,4	0.038	45	8	-	2,8	2,1	2	1	371
48273133	2,5	0,45	0.04	50	9	-	2,8	2,1	2	1	371
48273138	3	0,5	0.04	56	11	18	3,5	2,7	3	2	371
48273144	4	0,7	0.044	63	13	21	4,5	3,4	3	2	371
48273149	5	0,8	0.048	70	16	25	6	4,9	3	2	371
48273155	6	1	0.052	80	19	30	6	4,9	3	2	371
48273161	8	1,25	0.056	90	22	35	8	6,2	3	2	371
48273169	10	1,5	0.064	100	24	39	10	8	3	2	371
48273179	12	1,75	0.068	110	28	-	9	7	3	3	376
48273191	14	2	0.076	110	30	-	11	9	3	3	376
48273202	16	2	0.076	110	32	-	12	9	3	3	376

S-POT +0.1

INDEX

Threading | Cutting taps | Metric





- HSSE spiral-point cutting tap for through holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels
- Oversized tap for 6H +0,1mm thread tolerance

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
15-24	10-15	10-15	8-13	8-16	10-15	m/min

M | HSSE | 0X | 6H +0.1 | B/4 | | DIN 371 | DIN 376

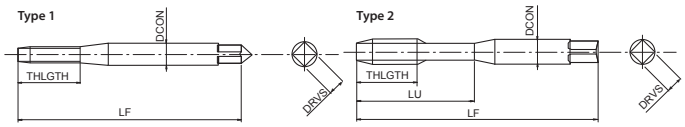
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48271138	3	0,5	56	11	18	3,5	2,7	3	1	371
48271144	4	0,7	63	13	21	4,5	3,4	3	1	371
48271149	5	0,8	70	16	25	6	4,9	3	1	371
48271155	6	1	80	19	30	6	4,9	3	1	371
48271161	8	1,25	90	22	35	8	6,2	3	1	371
48271169	10	1,5	100	24	39	10	8	3	1	371
48271179	12	1,75	110	28	-	9	7	3	2	376
48271191	14	2	110	30	-	11	9	3	2	376
48271202	16	2	110	32	-	12	9	3	2	376

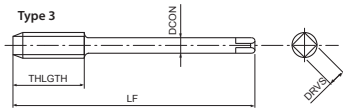
S-LT-POT

INDEX

Threading | Cutting taps | Metric







- HSSE spiral-point cutting tap for through holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels
- With long shank for long reach threading

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
15-24	10-15	10-15	8-13	8-16	10-15	m/min

M | HSSE | 0X | ISO 2 6H | B/4

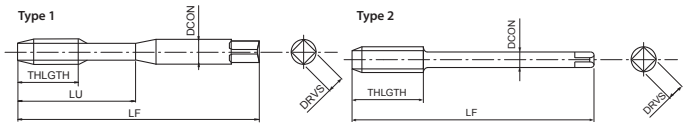
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type
48278125	2	0,4	80	8	-	2,8	2,1	2	1
48278133	2,5	0,45	100	9	-	2,8	2,1	2	1
48278138	3	0,5	100	11	18	3,5	2,7	3	2
48278144	4	0,7	125	13	21	4,5	3,4	3	2
48278149	5	0,8	160	16	25	6	4,9	3	2
48278155	6	1	160	19	30	6	4,9	3	2
48278187	6	1	160	19	-	4,5	3,4	3	2
48278161	8	1,25	180	22	35	8	6,2	3	2
48278188	8	1,25	180	22	-	6	4,9	3	2
48278169	10	1,5	200	24	39	10	8	3	2
48278189	10	1,5	200	24	-	7	5,5	3	2
48278179	12	1,75	200	28	-	9	7	3	3
48278191	14	2	200	30	-	11	9	3	3
48278202	16	2	200	32	-	12	9	3	3
48278214	18	2,5	200	34	-	14	11	3	3
48278228	20	2,5	200	34	-	16	12	3	3

S-POT-LH

INDEX

Threading | Cutting taps | Metric





- HSSE spiral-point cutting tap for through holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels
- For left-hand threads

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
15-24	10-15	10-15	8-13	8-16	10-15	m/min

M | HSSE | 0X | ISO 2 6H | B/4 | DIN 371 | DIN 376 | LH

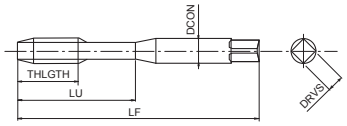
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48280138	3	0,5	56	11	18	3,5	2,7	3	1	371
48280144	4	0,7	63	13	21	4,5	3,4	3	1	371
48280149	5	0,8	70	16	25	6	4,9	3	1	371
48280155	6	1	80	19	30	6	4,9	3	1	371
48280161	8	1,25	90	22	35	8	6,2	3	1	371
48280169	10	1,5	100	24	39	10	8	3	1	371
48280179	12	1,75	110	28	-	9	7	3	2	376
48280191	14	2	110	30	-	11	9	3	2	376
48280202	16	2	110	32	-	12	9	3	2	376
48280214	18	2,5	125	34	-	14	11	3	2	376
48280228	20	2,5	140	34	-	16	12	3	2	376
48280238	22	2,5	140	34	-	18	14,5	3	2	376
48280247	24	3	160	38	-	18	14,5	3	2	376

S-POT-HB Weldon

INDEX

Threading | Cutting taps | Metric





- HSSE spiral-point cutting tap for through holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels
- With Weldon shank

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
15-24	10-15	10-15	8-13	8-16	10-15	m/min

M | HSSE | 0X | ISO 2 6H | B/4 | DIN 371 | DIN 1835 | HB

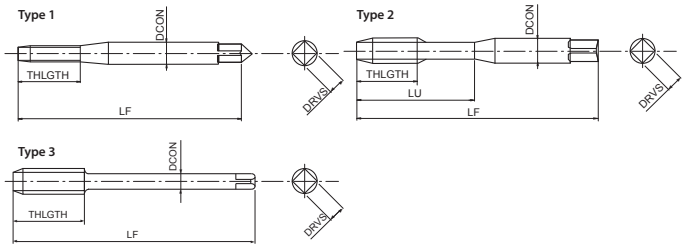
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	DIN
48279138	3	0,5	56	11	18	6	4,9	3	371/1835
48279144	4	0,7	63	13	21	6	4,9	3	371/1835
48279149	5	0,8	70	16	25	6	4,9	3	371/1835
48279155	6	1	80	19	30	6	4,9	3	371/1835
48279161	8	1,25	90	22	35	8	6,2	3	371/1835
48279169	10	1,5	100	24	39	10	8	3	371/1835
48279179	12	1,75	110	28	46	12	9	3	371/1835
48279191	14	2	110	30	49	14	11	3	371/1835
48279202	16	2	110	32	56	16	12	3	371/1835

VA-POT

INDEX

Threading | Cutting taps | Metric





- HSSE spiral-point cutting tap for through holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
15-24	10-15	10-15	8-13	8-16	10-15	m/min

M | HSSE | 0X | ISO 2 6H | B/4 | DIN 371 | DIN 376

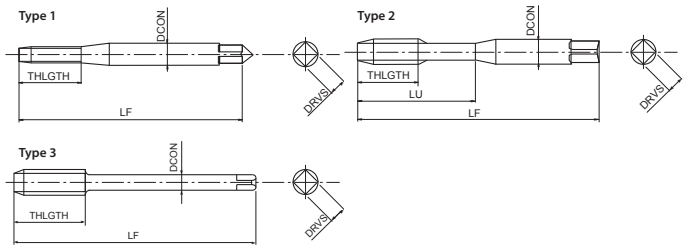
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63812860	2,2	0,45	45	9	-	2,8	2,1	2	1	371
63813360	2,5	0,45	50	9	-	2,8	2,1	2	1	371
63813860	3	0,5	56	-	18	3,5	2,7	3	2	371
63814060	3,5	0,6	56	-	20	4	3	3	2	371
63814460	4	0,7	63	-	21	4,5	3,4	3	2	371
63814960	5	0,8	70	-	25	6	4,9	3	2	371
63815560	6	1	80	-	30	6	4,9	3	2	371
63816160	8	1,25	90	-	35	8	6,2	3	2	371
63816960	10	1,5	100	-	39	10	8	3	2	371
63913860	3	0,5	56	11	-	2,2	-	3	3	376
63914460	4	0,7	63	13	-	2,8	2,1	3	3	376
63914960	5	0,8	70	16	-	3,5	2,7	3	3	376
63915560	6	1	80	19	-	4,5	3,4	3	3	376
63916160	8	1,25	90	22	-	6	4,9	3	3	376
63916960	10	1,5	100	24	-	7	5,5	3	3	376
63917960	12	1,75	110	28	-	9	7	3	3	376
63919160	14	2	110	30	-	11	9	3	3	376
63920260	16	2	110	32	-	12	9	3	3	376
63921460	18	2,5	125	34	-	14	11	3	3	376
63922860	20	2,5	140	34	-	16	12	3	3	376
63923860	22	2,5	140	34	-	18	14,5	3	3	376
63924760	24	3	160	38	-	18	14,5	3	3	376
63926260	27	3	160	38	-	20	16	4	3	376
63927160	30	3,5	180	45	-	22	18	4	3	376
63928160	33	3,5	180	50	-	25	20	4	3	376
63929460	36	4	200	56	-	28	22	4	3	376

VA-POT 6G

INDEX

Threading | Cutting taps | Metric





- HSSE spiral-point cutting tap for through holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels
- For 6G internal thread tolerance

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
15-24	10-15	10-15	8-13	8-16	10-15	m/min

M	HSSE	OX	ISO 3 6G	B/4		DIN 371	DIN 376

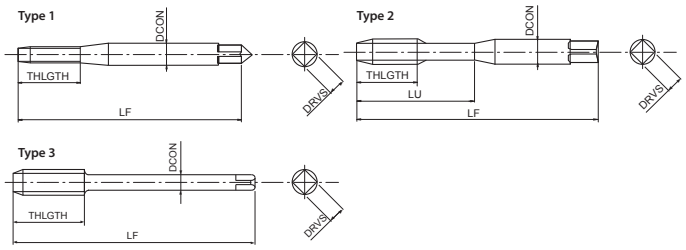
EDP	TD	TP	oversize	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
63812599	2	0,4	0.019	45	8	-	2,8	2,1	2	1	371
63813399	2,5	0,45	0.02	50	9	-	2,8	2,1	2	1	371
63813899	3	0,5	0.02	56	-	18	3,5	2,7	3	2	371
63814499	4	0,7	0.022	63	-	21	4,5	3,4	3	2	371
63814999	5	0,8	0.024	70	-	25	6	4,9	3	2	371
63815599	6	1	0.026	80	-	30	6	4,9	3	2	371
63816199	8	1,25	0.028	90	-	35	8	6,2	3	2	371
63816999	10	1,5	0.032	100	-	39	10	8	3	2	371
63917999	12	1,75	0.034	110	28	-	9	7	3	3	376
63919199	14	2	0.038	110	30	-	11	9	3	3	376
63920299	16	2	0.038	110	32	-	12	9	3	3	376

Z-POT

INDEX

Threading | Cutting taps | Metric





- Powder metal spiral-point cutting tap for through holes
- Multilayer TiCN coating
- High speed tapping in general steels and stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-24	15-24	15-24	8-20	8-20	20-40	20-40	m/min

S Ti	H 25-35 HRC	
10-15	8-15	

M	PM	V	ISO 2 6HX	B/4		DIN 371	DIN 376

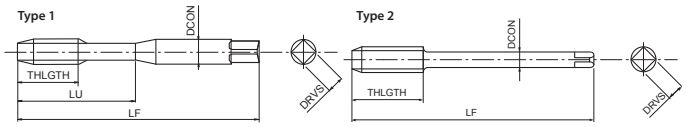
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
83812568	2	0,4	45	8	-	2,8	2,1	2	1	371
83813368	2,5	0,45	50	9	-	2,8	2,1	2	1	371
83813868	3	0,5	56	-	18	3,5	2,7	3	2	371
83814468	4	0,7	63	-	21	4,5	3,4	3	2	371
83814968	5	0,8	70	-	25	6	4,9	3	2	371
83815568	6	1	80	-	30	6	4,9	3	2	371
83816168	8	1,25	90	-	35	8	6,2	3	2	371
83816968	10	1,5	100	-	39	10	8	3	2	371
83913868	3	0,5	56	11	-	2,2	-	3	3	376
83914468	4	0,7	63	13	-	2,8	2,1	3	3	376
83914968	5	0,8	70	16	-	3,5	2,7	3	3	376
83915568	6	1	80	19	-	4,5	3,4	3	3	376
83916168	8	1,25	90	22	-	6	4,9	3	3	376
83916968	10	1,5	100	24	-	7	5,5	3	3	376
83917968	12	1,75	110	28	-	9	7	3	3	376
83919168	14	2	110	30	-	11	9	3	3	376
83920268	16	2	110	32	-	12	9	3	3	376
83921468	18	2,5	125	34	-	14	11	3	3	376
83922868	20	2,5	140	34	-	16	12	3	3	376
83923868	22	2,5	140	34	-	18	14,5	3	3	376
83924768	24	3	160	38	-	18	14,5	3	3	376
83926268	27	3	160	38	-	20	16	4	3	376
83927168	30	3,5	180	45	-	22	18	4	3	376

Z-OIL-POT

INDEX

Threading | Cutting taps | Metric





- Powder metal spiral-point cutting tap for through holes
- Multilayer TiCN coating
- High speed tapping in general steels and stainless steels
- Side through coolant

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-24	15-24	15-24	8-20	8-20	20-40	20-40	m/min

S Ti	H 25-35 HRC
10-15	8-15

M	PM	V	ISO 2 6HX	B/4			
DIN 371	DIN 376						

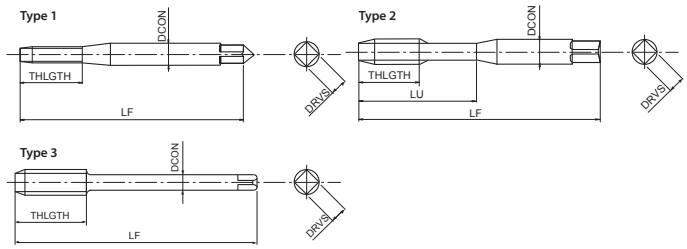
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
83815588	6	1	80	-	30	6	4,9	3	1	371
83816188	8	1,25	90	-	35	8	6,2	3	1	371
83816988	10	1,5	100	-	39	10	8	3	1	371
83917988	12	1,75	110	28	-	9	7	3	2	376
83919188	14	2	110	30	-	11	9	3	2	376
83920288	16	2	110	32	-	12	9	3	2	376
83921488	18	2,5	125	34	-	14	11	3	2	376
83922888	20	2,5	140	34	-	16	12	3	2	376

POT

INDEX

Threading | Cutting taps | Metric





- HSSE spiral-point cutting tap for through holes
- Bright finish
- For general purpose applications

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	K GGG	N Al	N AC, ADC	
12-20	8-12	8-12	8-12	8-12	15-25	15-20	m/min

M	HSSE	ISO 2 6H	B/4		DIN 371	DIN 376

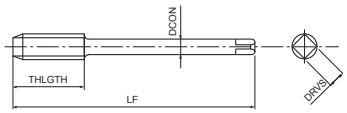
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
60712560	2	0,4	45	8	-	2,8	2,1	2	1	371
60713360	2,5	0,45	50	9	-	2,8	2,1	2	1	371
60713860	3	0,5	56	-	18	3,5	2,7	3	2	371
60714060	3,5	0,6	56	-	20	4	3	3	2	371
60714460	4	0,7	63	-	21	4,5	3,4	3	2	371
60714960	5	0,8	70	-	25	6	4,9	3	2	371
60715560	6	1	80	-	30	6	4,9	3	2	371
60716160	8	1,25	90	-	35	8	6,2	3	2	371
60716960	10	1,5	100	-	39	10	8	3	2	371
60813860	3	0,5	56	11	-	2,2	-	3	3	376
60814460	4	0,7	63	13	-	2,8	2,1	3	3	376
60814960	5	0,8	70	16	-	3,5	2,7	3	3	376
60815560	6	1	80	19	-	4,5	3,4	3	3	376
60816160	8	1,25	90	22	-	6	4,9	3	3	376
60816960	10	1,5	100	24	-	7	5,5	3	3	376
60817960	12	1,75	110	28	-	9	7	3	3	376
60819160	14	2	110	30	-	11	9	3	3	376
60820260	16	2	110	32	-	12	9	3	3	376
60821460	18	2,5	125	34	-	14	11	3	3	376
60822860	20	2,5	140	34	-	16	12	3	3	376
60823860	22	2,5	140	34	-	18	14,5	3	3	376
60824760	24	3	160	38	-	18	14,5	3	3	376
60826260	27	3	160	38	-	20	16	4	3	376
60827160	30	3,5	180	45	-	22	18	4	3	376
60828160	33	3,5	180	50	-	25	20	4	3	376
60829460	36	4	200	56	-	28	22	4	3	376

POT

INDEX

Threading | Cutting taps | Metric





- HSSE spiral-point cutting tap for through holes
- Bright finish
- For general purpose applications
- According to DIN 352 shank reduced length

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	K GGG	N Al	N AC, ADC	
12-20	8-12	8-12	8-12	8-12	15-25	15-20	m/min

M	HSSE	ISO 2 6H	B/4		DIN 352

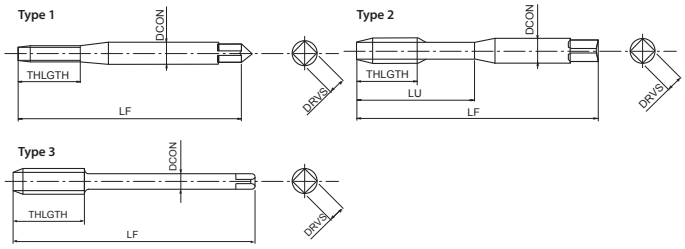
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
60513860	3	0,5	40	11	3,5	2,7	3	352
60514460	4	0,7	45	13	4,5	3,4	3	352
60514960	5	0,8	50	24	6	4,9	3	352
60515560	6	1	50	27	6	4,9	3	352
60516160	8	1,25	63	22	6	4,9	3	352
60516960	10	1,5	70	24	7	5,5	3	352

TIN-POT

INDEX

Threading | Cutting taps | Metric





- HSSE spiral-point cutting tap for through holes
- TiN coating
- For steels up to 850 N/mm²

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	N Al		
15-24	10-15	10-15	8-13	8-16	10-15	15-25	m/min	
N AC, ADC	S Ti							
15-20	6-9							

M	HSSE	TiN	ISO 2 6H	B/4		DIN 371	DIN 376

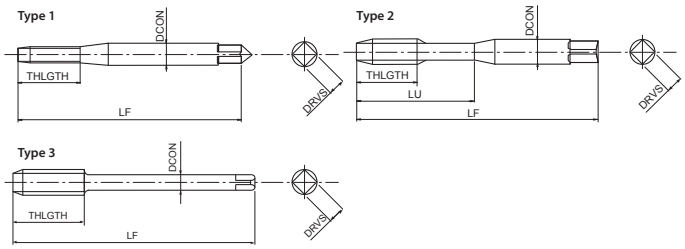
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
6071256001	2	0,4	45	8	-	2,8	2,1	2	1	371
6071336001	2,5	0,45	50	9	-	2,8	2,1	2	1	371
6071386001	3	0,5	56	-	18	3,5	2,7	3	2	371
6071406001	3,5	0,6	56	-	20	4	3	3	2	371
6071446001	4	0,7	63	-	21	4,5	3,4	3	2	371
6071496001	5	0,8	70	-	25	6	4,9	3	2	371
6071556001	6	1	80	-	30	6	4,9	3	2	371
6071616001	8	1,25	90	-	35	8	6,2	3	2	371
6071696001	10	1,5	100	-	39	10	8	3	2	371
6081386001	3	0,5	56	11	-	2,2	-	3	3	376
6081446001	4	0,7	63	13	-	2,8	2,1	3	3	376
6081496001	5	0,8	70	16	-	3,5	2,7	3	3	376
6081556001	6	1	80	19	-	4,5	3,4	3	3	376
6081616001	8	1,25	90	22	-	6	4,9	3	3	376
6081696001	10	1,5	100	24	-	7	5,5	3	3	376
6081796001	12	1,75	110	28	-	9	7	3	3	376
6081916001	14	2	110	30	-	11	9	3	3	376
6082026001	16	2	110	32	-	12	9	3	3	376
6082146001	18	2,5	125	34	-	14	11	3	3	376
6082286001	20	2,5	140	34	-	16	12	3	3	376
6082386001	22	2,5	140	34	-	18	14,5	3	3	376
6082476001	24	3	160	38	-	18	14,5	3	3	376
6082626001	27	3	160	38	-	20	16	4	3	376
6082716001	30	3,5	180	45	-	22	18	4	3	376

TICN-POT

INDEX

Threading | Cutting taps | Metric





- HSSE spiral-point cutting tap for through holes
- Multilayer TiCN coating
- For steels up to 1000 N/mm²

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	N Al	
15-24	10-15	10-15	8-13	8-16	10-15	15-25	m/min

N AC, ADC	S Ti	
15-20	6-9	

M | HSSE | V | ISO 2 6H | B/4 | | DIN 371 | DIN 376

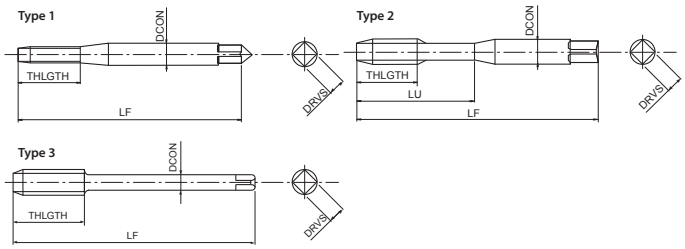
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
6071256002	2	0,4	45	8	-	2,8	2,1	2	1	371
6071386002	3	0,5	56	-	18	3,5	2,7	3	2	371
6071446002	4	0,7	63	-	21	4,5	3,4	3	2	371
6071496002	5	0,8	70	-	25	6	4,9	3	2	371
6071556002	6	1	80	-	30	6	4,9	3	2	371
6071616002	8	1,25	90	-	35	8	6,2	3	2	371
6071696002	10	1,5	100	-	39	10	8	3	2	371
6081796002	12	1,75	110	28	-	9	7	3	3	376
6081916002	14	2	110	30	-	11	9	3	3	376
6082026002	16	2	110	32	-	12	9	3	3	376
6082146002	18	2,5	125	34	-	14	11	3	3	376
6082286002	20	2,5	140	34	-	16	12	3	3	376
6082386002	22	2,5	140	34	-	18	14,5	3	3	376
6082476002	24	3	160	38	-	18	14,5	3	3	376

CC-POT

INDEX

Threading | Cutting taps | Metric





- HSSE spiral-point cutting tap for through holes
- CrN coating
- For general steels and stainless steels
- Developed for rigid tapping on CNC machines

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	
15-25	15-25	10-25	10-25	6-15	20-40	m/min

M | HSSE | CrN | ISO 2 6HX | B/4 | | DIN 371 | DIN 376

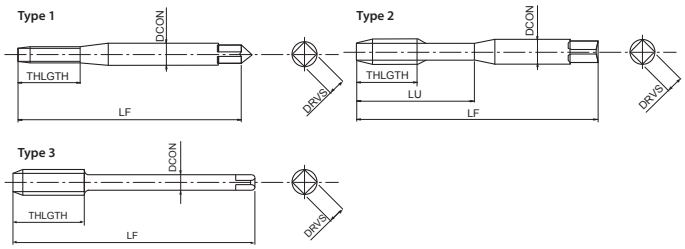
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48059125	2	0,4	45	8	-	2,8	2,1	2	1	371
48059133	2,5	0,45	50	9	-	2,8	2,1	2	1	371
48059138	3	0,5	56	-	18	3,5	2,7	3	2	371
48059144	4	0,7	63	-	21	4,5	3,4	3	2	371
48059149	5	0,8	70	-	25	6	4,9	3	2	371
48059155	6	1	80	-	30	6	4,9	3	2	371
48059161	8	1,25	90	-	35	8	6,2	3	2	371
48059169	10	1,5	100	-	39	10	8	3	2	371
48060138	3	0,5	56	11	-	2,2	-	3	3	376
48060144	4	0,7	63	13	-	2,8	2,1	3	3	376
48060149	5	0,8	70	16	-	3,5	2,7	3	3	376
48060155	6	1	80	19	-	4,5	3,4	3	3	376
48060161	8	1,25	90	22	-	6	4,9	3	3	376
48060169	10	1,5	100	24	-	7	5,5	3	3	376
48060179	12	1,75	110	28	-	9	7	3	3	376
48060191	14	2	110	30	-	11	9	3	3	376
48060202	16	2	110	32	-	12	9	3	3	376
48060214	18	2,5	125	34	-	14	11	3	3	376
48060228	20	2,5	140	34	-	16	12	3	3	376
48060238	22	2,5	140	34	-	18	14,5	3	3	376
48060247	24	3	160	38	-	18	14,5	3	3	376
48060262	27	3	160	38	-	20	16	4	3	376
48060271	30	3,5	180	45	-	22	18	4	3	376

CC-LT-POT

INDEX

Threading | Cutting taps | Metric





- HSSE spiral-point cutting tap for through holes
- CrN coating
- For general steels and stainless steels
- With long shank for long reach threading

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	
15-25	15-25	10-25	10-25	6-15	20-40	m/min

M | HSSE | CrN | ISO 2 6HX | B/4

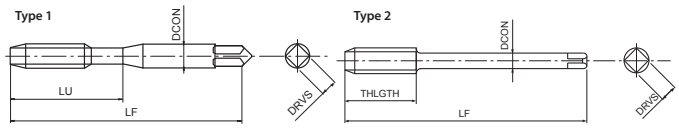
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48114125	2	0,4	80	8	-	2,8	2,1	2	1
48114133	2,5	0,45	100	9	-	2,8	2,1	2	1
48114138	3	0,5	100	-	18	3,5	2,7	3	2
48114144	4	0,7	125	-	21	4,5	3,4	3	2
48114149	5	0,8	140	-	25	6	4,9	3	2
48114155	6	1	160	-	30	6	4,9	3	2
48114161	8	1,25	180	-	35	8	6,2	3	2
48114169	10	1,5	200	-	39	10	8	3	2
48114179	12	1,75	200	28	-	9	7	3	3

HS-RFT-TIN

INDEX

Threading | Cutting taps | Metric





- HSSE spiral-flute cutting tap for through holes
- TiN coating
- For high speed tapping in various materials
- Right-hand cut with left-hand flute for chip evacuation towards front

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
27-32	27-32	22-27	22-27	15-20	50-100	40-100	m/min

M | HSSE | TiN | 20° | ISO 2 6H | A/6

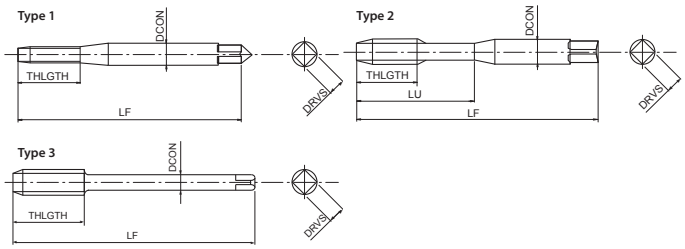
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20710	3	0,5	46	11	19	4	3,2	3	1
20714	4	0,7	52	13	21	6	4,5	3	1
20718	5	0,8	60	16	24	6	4,5	3	1
20722	6	1	62	19	29	6	4,5	3	1
20728	8	1,25	70	22	37	8	6	3	1
20734	10	1,5	75	24	41	8	6	3	2
20739	12	1,75	82	29	48	10	8	3	2

AL-POT

INDEX

Threading | Cutting taps | Metric





- HSSE spiral-point cutting tap for through holes
- Bright finish
- For aluminium and cast aluminium



15-25



15-20

m/min



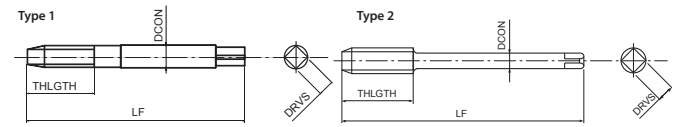
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48019125	2	0,4	45	8	-	2,8	2,1	2	1	371
48019133	2,5	0,45	50	9	-	2,8	2,1	2	1	371
66113860	3	0,5	56	-	18	3,5	2,7	3	2	371
66114460	4	0,7	63	-	21	4,5	3,4	3	2	371
66114960	5	0,8	70	-	25	6	4,9	3	2	371
66115560	6	1	80	-	30	6	4,9	3	2	371
66116160	8	1,25	90	-	35	8	6,2	3	2	371
66116960	10	1,5	100	-	39	10	8	3	2	371
48019179	12	1,75	110	28	-	9	7	3	3	376
48019191	14	2	110	30	-	11	9	3	3	376
48019202	16	2	110	32	-	12	9	3	3	376
48019214	18	2,5	125	34	-	14	11	3	3	376
48019228	20	2,5	140	34	-	16	12	3	3	376

V-TI-POT

INDEX

Threading | Cutting taps | Metric





- Powder metal spiral-point cutting tap for through holes
- Multilayer TiCN coating
- For Titanium alloys



4-6

m/min



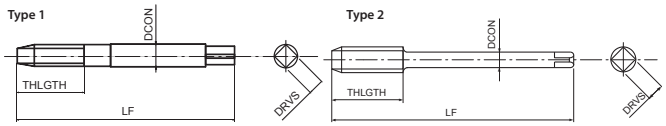
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	Type	DIN
48012138	3	0,5	56	12	3,5	2,7	3	1	371
48012144	4	0,7	63	16	4,5	3,4	3	1	371
48012149	5	0,8	70	19	6	4,9	3	1	371
48012155	6	1	80	23	6	4,9	3	1	371
48012161	8	1,25	90	30	8	6,2	3	1	371
48012169	10	1,5	100	38	10	8	3	1	371
48012179	12	1,75	110	28	10	8	3	2	-

E-POT

INDEX

Threading | Cutting taps | Metric





- Powder metal spiral-point cutting tap for through holes
- Bright finish
- For Nickel-based alloys including Inconel 718

S Ni 2-4

m/min

M | PM | ISO 2 6H | B/5 | DIN 371

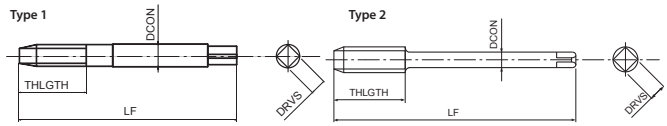
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	Type	DIN
89313860	3	0,5	56	12	3,5	2,7	3	1	371
89314460	4	0,7	63	16	4,5	3,4	3	1	371
89314960	5	0,8	70	19	6	4,9	3	1	371
89315560	6	1	80	23	6	4,9	3	1	371
89316160	8	1,25	90	30	8	6,2	3	1	371
89316960	10	1,5	100	38	10	8	3	1	371
89417960	12	1,75	110	28	10	8	3	2	-

WHR-NI-POT

INDEX

Threading | Cutting taps | Metric





- Powder metal spiral-point cutting tap for through holes
- HR coating
- For Nickel-based alloys including Inconel 718

S Ni 2-4

m/min

M | PM | HR | ISO 2 6H | B/5 | DIN 371

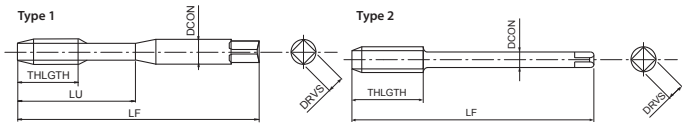
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	Type	DIN
48079138	3	0,5	56	12	3,5	2,7	3	1	371
48079144	4	0,7	63	16	4,5	3,4	3	1	371
48079149	5	0,8	70	19	6	4,9	3	1	371
48079155	6	1	80	23	6	4,9	3	1	371
48079161	8	1,25	90	30	8	6,2	3	1	371
48079169	10	1,5	100	38	10	8	3	1	371
48079179	12	1,75	110	28	10	8	3	2	-

CPM-POT

INDEX

Threading | Cutting taps | Metric





- Powder metal spiral-point cutting tap for through holes
- Bright finish
- For steels up to 900 N/mm² and cast iron

P	K	H	H
C ≥ 0,45%	GGG	25-35 HRC	35-45 HRC
8-13	10-15	6-10	6-10

m/min

M | PM | ISO 2 6H | B/5 | DIN 371 | DIN 376

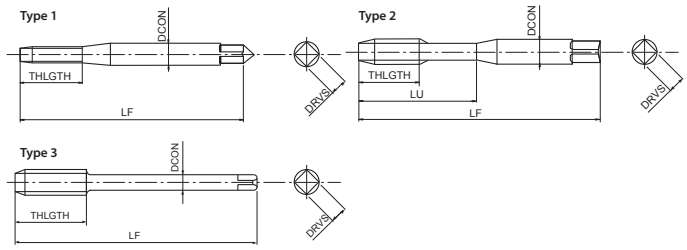
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
80713860	3	0,5	56	-	11	3,5	2,7	3	1	371
80714460	4	0,7	63	-	13	4,5	3,4	3	1	371
80714960	5	0,8	70	-	16	6	4,9	3	1	371
80715560	6	1	80	-	19	6	4,9	3	1	371
80716160	8	1,25	90	-	22	8	6,2	3	1	371
80716960	10	1,5	100	-	24	10	8	3	1	371
80815560	6	1	80	19	-	4,5	3,4	3	2	376
80816160	8	1,25	90	22	-	6	4,9	3	2	376
80816960	10	1,5	100	24	-	7	5,5	3	2	376
80817960	12	1,75	110	28	-	9	7	3	2	376
80819160	14	2	110	30	-	11	9	3	2	376
80820260	16	2	110	32	-	12	9	4	2	376
80821460	18	2,5	125	34	-	14	11	4	2	376
80822860	20	2,5	140	34	-	16	12	4	2	376

H-POT

INDEX

Threading | Cutting taps | Metric





- Powder metal spiral-point cutting tap for through holes
- Steam oxide treatment
- For hardened steels up to 45 HRC

P	K	S	S	H	H
C ≥ 0,45%	GGG	Ti	Ni	25-35 HRC	35-45 HRC
8-13	10-15	4-6	2-4	6-10	6-10

m/min

M | PM | OX | ISO 2 6H | B/5 | DIN 371 | DIN 376

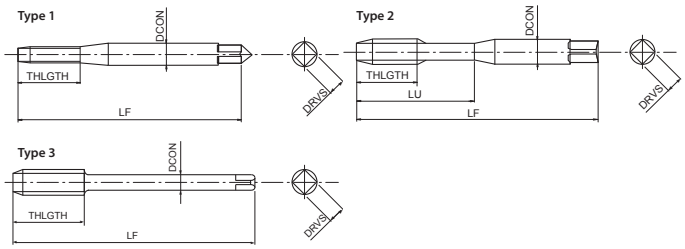
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
88412560	2	0,4	45	8	-	2,8	2,1	2	1	371
88413360	2,5	0,45	50	9	-	2,8	2,1	2	1	371
88413860	3	0,5	56	-	18	3,5	2,7	3	2	371
88414460	4	0,7	63	-	21	4,5	3,4	3	2	371
88414960	5	0,8	70	-	25	6	4,9	3	2	371
88415560	6	1	80	-	30	6	4,9	3	2	371
88416160	8	1,25	90	-	35	8	6,2	3	2	371
88416960	10	1,5	100	-	39	10	8	3	2	371
88517960	12	1,75	110	28	-	9	7	3	3	376
88519160	14	2	110	30	-	11	9	3	3	376
88520260	16	2	110	32	-	12	9	4	3	376
88521460	18	2,5	125	34	-	14	11	4	3	376
88522860	20	2,5	140	34	-	16	12	4	3	376

VP-H-POT

INDEX

Threading | Cutting taps | Metric





- Powder metal spiral-point cutting tap for through holes
- Multilayer TiCN coating
- For hardened steels up to 45 HRC

P	K	S	S	H	H
C ≥ 0,45%	GGG	Ti	Ni	25-35 HRC	35-45 HRC
8-13	10-15	4-6	2-4	6-10	6-10

m/min

M | PM | V | ISO 2 6HX | B/5 | DIN 371 | DIN 376

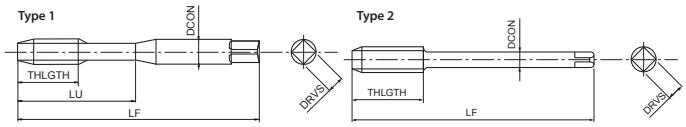
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48084125	2	0,4	45	8	-	2,8	2,1	2	1	371
48084133	2,5	0,45	50	9	-	2,8	2,1	2	1	371
48084138	3	0,5	56	-	18	3,5	2,7	3	2	371
48084144	4	0,7	63	-	21	4,5	3,4	3	2	371
48084149	5	0,8	70	-	25	6	4,9	3	2	371
48084155	6	1	80	-	30	6	4,9	3	2	371
48084161	8	1,25	90	-	35	8	6,2	3	2	371
48084169	10	1,5	100	-	39	10	8	3	2	371
48084179	12	1,75	110	28	-	9	7	3	3	376
48084191	14	2	110	30	-	11	9	3	3	376
48084202	16	2	110	32	-	12	9	4	3	376
48084214	18	2,5	125	34	-	14	11	4	3	376
48084228	20	2,5	140	34	-	16	12	4	3	376
48084238	22	2,5	140	34	-	18	14,5	4	3	376
48084247	24	3	160	38	-	18	14,5	4	3	376
48084262	27	3	160	38	-	20	16	4	3	376
48084271	30	3,5	180	45	-	22	18	4	3	376
48084281	33	3,5	180	50	-	25	20	4	3	376
48084294	36	4	200	56	-	28	22	4	3	376

VPO-H-POT

INDEX

Threading | Cutting taps | Metric





- Powder metal spiral-point cutting tap for through holes
- Multilayer TiCN coating
- For hardened steels up to 45 HRC
- Side through coolant

P	K	S	S	H	H
C ≥ 0,45%	GGG	Ti	Ni	25-35 HRC	35-45 HRC
8-13	10-15	4-6	2-4	6-10	6-10

m/min

M | PM | V | ISO 2 6HX | B/5 | DIN 371 | DIN 376

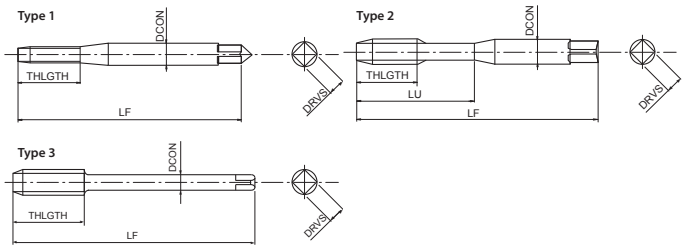
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48085155	6	1	80	-	30	6	4,9	3	1	371
48085161	8	1,25	90	-	35	8	6,2	3	1	371
48085169	10	1,5	100	-	39	10	8	3	1	371
48085179	12	1,75	110	28	-	9	7	3	2	376
48085191	14	2	110	30	-	11	9	3	2	376
48085202	16	2	110	32	-	12	9	4	2	376
48085214	18	2,5	125	34	-	14	11	4	2	376
48085228	20	2,5	140	34	-	16	12	4	2	376
48085238	22	2,5	140	34	-	18	14,5	4	2	376
48085247	24	3	160	38	-	18	14,5	4	2	376
48085262	27	3	160	38	-	20	16	4	2	376
48085271	30	3,5	180	45	-	22	18	4	2	376
48085281	33	3,5	180	50	-	25	20	4	2	376
48085294	36	4	200	56	-	28	22	4	2	376

A-SFT

INDEX

Threading | Cutting taps | Metric





- First choice in quality and performance
- Powder metal spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-60	15-60	10-60	8-30	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC
5-10	8-20

A	M	PM	V	45°	ISO 2 6HX	C/2,5
	DIN 371	DIN 376				

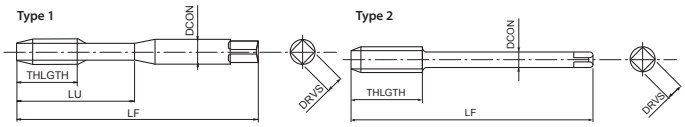
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48139111	1	0,25	40	-	5	2,5	2,1	2	1	371
48139112	1,1	0,25	40	-	5	2,5	2,1	2	1	371
48139113	1,2	0,25	40	-	5	2,5	2,1	2	1	371
48139115	1,4	0,3	40	-	6	2,5	2,1	2	1	371
48139118	1,6	0,35	40	-	7	2,5	2,1	2	1	371
48139119	1,7	0,35	40	-	8	2,5	2,1	2	1	371
48139120	1,8	0,35	40	-	8	2,5	2,1	2	1	371
48139125	2	0,4	45	3,2	10	2,8	2,1	2	2	371
48139127	2,2	0,45	45	3,6	11	2,8	2,1	2	2	371
48139128	2,3	0,4	45	3,6	12	2,8	2,1	2	2	371
48139133	2,5	0,45	50	3,6	13	2,8	2,1	2	2	371
48139136	2,6	0,45	50	3,6	13	2,8	2,1	2	2	371
48139138	3	0,5	56	4	18	3,5	2,7	3	2	371
48139142	3,5	0,6	56	4,8	20	4	3	3	2	371
48139144	4	0,7	63	5,6	21	4,5	3,4	3	2	371
48139147	4,5	0,75	70	6	25	6	4,9	3	2	371
48139149	5	0,8	70	6,4	25	6	4,9	3	2	371
48139152	5,5	0,9	80	7,2	30	6	4,9	3	2	371
48139155	6	1	80	8	30	6	4,9	3	2	371
48139158	7	1	80	8	30	7	5,5	3	2	371
48139161	8	1,25	90	10	35	8	6,2	3	2	371
48139165	9	1,25	90	10	35	9	7	3	2	371
48139169	10	1,5	100	12	39	10	8	3	2	371
48139139	3	0,5	56	4	-	2,2	-	3	3	376
48139185	4	0,7	63	5,6	-	2,8	2,1	3	3	376
48139150	5	0,8	70	6,4	-	3,5	2,7	3	3	376
48139187	6	1	80	8	-	4,5	3,4	3	3	376
48139159	7	1	80	8	-	5,5	4,3	3	3	376
48139188	8	1,25	90	10	-	6	4,9	3	3	376
48139166	9	1,25	90	10	-	7	5,5	3	3	376
48139189	10	1,5	100	12	-	7	5,5	3	3	376
48139175	11	1,5	100	12	-	8	6,2	3	3	376
48139179	12	1,75	110	14	-	9	7	3	3	376
48139191	14	2	110	16	-	11	9	3	3	376
48139202	16	2	110	16	-	12	9	3	3	376
48139214	18	2,5	125	25	-	14	11	4	3	376
48139228	20	2,5	140	25	-	16	12	4	3	376
48139238	22	2,5	140	25	-	18	14,5	4	3	376
48139247	24	3	160	30	-	18	14,5	4	3	376

A-OIL-SFT

INDEX

Threading | Cutting taps | Metric





- First choice in quality and performance
- Powder metal spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels
- Centre through coolant

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-60	15-60	10-60	8-30	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC
5-10	8-20

A	M	PM	V	45°	ISO 2 6HX	C/2,5
		DIN 371	DIN 376			

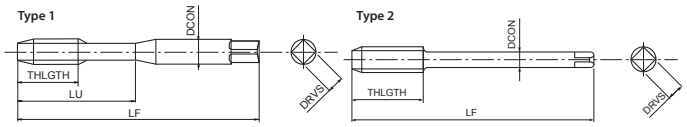
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48140155	6	1	80	8	30	6	4,9	3	1	371
48140161	8	1,25	90	10	35	8	6,2	3	1	371
48140169	10	1,5	100	12	39	10	8	3	1	371
48140179	12	1,75	110	14	-	9	7	3	2	376
48140191	14	2	110	16	-	11	9	3	2	376
48140202	16	2	110	16	-	12	9	3	2	376
48140214	18	2,5	125	25	-	14	11	4	2	376
48140228	20	2,5	140	25	-	16	12	4	2	376
48140238	22	2,5	140	25	-	18	14,5	4	2	376
48140247	24	3	160	30	-	18	14,5	4	2	376
48140262	27	3	160	36	-	20	16	4	2	376
48140271	30	3,5	180	42	-	22	18	4	2	376
48140281	33	3,5	180	42	-	25	20	4	2	376
48140294	36	4	200	48	-	28	22	4	2	376
48140304	39	4	200	48	-	32	24	4	2	376
48140314	42	4,5	200	54	-	32	24	4	2	376
48140319	45	4,5	220	54	-	36	29	4	2	376
48140325	48	5	250	60	-	36	29	4	2	376
48140337	52	5	250	60	-	40	32	4	2	376
48140347	56	5,5	250	66	-	40	32	4	2	376

A-SFT 6GX

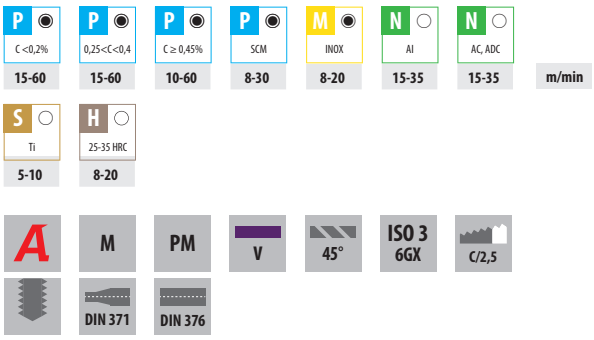
INDEX

Threading | Cutting taps | Metric





- First choice in quality and performance
- Powder metal spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels
- For 6G internal thread tolerance



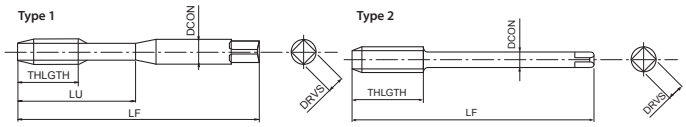
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48201125	2	0,4	0.019	45	3,2	10	2,8	2,1	2	1	371
48201133	2,5	0,45	0.02	50	3,6	13	2,8	2,1	2	1	371
48201138	3	0,5	0.02	56	4	18	3,5	2,7	3	1	371
48201144	4	0,7	0.022	63	5,6	21	4,5	3,4	3	1	371
48201149	5	0,8	0.024	70	6,4	25	6	4,9	3	1	371
48201155	6	1	0.026	80	8	30	6	4,9	3	1	371
48201161	8	1,25	0.028	90	10	35	8	6,2	3	1	371
48201169	10	1,5	0.032	100	12	39	10	8	3	1	371
48201179	12	1,75	0.034	110	14	-	9	7	3	2	376
48201191	14	2	0.038	110	16	-	11	9	3	2	376
48201202	16	2	0.038	110	16	-	12	9	3	2	376

A-SFT 7GX

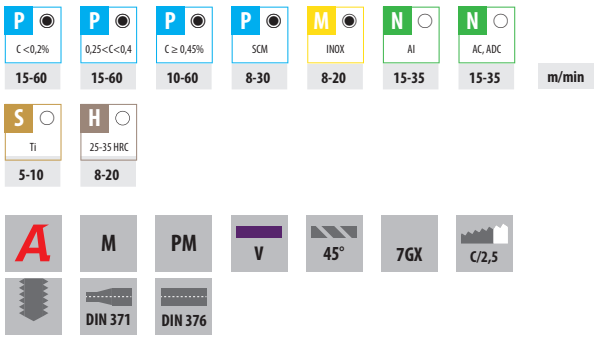
INDEX

Threading | Cutting taps | Metric





- First choice in quality and performance
- Powder metal spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels
- For 7G internal thread tolerance



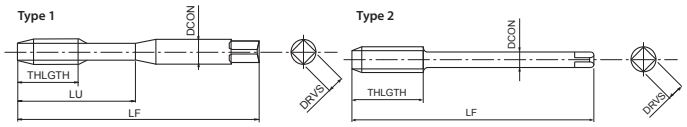
EDP	TD	TP	oversize	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48202125	2	0,4	0.038	45	3,2	10	2,8	2,1	2	1	371
48202133	2,5	0,45	0.04	50	3,6	13	2,8	2,1	2	1	371
48202138	3	0,5	0.04	56	4	18	3,5	2,7	3	1	371
48202144	4	0,7	0.044	63	5,6	21	4,5	3,4	3	1	371
48202149	5	0,8	0.048	70	6,4	25	6	4,9	3	1	371
48202155	6	1	0.052	80	8	30	6	4,9	3	1	371
48202161	8	1,25	0.056	90	10	35	8	6,2	3	1	371
48202169	10	1,5	0.064	100	12	39	10	8	3	1	371
48202179	12	1,75	0.068	110	14	-	9	7	3	2	376
48202191	14	2	0.076	110	16	-	11	9	3	2	376
48202202	16	2	0.076	110	16	-	12	9	3	2	376

A-SFT +0.1

INDEX

Threading | Cutting taps | Metric





- First choice in quality and performance
- Powder metal spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels
- Oversized tap for 6H +0,1mm thread tolerance

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-60	15-60	10-60	8-30	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC
5-10	8-20

A	M	PM	V	45°	6H +0.1	C/2,5
	DIN 371	DIN 376				

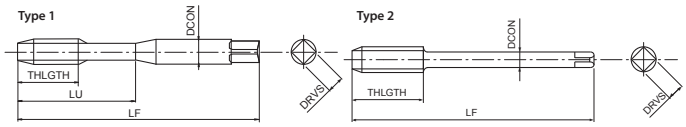
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48204138	3	0,5	56	4	18	3,5	2,7	3	1	371
48204144	4	0,7	63	5,6	21	4,5	3,4	3	1	371
48204149	5	0,8	70	6,4	25	6	4,9	3	1	371
48204155	6	1	80	8	30	6	4,9	3	1	371
48204161	8	1,25	90	10	35	8	6,2	3	1	371
48204169	10	1,5	100	12	39	10	8	3	1	371
48204179	12	1,75	110	14	-	9	7	3	2	376
48204202	16	2	110	16	-	12	9	3	2	376

A-SFT FORM E

INDEX

Threading | Cutting taps | Metric





- First choice in quality and performance
- Powder metal spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels
- Form E chamfer

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-60	15-60	10-60	8-30	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC
5-10	8-20

A	M	PM	V	45°	ISO 2 6HX	E/1,5
	DIN 371	DIN 376				

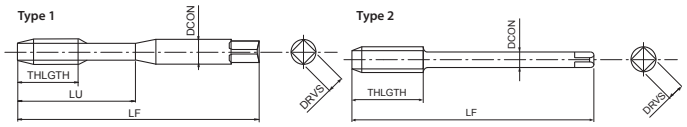
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48203125	2	0,4	45	3,2	10	2,8	2,1	2	1	371
48203127	2,2	0,45	45	3,6	11	2,8	2,1	2	1	371
48203128	2,3	0,4	45	3,6	12	2,8	2,1	2	1	371
48203133	2,5	0,45	50	3,6	13	2,8	2,1	2	1	371
48203136	2,6	0,45	50	3,6	13	2,8	2,1	2	1	371
48203138	3	0,5	56	4	18	3,5	2,7	3	1	371
48203142	3,5	0,6	56	4,8	20	4	3	3	1	371
48203144	4	0,7	63	5,6	21	4,5	3,4	3	1	371
48203147	4,5	0,75	70	6	25	6	4,9	3	1	371
48203149	5	0,8	70	6,4	25	6	4,9	3	1	371
48203152	5,5	0,9	80	7,2	30	6	4,9	3	1	371
48203155	6	1	80	8	30	6	4,9	3	1	371
48203158	7	1	80	8	30	7	5,5	3	1	371
48203161	8	1,25	90	10	35	8	6,2	3	1	371
48203165	9	1,25	90	10	35	9	7	3	1	371
48203169	10	1,5	100	12	39	10	8	3	1	371
48203139	3	0,5	56	4	-	2,2	-	3	2	376
48203185	4	0,7	63	5,6	-	2,8	2,1	3	2	376
48203150	5	0,8	70	6,4	-	3,5	2,7	3	2	376
48203187	6	1	80	5	-	4,5	3,4	3	2	376
48203159	7	1	80	8	-	5,5	4,3	3	2	376
48203188	8	1,25	90	10	-	6	4,9	3	2	376
48203166	9	1,25	90	10	-	7	5,5	3	2	376
48203189	10	1,5	100	12	-	7	5,5	3	2	376
48203175	11	1,5	100	12	-	8	6,2	3	2	376
48203179	12	1,75	110	14	-	9	7	3	2	376
48203191	14	2	110	16	-	11	9	3	2	376
48203202	16	2	110	16	-	12	9	3	2	376
48203214	18	2,5	125	25	-	14	11	4	2	376
48203228	20	2,5	140	25	-	16	12	4	2	376
48203238	22	2,5	140	25	-	18	14,5	4	2	376
48203247	24	3	160	30	-	18	14,5	4	2	376

A-LT-SFT

INDEX

Threading | Cutting taps | Metric





- First choice in quality and performance
- Powder metal spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels
- With long shank for long reach threading

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-60	15-60	10-60	8-30	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC
5-10	8-20

A	M	PM	V	45°	ISO 2 6HX	C/2,5

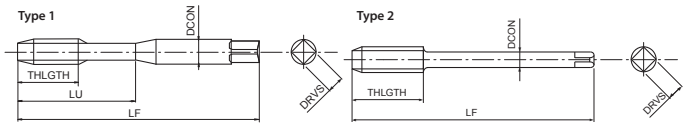
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type
48208125	2	0,4	80	3,2	10	2,8	2,1	2	1
48208133	2,5	0,45	100	3,6	13	2,8	2,1	2	1
48208138	3	0,5	100	4	18	3,5	2,7	3	1
48208144	4	0,7	125	5,6	21	4,5	3,4	3	1
48208149	5	0,8	160	6,4	25	6	4,9	3	1
48208155	6	1	160	8	30	6	4,9	3	1
48209155	6	1	160	10	-	4,5	3,4	3	2
48208161	8	1,25	180	10	35	8	6,2	3	1
48209161	8	1,25	180	11	-	6	4,9	3	2
48208169	10	1,5	200	12	39	10	8	3	1
48209169	10	1,5	200	14	-	7	5,5	3	2
48209179	12	1,75	200	14	-	9	7	3	2
48209191	14	2	200	16	-	11	9	3	2
48209202	16	2	200	16	-	12	9	3	2
48209214	18	2,5	200	25	-	14	11	4	2
48209228	20	2,5	200	25	-	16	12	4	2

A-SFT-LH

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Threading | Cutting taps | Metric





- First choice in quality and performance
- Powder metal spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels
- For left-hand threads

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-60	15-60	10-60	8-30	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC
5-10	8-20

A	M	PM	V	45°	ISO 2 6HX	C/2,5	DIN 371	DIN 376	LH

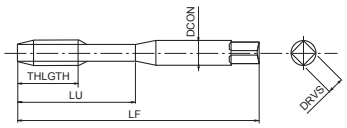
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48217138	3	0,5	56	4	18	3,5	2,7	3	1	371
48217144	4	0,7	63	5,6	21	4,5	3,4	3	1	371
48217149	5	0,8	70	6,4	25	6	4,9	3	1	371
48217155	6	1	80	8	30	6	4,9	3	1	371
48217161	8	1,25	90	10	35	8	6,2	3	1	371
48217169	10	1,5	100	12	39	10	8	3	1	371
48217179	12	1,75	110	14	-	9	7	3	2	376
48217191	14	2	110	16	-	11	9	3	2	376
48217202	16	2	110	16	-	12	9	3	2	376
48217214	18	2,5	125	25	-	14	11	4	2	376
48217228	20	2,5	140	25	-	16	12	4	2	376
48217238	22	2,5	140	25	-	18	14,5	4	2	376
48217247	24	3	160	30	-	18	14,5	4	2	376

A-SFT-HB Weldon

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Threading | Cutting taps | Metric





- First choice in quality and performance
- Powder metal spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels
- With Weldon shank

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-60	15-60	10-60	8-30	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC
5-10	8-20

A	M	PM	V	45°	ISO 2 6HX	C/2,5
	DIN 371	DIN 1835	HB			

EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	DIN
48220138	3	0,5	56	4	18	6	4,9	3	371/1835
48220144	4	0,7	63	5,6	21	6	4,9	3	371/1835
48220149	5	0,8	70	6,4	25	6	4,9	3	371/1835
48220155	6	1	80	8	30	6	4,9	3	371/1835
48220161	8	1,25	90	10	35	8	6,2	3	371/1835
48220169	10	1,5	100	12	39	10	8	3	371/1835
48220179	12	1,75	110	14	46	12	9	3	371/1835
48220191	14	2	110	16	49	14	11	3	371/1835
48220202	16	2	110	16	56	16	12	3	371/1835

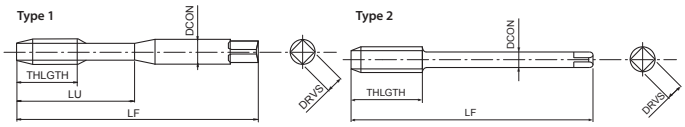
A-SFT-INOX

INDEX

Threading | Cutting taps | Metric

NEW





- First choice in quality and performance
- Powder metal spiral-fluted cutting tap for blind holes
- Multilayer VI coating
- Eliminates chip entanglement issues in stainless steel

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N AC, ADC	
5-20	5-50	5-50	5-30	5-15	5-50	m/min

A	M	PM	VI	45°	ISO 2 6HX
C/2,5		DIN 371	DIN 376		

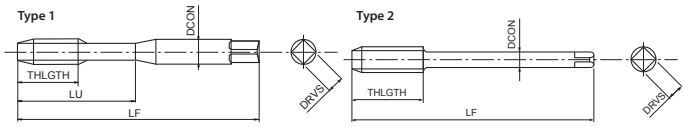
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48455125	2	0,4	45	3,2	10	2,8	2,1	2	1	371
48455127	2,2	0,45	45	3,6	11	2,8	2,1	2	1	371
48455128	2,3	0,4	45	3,6	12	2,8	2,1	2	1	371
48455133	2,5	0,45	50	3,6	13	2,8	2,1	2	1	371
48455136	2,6	0,45	50	3,6	13	2,8	2,1	2	1	371
48455138	3	0,5	56	4	18	3,5	2,7	3	1	371
48455142	3,5	0,6	56	4,8	20	4	3	3	1	371
48455144	4	0,7	63	5,6	21	4,5	3,4	3	1	371
48455147	4,5	0,75	70	6	25	6	4,9	3	1	371
48455149	5	0,8	70	6,4	25	6	4,9	3	1	371
48455152	5,5	0,9	80	7,2	30	6	4,9	3	1	371
48455155	6	1	80	8	30	6	4,9	3	1	371
48455158	7	1	80	8	30	7	5,5	3	1	371
48455161	8	1,25	90	10	35	8	6,2	3	1	371
48455165	9	1,25	90	10	35	9	7	3	1	371
48455169	10	1,5	100	12	39	10	8	3	1	371
48455139	3	0,5	56	4	-	2,2	-	3	2	376
48455185	4	0,7	63	5,6	-	2,8	2,1	3	2	376
48455150	5	0,8	70	6,4	-	3,5	2,7	3	2	376
48455187	6	1	80	8	-	4,5	3,4	3	2	376
48455159	7	1	80	8	-	5,5	4,3	3	2	376
48455188	8	1,25	90	10	-	6	4,9	3	2	376
48455166	9	1,25	90	10	-	7	5,5	3	2	376
48455189	10	1,5	100	12	-	7	5,5	3	2	376
48455175	11	1,5	100	12	-	8	6,2	3	2	376
48455179	12	1,75	110	14	-	9	7	3	2	376
48455191	14	2	110	16	-	11	9	3	2	376
48455202	16	2	110	16	-	12	9	3	2	376
48455214	18	2,5	125	25	-	14	11	4	2	376
48455228	20	2,5	140	25	-	16	12	4	2	376
48455238	22	2,5	140	25	-	18	14,5	4	2	376
48455247	24	3	160	30	-	18	14,5	4	2	376

A-SFT-AL

INDEX

Threading | Cutting taps | Metric **NEW**





- First choice in quality and performance
- HSSE - spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in aluminium cast and aluminium die cast

N
AC, ADC
5-50 m/min

A | M | HSSE | V | 45° | ISO 2 6HX | C/2,5
DIN 371 | DIN 376

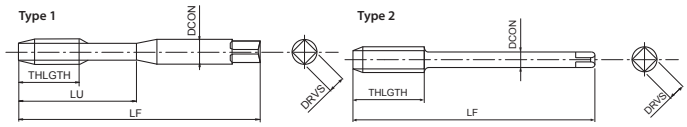
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48456125	2	0,4	45	3,2	10	2,8	2,1	2	1	371
48456133	2,5	0,45	50	3,6	13	2,8	2,1	2	1	371
48456138	3	0,5	56	4	18	3,5	2,7	2	1	371
48456144	4	0,7	63	5,6	21	4,5	3,4	2	1	371
48456149	5	0,8	70	6,4	25	6	4,9	2	1	371
48456155	6	1	80	8	30	6	4,9	2	1	371
48456161	8	1,25	90	10	35	8	6,2	2	1	371
48456169	10	1,5	100	12	39	10	8	2	1	371
48456179	12	1,75	110	14	-	9	7	2	2	376

A-SFT-AL FORM E

INDEX

Threading | Cutting taps | Metric **NEW**





- First choice in quality and performance
- HSSE - spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in aluminium cast and aluminium die cast
- Form E chamfer

N
AC, ADC
5-30 m/min

A | M | HSSE | V | 45° | ISO 2 6HX | E/1,5
DIN 371 | DIN 376

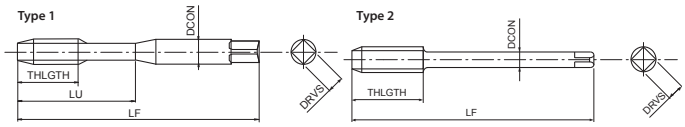
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48457125	2	0,4	45	3,2	10	2,8	2,1	2	1	371
48457133	2,5	0,45	50	3,6	13	2,8	2,1	2	1	371
48457138	3	0,5	56	4	18	3,5	2,7	2	1	371
48457144	4	0,7	63	5,6	21	4,5	3,4	2	1	371
48457149	5	0,8	70	6,4	25	6	4,9	2	1	371
48457155	6	1	80	8	30	6	4,9	2	1	371
48457161	8	1,25	90	10	35	8	6,2	2	1	371
48457169	10	1,5	100	12	39	10	8	2	1	371
48457179	12	1,75	110	14	-	9	7	2	2	376

A-CSF OIL

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Threading | Cutting taps | Metric

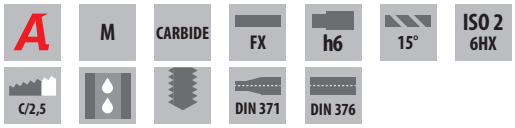




- First choice in quality and performance
- Carbide spiral-fluted cutting tap for blind holes
- TiAlN coating
- For cast iron and cast aluminium
- Centre through coolant



m/min



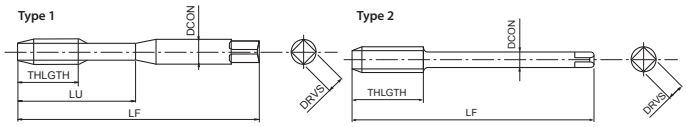
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48267149	5	0,8	70	10	25	6	4,9	3	1	371
48267155	6	1	80	12	30	6	4,9	3	1	371
48267161	8	1,25	90	15	35	8	6,2	3	1	371
48267169	10	1,5	100	18	39	10	8	3	1	371
48267179	12	1,75	110	21	-	9	7	3	2	376

A-CSF OIL FORM E

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Threading | Cutting taps | Metric

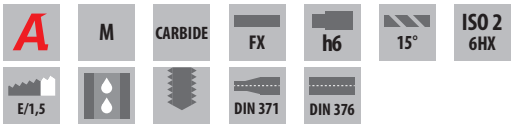




- First choice in quality and performance
- Carbide spiral-fluted cutting tap for blind holes
- TiAlN coating
- For cast iron and cast aluminium
- Centre through coolant, Form E chamfer



m/min

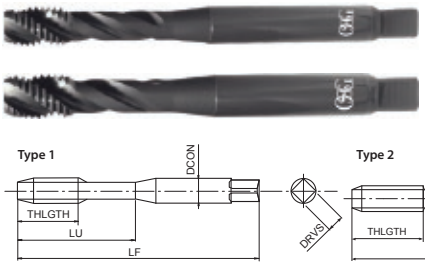


EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48266149	5	0,8	70	10	25	6	4,9	3	1	371
48266155	6	1	80	12	30	6	4,9	3	1	371
48266161	8	1,25	90	15	35	8	6,2	3	1	371
48266169	10	1,5	100	18	39	10	8	3	1	371
48266179	12	1,75	110	21	-	9	7	3	2	376

S-SFT

INDEX

Threading | Cutting taps | Metric



- HSSE spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels

P	P	P	P	M	K
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	INOX	GGG
10-15	8-14	8-14	7-11	7-12	7-14

m/min

M	HSSE	0X	40°	ISO 2 6H	ISO 1 5H≤M1,4	C/2,5

DIN 371	DIN 376

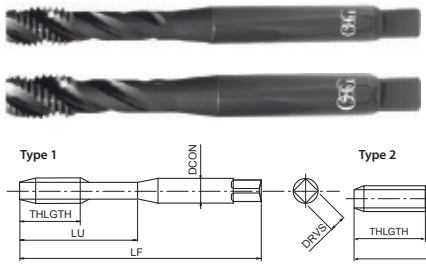
* Tolerance 5H

EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48223111*	1	0,25	40	-	5	2,5	2,1	2	1	371
48223112*	1,1	0,25	40	-	5	2,5	2,1	2	1	371
48223113*	1,2	0,25	40	-	5	2,5	2,1	2	1	371
48223115*	1,4	0,3	40	-	6	2,5	2,1	2	1	371
48223118	1,6	0,35	40	-	7	2,5	2,1	2	1	371
48223119	1,7	0,35	40	-	8	2,5	2,1	2	1	371
48223120	1,8	0,35	40	-	8	2,5	2,1	2	1	371
48223125	2	0,4	45	4	10	2,8	2,1	2	1	371
48223127	2,2	0,45	45	5	11	2,8	2,1	2	1	371
48223128	2,3	0,4	45	4	12	2,8	2,1	2	1	371
48223133	2,5	0,45	50	4,5	13	2,8	2,1	2	1	371
48223136	2,6	0,45	50	4,5	13	2,8	2,1	2	1	371
48223138	3	0,5	56	5	18	3,5	2,7	3	1	371
48223142	3,5	0,6	56	6	20	4	3	3	1	371
48223144	4	0,7	63	7	21	4,5	3,4	3	1	371
48223147	4,5	0,75	70	7,5	25	6	4,9	3	1	371
48223149	5	0,8	70	8	25	6	4,9	3	1	371
48223152	5,5	0,9	80	9	30	6	4,9	3	1	371
48223155	6	1	80	10	30	6	4,9	3	1	371
48223158	7	1	80	10	30	7	5,5	3	1	371
48223161	8	1,25	90	13	35	8	6,2	3	1	371
48223165	9	1,25	90	13	35	9	7	3	1	371
48223169	10	1,5	100	15	39	10	8	3	1	371
48223140	3	0,5	56	5	-	2,2	-	3	2	376
48223185	4	0,7	63	7	-	2,8	2,1	3	2	376
48223150	5	0,8	70	8	-	3,5	2,7	3	2	376
48223187	6	1	80	10	-	4,5	3,4	3	2	376
48223159	7	1	80	10	-	5,5	4,3	3	2	376
48223188	8	1,25	90	13	-	6	4,9	3	2	376
48223166	9	1,25	90	13	-	7	5,5	3	2	376
48223189	10	1,5	100	15	-	7	5,5	3	2	376
48223175	11	1,5	100	15	-	8	6,2	3	2	376
48223179	12	1,75	110	18	-	9	7	4	2	376
48223191	14	2	110	20	-	11	9	4	2	376
48223202	16	2	110	20	-	12	9	4	2	376
48223214	18	2,5	125	25	-	14	11	4	2	376
48223228	20	2,5	140	25	-	16	12	4	2	376
48223238	22	2,5	140	25	-	18	14,5	4	2	376
48223247	24	3	160	30	-	18	14,5	4	2	376

S-SFT 6G

INDEX

Threading | Cutting taps | Metric



- HSSE spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels
- For 6G internal thread tolerance

P	P	P	P	M	K
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	INOX	GGG
10-15	8-14	8-14	7-11	7-12	7-14

m/min

M	HSSE	0X	40°	ISO 2 6G	C/2,5

DIN 371	DIN 376

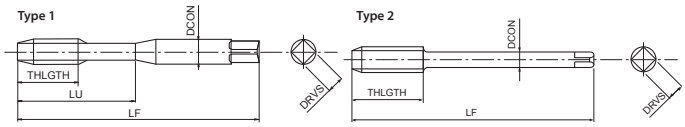
EDP	TD	TP	oversize	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48269125	2	0,4	0.019	45	3,2	10	2,8	2,1	2	1	371
48269133	2,5	0,45	0.02	50	3,6	13	2,8	2,1	2	1	371
48269138	3	0,5	0.02	56	4	18	3,5	2,7	3	1	371
48269144	4	0,7	0.022	63	5,6	21	4,5	3,4	3	1	371
48269149	5	0,8	0.024	70	6,4	25	6	4,9	3	1	371
48269155	6	1	0.026	80	8	30	6	4,9	3	1	371
48269161	8	1,25	0.028	90	10	35	8	6,2	3	1	371
48269169	10	1,5	0.032	100	12	39	10	8	3	1	371
48269179	12	1,75	0.034	110	14	-	9	7	4	2	376
48269191	14	2	0.038	110	16	-	11	9	4	2	376
48269202	16	2	0.038	110	16	-	12	9	4	2	376

S-SFT 7G

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Threading | Cutting taps | Metric





- HSSE spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels
- For 7G internal thread tolerance

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
10-15	8-14	8-14	7-11	7-12	7-14	m/min

M	HSSE	0X	40°	7G	C/2,5	
DIN 371	DIN 376					

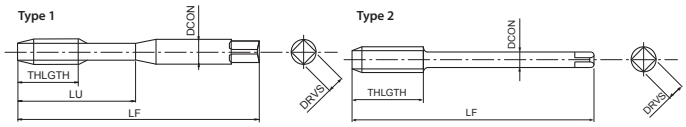
EDP	TD	TP	oversize	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48274125	2	0,4	0.038	45	3,2	10	2,8	2,1	2	1	371
48274133	2,5	0,45	0.04	50	3,6	13	2,8	2,1	2	1	371
48274138	3	0,5	0.04	56	4	18	3,5	2,7	3	1	371
48274144	4	0,7	0.044	63	5,6	21	4,5	3,4	3	1	371
48274149	5	0,8	0.048	70	6,4	25	6	4,9	3	1	371
48274155	6	1	0.052	80	8	30	6	4,9	3	1	371
48274161	8	1,25	0.056	90	10	35	8	6,2	3	1	371
48274169	10	1,5	0.064	100	12	39	10	8	3	1	371
48274179	12	1,75	0.068	110	14	-	9	7	4	2	376
48274191	14	2	0.076	110	16	-	11	9	4	2	376
48274202	16	2	0.076	110	16	-	12	9	4	2	376

S-SFT +0.1

INDEX

Threading | Cutting taps | Metric





- HSSE spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels
- Oversized tap for 6H +0,1mm thread tolerance

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
10-15	8-14	8-14	7-11	7-12	7-14	m/min

M	HSSE	0X	40°	6H +0.1	C/2,5	
DIN 371	DIN 376					

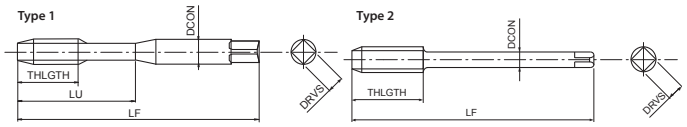
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48270138	3	0,5	56	4	18	3,5	2,7	3	1	371
48270144	4	0,7	63	5,6	21	4,5	3,4	3	1	371
48270149	5	0,8	70	6,4	25	6	4,9	3	1	371
48270155	6	1	80	8	30	6	4,9	3	1	371
48270161	8	1,25	90	10	35	8	6,2	3	1	371
48270169	10	1,5	100	12	39	10	8	3	1	371
48270179	12	1,75	110	14	-	9	7	4	2	376
48270191	14	2	110	16	-	11	9	4	2	376
48270202	16	2	110	16	-	12	9	4	2	376

S-SFT FORM E

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Threading | Cutting taps | Metric





- HSSE spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels
- Form E chamfer

P	P	P	P	M	K	
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	INOX	GGG	
10-15	8-14	8-14	7-11	7-12	7-14	m/min

M	HSSE	0X	40°	ISO 2 6H	E/1,5	

DIN 371	DIN 376

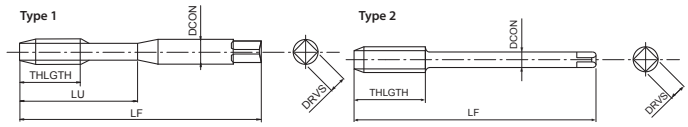
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48268125	2	0,4	45	4	10	2,8	2,1	2	1	371
48268127	2,2	0,45	45	5	11	2,8	2,1	2	1	371
48268128	2,3	0,4	45	4	12	2,8	2,1	2	1	371
48268133	2,5	0,45	50	4,5	13	2,8	2,1	2	1	371
48268136	2,6	0,45	50	4,5	13	2,8	2,1	2	1	371
48268138	3	0,5	56	5	18	3,5	2,7	3	1	371
48268142	3,5	0,6	56	6	20	4	3	3	1	371
48268144	4	0,7	63	7	21	4,5	3,4	3	1	371
48268147	4,5	0,75	70	7,5	25	6	4,9	3	1	371
48268149	5	0,8	70	8	25	6	4,9	3	1	371
48268152	5,5	0,9	80	9	30	6	4,9	3	1	371
48268155	6	1	80	10	30	6	4,9	3	1	371
48268158	7	1	80	10	30	7	5,5	3	1	371
48268161	8	1,25	90	13	35	8	6,2	3	1	371
48268165	9	1,25	90	13	35	9	7	3	1	371
48268169	10	1,5	100	15	39	10	8	3	1	371
48268140	3	0,5	56	5	-	2,2	-	3	2	376
48268185	4	0,7	63	7	-	2,8	2,1	3	2	376
48268150	5	0,8	70	8	-	3,5	2,7	3	2	376
48268187	6	1	80	10	-	4,5	3,4	3	2	376
48268159	7	1	80	10	-	5,5	4,3	3	2	376
48268188	8	1,25	90	13	-	6	4,9	3	2	376
48268166	9	1,25	90	13	-	7	5,5	3	2	376
48268189	10	1,5	100	15	-	7	5,5	3	2	376
48268175	11	1,5	100	15	-	8	6,2	3	2	376
48268179	12	1,75	110	18	-	9	7	4	2	376
48268191	14	2	110	20	-	11	9	4	2	376
48268202	16	2	110	20	-	12	9	4	2	376
48268214	18	2,5	125	15	-	14	11	4	2	376
48268228	20	2,5	140	25	-	16	12	4	2	376
48268238	22	2,5	140	25	-	18	14,5	4	2	376
48268247	24	3	160	30	-	18	14,5	4	2	376

S-LT-SFT

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Threading | Cutting taps | Metric





- HSSE spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels
- With long shank for long reach threading

P	P	P	P	M	K	
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	INOX	GGG	
10-15	8-14	8-14	7-11	7-12	7-14	m/min

M	HSSE	0X	40°	ISO 2 6H	C/2,5	

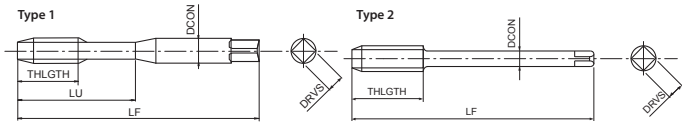
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type
48275125	2	0,4	80	3,2	10	2,8	2,1	2	1
48275133	2,5	0,45	100	3,6	13	2,8	2,1	2	1
48275138	3	0,5	100	4	18	3,5	2,7	3	1
48275144	4	0,7	125	5,6	21	4,5	3,4	3	1
48275149	5	0,8	160	6,4	25	6	4,9	3	1
48275155	6	1	160	8	30	6	4,9	3	1
48275187	6	1	160	10	-	4,5	3,4	3	2
48275161	8	1,25	180	10	35	8	6,2	3	1
48275188	8	1,25	180	11	-	6	4,9	3	2
48275169	10	1,5	200	12	39	10	8	3	1
48275189	10	1,5	200	14	-	7	5,5	3	2
48275179	12	1,75	200	14	-	9	7	4	2
48275191	14	2	200	16	-	11	9	4	2
48275202	16	2	200	16	-	12	9	4	2
48275214	18	2,5	200	25	-	14	11	4	2
48275228	20	2,5	200	25	-	16	12	4	2

S-SFT-LH

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Threading | Cutting taps | Metric





- HSSE spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels
- For left-hand threads

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
10-15	8-14	8-14	7-11	7-12	7-14	m/min

M	HSSE	0X	40°	ISO 2 6H	C/2,5	
DIN 371	DIN 376	LH				

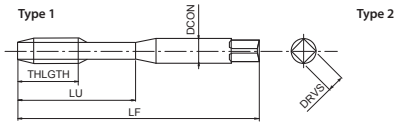
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48276138	3	0,5	56	4	18	3,5	2,7	3	1	371
48276144	4	0,7	63	5,6	21	4,5	3,4	3	1	371
48276149	5	0,8	70	6,4	25	6	4,9	3	1	371
48276155	6	1	80	8	30	6	4,9	3	1	371
48276161	8	1,25	90	10	35	8	6,2	3	1	371
48276169	10	1,5	100	12	39	10	8	3	1	371
48276179	12	1,75	110	14	-	9	7	4	2	376
48276191	14	2	110	16	-	11	9	4	2	376
48276202	16	2	110	16	-	12	9	4	2	376
48276214	18	2,5	125	25	-	14	11	4	2	376
48276228	20	2,5	140	25	-	16	12	4	2	376
48276238	22	2,5	140	25	-	18	14,5	4	2	376
48276247	24	3	160	30	-	18	14,5	4	2	376

S-SFT-HB Weldon

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Threading | Cutting taps | Metric





- HSSE spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels
- With Weldon shank

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
10-15	8-14	8-14	7-11	7-12	7-14	m/min

M	HSSE	0X	40°	ISO 2 6H	C/2,5	
DIN 371	DIN 1835	HB				

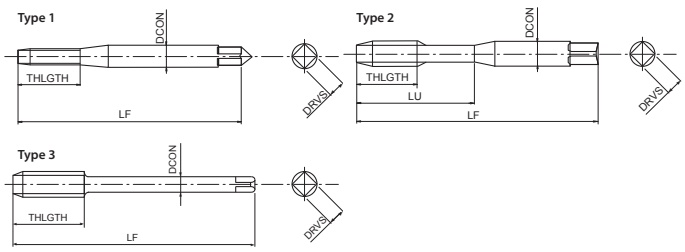
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	DIN
48277138	3	0,5	56	4	18	6	4,9	3	371/1835
48277144	4	0,7	63	5,6	21	6	4,9	3	371/1835
48277149	5	0,8	70	6,4	25	6	4,9	3	371/1835
48277155	6	1	80	8	30	6	4,9	3	371/1835
48277161	8	1,25	90	10	35	8	6,2	3	371/1835
48277169	10	1,5	100	12	39	10	8	3	371/1835
48277179	12	1,75	110	14	46	12	9	4	371/1835
48277191	14	2	110	16	49	14	11	4	371/1835
48277202	16	2	110	16	56	16	12	4	371/1835

VA-SFT

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Threading | Cutting taps | Metric





- HSSE spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
10-15	8-14	8-14	7-11	7-12	7-14	m/min

M	HSSE	0X	40°	ISO 2 6H	C/2,5	
DIN 371	DIN 376					

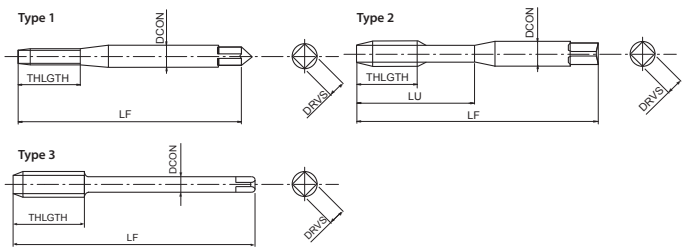
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
65312560	2	0,4	45	-	8	2,8	2,1	2	1	371
65312860	2,2	0,45	45	-	9	2,8	2,1	2	1	371
65313360	2,5	0,45	50	-	9	2,8	2,1	2	1	371
65313860	3	0,5	56	-	18	3,5	2,7	3	2	371
65314060	3,5	0,6	56	-	20	4	3	3	2	371
65314460	4	0,7	63	-	21	4,5	3,4	3	2	371
65314960	5	0,8	70	-	25	6	4,9	3	2	371
65315560	6	1	80	-	30	6	4,9	3	2	371
65316160	8	1,25	90	-	35	8	6,2	3	2	371
65316960	10	1,5	100	-	39	10	8	3	2	371
65413860	3	0,5	56	5	-	2,2	-	3	3	376
65414460	4	0,7	63	7	-	2,8	2,1	3	3	376
65414960	5	0,8	70	8	-	3,5	2,7	3	3	376
65415560	6	1	80	10	-	4,5	3,4	3	3	376
65416160	8	1,25	90	13	-	6	4,9	3	3	376
65416960	10	1,5	100	15	-	7	5,5	3	3	376
65417960	12	1,75	110	18	-	9	7	4	3	376
65419160	14	2	110	20	-	11	9	4	3	376
65420260	16	2	110	20	-	12	9	4	3	376
65421460	18	2,5	125	25	-	14	11	4	3	376
65422860	20	2,5	140	25	-	16	12	4	3	376
65423860	22	2,5	140	25	-	18	14,5	4	3	376
65424760	24	3	160	30	-	18	14,5	4	3	376
65426260	27	3	160	30	-	20	16	4	3	376
65427160	30	3,5	180	35	-	22	18	5	3	376
65428160	33	3,5	180	35	-	25	20	5	3	376
65429460	36	4	200	40	-	28	22	5	3	376

VA-SFT 6G

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Threading | Cutting taps | Metric





- HSSE spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels
- For 6G internal thread tolerance

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
10-15	8-14	8-14	7-11	7-12	7-14	m/min

M	HSSE	0X	40°	ISO 3 6G	C/2,5	
DIN 371	DIN 376					

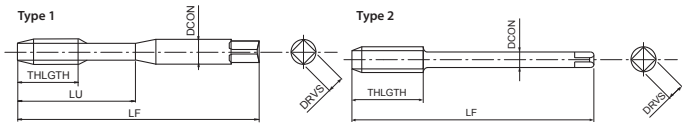
EDP	TD	TP	oversize	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
65312599	2	0,4	0.019	45	-	8	2,8	2,1	2	1	371
65313399	2,5	0,45	0.02	50	-	9	2,8	2,1	2	1	371
65313899	3	0,5	0.02	56	-	18	3,5	2,7	3	2	371
65314499	4	0,7	0.022	63	-	21	4,5	3,4	3	2	371
65314999	5	0,8	0.024	70	-	25	6	4,9	3	2	371
65315599	6	1	0.026	80	-	30	6	4,9	3	2	371
65316199	8	1,25	0.028	90	-	35	8	6,2	3	2	371
65316999	10	1,5	0.032	100	-	39	10	8	3	2	371
65417999	12	1,75	0.034	110	18	-	9	7	4	3	376
65419199	14	2	0.038	110	20	-	11	9	4	3	376
65420299	16	2	0.038	110	20	-	12	9	4	3	376

VA-SFT FORM E

INDEX

Threading | Cutting taps | Metric





- HSSE spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels
- Form E chamfer

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
10-15	8-14	8-14	7-11	7-12	7-14	m/min

M	HSSE	OX	40°	ISO 2 6H	E/1,5	
DIN 371	DIN 376					

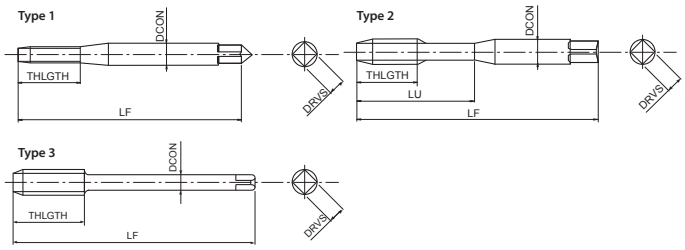
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48036138	3	0,5	56	-	18	3,5	2,7	3	1	371
48036144	4	0,7	63	-	21	4,5	3,4	3	1	371
48036149	5	0,8	70	-	25	6	4,9	3	1	371
48036155	6	1	80	-	30	6	4,9	3	1	371
48036161	8	1,25	90	-	35	8	6,2	3	1	371
48036169	10	1,5	100	-	39	10	8	3	1	371
48036179	12	1,75	110	18	-	9	7	3	2	376
48036191	14	2	110	20	-	11	9	3	2	376
48036202	16	2	110	20	-	12	9	3	2	376

Z-SFT

INDEX

Threading | Cutting taps | Metric





- Powder metal spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in general steels and stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
10-25	10-25	10-25	8-20	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC	
5-10	8-15	

M	PM	V	50°	ISO 2 6H	C/2,5	
DIN 371	DIN 376					

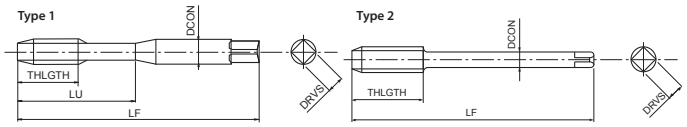
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
80512568	2	0,4	45	-	8	2,8	2,1	2	1	371
80513368	2,5	0,45	50	-	9	2,8	2,1	2	1	371
80513868	3	0,5	56	-	18	3,5	2,7	3	2	371
80514468	4	0,7	63	-	21	4,5	3,4	3	2	371
80514968	5	0,8	70	-	25	6	4,9	3	2	371
80515568	6	1	80	-	30	6	4,9	3	2	371
80516168	8	1,25	90	-	35	8	6,2	3	2	371
80516968	10	1,5	100	-	39	10	8	3	2	371
80613868	3	0,5	56	5	-	2,2	-	3	3	376
80614468	4	0,7	63	7	-	2,8	2,1	3	3	376
80614968	5	0,8	70	8	-	3,5	2,7	3	3	376
80615568	6	1	80	10	-	4,5	3,4	3	3	376
80616168	8	1,25	90	13	-	6	4,9	3	3	376
80616968	10	1,5	100	15	-	7	5,5	3	3	376
80617968	12	1,75	110	18	-	9	7	4	3	376
80619168	14	2	110	20	-	11	9	4	3	376
80620268	16	2	110	20	-	12	9	4	3	376
80621468	18	2,5	125	25	-	14	11	4	3	376
80622868	20	2,5	140	25	-	16	12	4	3	376
81623868	22	2,5	140	25	-	18	14,5	4	3	376
81624768	24	3	160	30	-	18	14,5	4	3	376
81626268	27	3	160	30	-	20	16	4	3	376
81627168	30	3,5	180	35	-	22	18	4	3	376

Z-OIL-SFT

INDEX

Threading | Cutting taps | Metric





- Powder metal spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in general steels and stainless steels
- Centre through coolant

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
10-25	10-25	10-25	8-20	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC
5-10	8-15

M	PM	V	50°	ISO 2 6H	C/2,5		
	DIN 371	DIN 376					

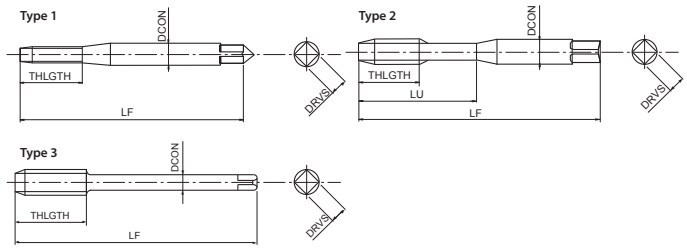
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
80515588	6	1	80	-	30	6	4,9	3	1	371
80516188	8	1,25	90	-	35	8	6,2	3	1	371
80516988	10	1,5	100	-	39	10	8	3	1	371
80617988	12	1,75	110	18	-	9	7	4	2	376
80619188	14	2	110	20	-	11	9	4	2	376
80620288	16	2	110	20	-	12	9	4	2	376
80621488	18	2,5	125	25	-	14	11	4	2	376
80622888	20	2,5	140	25	-	16	12	4	2	376

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Threading | Cutting taps | Metric





- HSSE spiral-fluted cutting tap for blind holes
- Bright finish
- For general purpose applications

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	K GGG	N Al	N AC, ADC	
8-13	7-12	7-12	6-9	6-8	10-20	10-15	m/min

M	HSSE	40°	ISO 2 6H	C/2,5		DIN 371	
DIN 376							

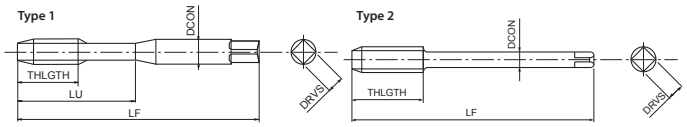
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
61312560	2	0,4	45	-	8	2,8	2,1	2	1	371
61313360	2,5	0,45	50	-	9	2,8	2,1	2	1	371
61313860	3	0,5	56	-	18	3,5	2,7	3	2	371
61314060	3,5	0,6	56	-	20	4	3	3	2	371
61314460	4	0,7	63	-	21	4,5	3,4	3	2	371
61314960	5	0,8	70	-	25	6	4,9	3	2	371
61315560	6	1	80	-	30	6	4,9	3	2	371
61316160	8	1,25	90	-	35	8	6,2	3	2	371
61316960	10	1,5	100	-	39	10	8	3	2	371
61413860	3	0,5	56	5	-	2,2	-	3	3	376
61414460	4	0,7	63	7	-	2,8	2,1	3	3	376
61414960	5	0,8	70	8	-	3,5	2,7	3	3	376
61415560	6	1	80	10	-	4,5	3,4	3	3	376
61416160	8	1,25	90	13	-	6	4,9	3	3	376
61416960	10	1,5	100	15	-	7	5,5	3	3	376
61417960	12	1,75	110	18	-	9	7	3	3	376
61419160	14	2	110	20	-	11	9	3	3	376
61420260	16	2	110	20	-	12	9	3	3	376
61421460	18	2,5	125	25	-	14	11	4	3	376
61422860	20	2,5	140	25	-	16	12	4	3	376
61423860	22	2,5	140	25	-	18	14,5	4	3	376
61424760	24	3	160	30	-	18	14,5	4	3	376
61426260	27	3	160	30	-	20	16	4	3	376
61427160	30	3,5	180	35	-	22	18	4	3	376
61428160	33	3,5	180	35	-	25	20	4	3	376
61429460	36	4	200	40	-	28	22	4	3	376

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Threading | Cutting taps | Metric





- HSSE spiral-fluted cutting tap for blind holes
- Bright finish
- For general purpose applications
- According to DIN 352 shank reduced length

P ○	P ○	P ○	P ○	K ○	N ○	N ○	
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	GGG	Al	AC, ADC	
8-13	7-12	7-12	6-9	6-8	10-20	10-15	m/min

M	HSSE	40°	ISO 2 6H	C/2,5		DIN 352

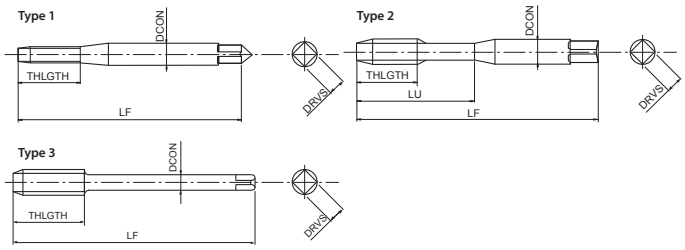
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	Type	DIN
60413860	3	0,5	40	18	3,5	2,7	3	1	352
60414460	4	0,7	45	21	4,5	3,4	3	1	352
60414960	5	0,8	50	24	6	4,9	3	1	352
60415560	6	1	50	27	6	4,9	3	1	352
60416160	8	1,25	63	13	6	4,9	3	2	352
60416960	10	1,5	70	15	7	5,5	3	2	352

TIN-SFT

INDEX

Threading | Cutting taps | Metric





- HSSE spiral-fluted cutting tap for blind holes
- TiN coating
- For steels up to 850 N/mm²

P ○	P ○	P ◉	P ○	M ○	K ○	N ○		
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	INOX	GGG	Al	AC, ADC	
8-13	7-12	7-12	6-9	5-8	7-12	10-20	10-15	m/min

M	HSSE	TiN	40°	ISO 2 6H	C/2,5		DIN 371	DIN 376

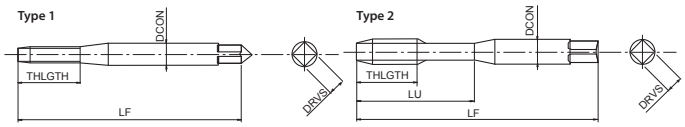
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
6131256001	2	0,4	45	-	8	2,8	2,1	2	1	371
6131336001	2,5	0,45	50	-	9	2,8	2,1	2	1	371
6131386001	3	0,5	56	-	18	3,5	2,7	3	2	371
6131406001	3,5	0,6	56	-	20	4	3	3	2	371
6131446001	4	0,7	63	-	21	4,5	3,4	3	2	371
6131496001	5	0,8	70	-	25	6	4,9	3	2	371
6131556001	6	1	80	-	30	6	4,9	3	2	371
6131616001	8	1,25	90	-	36	8	6,2	3	2	371
6131696001	10	1,5	100	-	39	10	8	3	2	371
6141386001	3	0,5	56	5	-	2,2	-	3	3	376
6141446001	4	0,7	63	7	-	2,8	2,1	3	3	376
6141496001	5	0,8	70	8	-	3,5	2,7	3	3	376
6141556001	6	1	80	10	-	4,5	3,4	3	3	376
6141616001	8	1,25	90	13	-	6	4,9	3	3	376
6141696001	10	1,5	100	15	-	7	5,5	3	3	376
6141796001	12	1,75	110	18	-	9	7	3	3	376
6141916001	14	2	110	20	-	11	9	3	3	376
6142026001	16	2	110	20	-	12	9	3	3	376
6142146001	18	2,5	125	25	-	14	11	4	3	376
6142286001	20	2,5	140	25	-	16	12	4	3	376
6142386001	22	2,5	140	25	-	18	14,5	4	3	376
6142476001	24	3	160	30	-	18	14,5	4	3	376
6142626001	27	3	160	30	-	20	16	4	3	376
6142716001	30	3,5	180	35	-	22	18	4	3	376

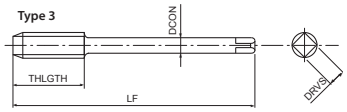
TICN-SFT

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Threading | Cutting taps | Metric







- HSSE spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- For steels up to 850 N/mm²

P ○ C <0,2%	P ○ 0,25<C<0,4	P ◉ C ≥ 0,45%	P ○ SCM	M ○ INOX	K ○ GGG	N ○ Al	
8-13	7-12	7-12	6-9	5-8	7-12	10-20	m/min

N ○ AC, ADC
10-15

M	HSSE	V	40°	ISO 2 6H	C/2,5		

DIN 371	DIN 376

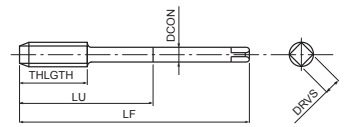
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6131256002	2	0,4	45	-	8	2,8	2,1	2	1	371
6131386002	3	0,5	56	-	18	3,5	2,7	3	2	371
6131446002	4	0,7	63	-	21	4,5	3,4	3	2	371
6131496002	5	0,8	70	-	25	6	4,9	3	2	371
6131556002	6	1	80	-	30	6	4,9	3	2	371
6131616002	8	1,25	90	-	36	8	6,2	3	2	371
6131696002	10	1,5	100	-	39	10	8	3	2	371
6141796002	12	1,75	110	18	-	9	7	3	3	376
6141916002	14	2	110	20	-	11	9	3	3	376
6142026002	16	2	110	20	-	12	9	3	3	376
6142146002	18	2,5	125	25	-	14	11	4	3	376
6142286002	20	2,5	140	25	-	16	12	4	3	376
6142386002	22	2,5	140	25	-	18	14,5	4	3	376
6142476002	24	3	160	30	-	18	14,5	4	3	376

HXL-SFT

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Threading | Cutting taps | Metric





- HSSE low spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- For steels and cast iron
- For horizontal applications in oil and heavy industry

P ○ C <0,2%	P ○ 0,25<C<0,4	P ◉ C ≥ 0,45%	P ◉ SCM	M ○ INOX	K ◉ GG	K ◉ GGG	
8-13	7-12	7-12	6-9	5-8	7-12	7-12	m/min

H ○ 25-35 HRC
3-5

M	HSSE	0X	15°	ISO 2 6HX	C/2,5	

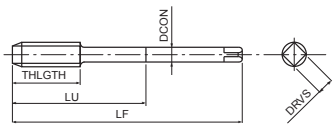
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF
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48045247	24	3	160	24	81	18	14,5	5
48045262	27	3	160	24	90	20	16	5
48045271	30	3,5	250	28	161	22	18	5
48045281	33	3,5	250	28	176	25	20	5
48045294	36	4	250	32	174	28	22	5
48045304	39	4	300	32	188	32	24	5
48045314	42	4,5	300	36	203	32	24	6
48045325	48	5	300	40	183	36	29	6
48045337	52	5	300	40	197	40	32	6
48045347	56	5,5	300	44	213	45	35	6

OIL-HXL-SFT

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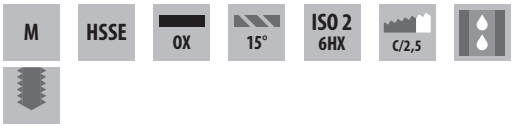
Threading | Cutting taps | Metric





- HSSE low spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- For steels and cast iron
- Centre through coolant, for horizontal applications in oil and heavy industry





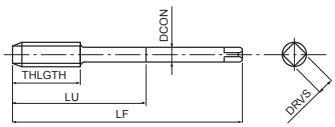
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF
48048228	20	2,5	140	20	69	16	12	5
48048247	24	3	160	24	81	18	14,5	5
48048262	27	3	160	24	90	20	16	5
48048271	30	3,5	250	28	161	22	18	5
48048281	33	3,5	250	28	176	25	20	5
48048294	36	4	250	32	174	28	22	5
48048304	39	4	300	32	188	32	24	5
48048314	42	4,5	300	36	203	32	24	6
48048325	48	5	300	40	183	36	29	6
48048337	52	5	300	40	197	40	32	6
48048347	56	5,5	300	44	213	45	35	6

VXL-SFT

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Threading | Cutting taps | Metric





- HSSE high spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- For general steels
- For vertical applications in oil and heavy industry



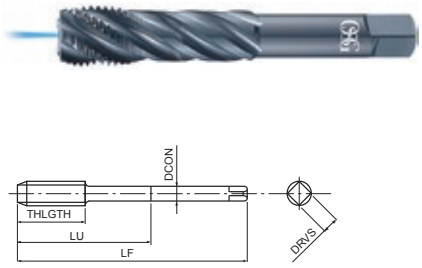


EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF
48046228	20	2,5	140	20	69	16	12	4
48046247	24	3	160	24	81	18	14,5	4
48046262	27	3	160	24	90	20	16	4
48046271	30	3,5	250	28	161	22	18	5
48046281	33	3,5	250	28	176	25	20	5
48046294	36	4	250	32	174	28	22	5
48046304	39	4	300	32	188	32	24	5
48046314	42	4,5	300	36	203	32	24	6
48046325	48	5	300	40	183	36	29	6
48046337	52	5	300	40	197	40	32	6
48046347	56	5,5	300	44	213	45	35	6

OIL-VXL-SFT

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Threading | Cutting taps | Metric



- HSSE high spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- For general steels
- Centre through coolant, for vertical applications in oil and heavy industry

P	P	P	P	M	H
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	INOX	25-35 HRC
8-13	7-12	7-12	6-9	5-8	3-5

m/min

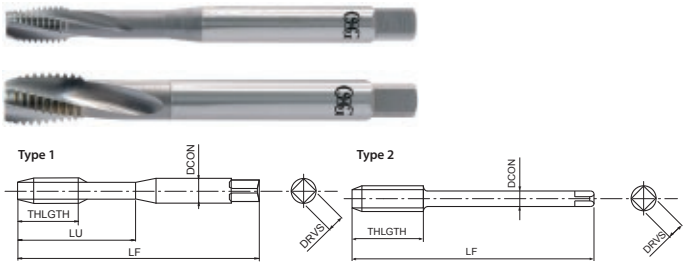
M | HSSE | 0X | 45° | ISO 2 6HX | C/2,5

EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF
48049228	20	2,5	140	20	69	16	12	4
48049247	24	3	160	24	81	18	14,5	4
48049262	27	3	160	24	90	20	16	4
48049271	30	3,5	250	28	161	22	18	5
48049281	33	3,5	250	28	176	25	20	5
48049294	36	4	250	32	174	28	22	5
48049304	39	4	300	32	188	32	24	5
48049314	42	4,5	300	36	203	32	24	6
48049325	48	5	300	40	183	36	29	6
48049337	52	5	300	40	197	40	32	6
48049347	56	5,5	300	44	213	45	35	6

SH-SFT

INDEX

Threading | Cutting taps | Metric



- HSSE low spiral-fluted cutting tap for blind holes
- Bright finish
- For alloyed steels ≥ 1100N/mm²
- Short chip creation

P	P	P	K	K	N
0,25<C<0,4	C ≥ 0,45%	SCM	GG	GGG	AC, ADC
7-12	7-12	6-9	7-12	6-8	10-15

m/min

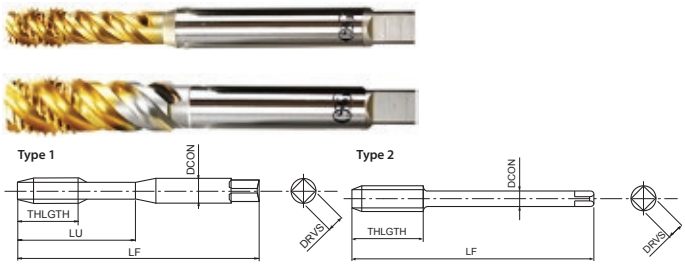
M | HSSE | 15° | ISO 2 6H | C/3 | DIN 371 | DIN 376

EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
72313860	3	0,5	56	-	18	3,5	2,7	3	1	371
72314460	4	0,7	63	-	21	4,5	3,4	3	1	371
72314960	5	0,8	70	-	25	6	4,9	3	1	371
72315560	6	1	80	-	30	6	4,9	3	1	371
72316160	8	1,25	90	-	35	8	6,2	3	1	371
72316960	10	1,5	100	-	39	10	8	3	1	371
72017960	12	1,75	110	18	-	9	7	3	2	376
72019160	14	2	110	20	-	11	9	3	2	376
72020260	16	2	110	20	-	12	9	3	2	376
72021460	18	2,5	125	25	-	14	11	4	2	376
72022860	20	2,5	140	25	-	16	12	4	2	376

M-SFT-DUPLEX

INDEX

Threading | Cutting taps | Metric



- Powder metal spiral-fluted cutting tap for blind holes
- TiN coating
- For stainless steels, Duplex, Super Duplex

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	S Inconel 625	S Ti Gr.2	
				3-15 Super Duplex	2-3 15-5 PH	3-6 17-4 PH	m/min

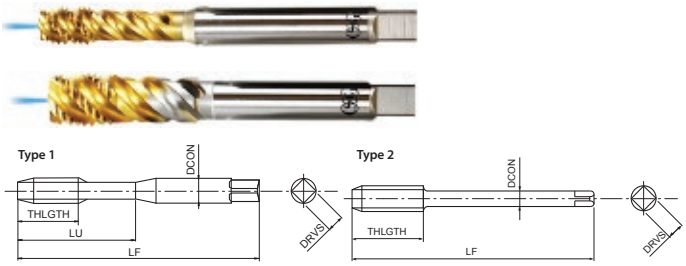
PM	TiN	50°	ISO 2 6HX	C/2,5	

EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48336125	2	0,4	45	3,2	10	2,8	2,1	2	1	371
48336133	2,5	0,45	50	3,6	13	2,8	2,1	2	1	371
48336138	3	0,5	56	4	18	3,5	2,7	3	1	371
48336144	4	0,7	63	5,6	21	4,5	3,4	3	1	371
48336149	5	0,8	70	6,4	25	6	4,9	3	1	371
48336155	6	1	80	8	30	6	4,9	3	1	371
48336161	8	1,25	90	10	35	8	6,2	3	1	371
48336169	10	1,5	100	12	39	10	8	4	1	371
48336179	12	1,75	110	14	-	9	7	4	2	376
48336191	14	2	110	16	-	11	9	4	2	376
48336202	16	2	110	16	-	12	9	4	2	376
48336214	18	2,5	125	20	-	14	11	4	2	376
48336228	20	2,5	140	20	-	16	12	4	2	376
48336238	22	2,5	140	20	-	18	14,5	4	2	376
48336247	24	3	160	24	-	18	14,5	4	2	376

M-OIL-SFT-DUPLEX

INDEX

Threading | Cutting taps | Metric



- Powder metal spiral-fluted cutting tap for blind holes
- TiN coating
- For stainless steels, Duplex, Super Duplex
- Centre through coolant

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	S Inconel 625	S Ti Gr.2	
				3-15 Super Duplex	2-3 15-5 PH	3-6 17-4 PH	m/min

M	PM	TiN	50°	ISO 2 6HX	C/2,5		
	DIN 371	DIN 376					

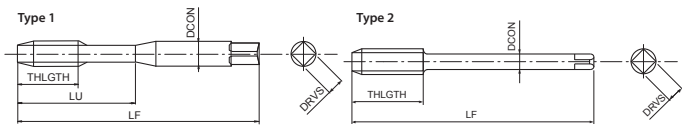
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48380155	6	1	80	8	30	6	4,9	3	1	371
48380161	8	1,25	90	10	35	8	6,2	3	1	371
48380169	10	1,5	100	12	39	10	8	4	1	371
48380179	12	1,75	110	14	-	9	7	4	2	376
48380191	14	2	110	16	-	11	9	4	2	376
48380202	16	2	110	16	-	12	9	4	2	376
48380214	18	2,5	125	20	-	14	11	4	2	376
48380228	20	2,5	140	20	-	16	12	4	2	376
48380238	22	2,5	140	20	-	18	14,5	4	2	376
48380247	24	3	160	24	-	18	14,5	4	2	376

M-LT-SFT-DUPLEX

INDEX

Threading | Cutting taps | Metric





- Powder metal spiral-fluted cutting tap for blind holes
- TiN coating
- For stainless steels, Duplex, Super Duplex
- With long shank for deep reach threading,up to 3D

P	P	P	P	M	S	S	
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	INOX	Inconel 625	Ti Gr.2	
				3-15	2-3	3-6	m/min
				Super Duplex	15-5 PH	17-4 PH	

M	PM	TiN	50°	ISO 2 6HX	C/2,5	

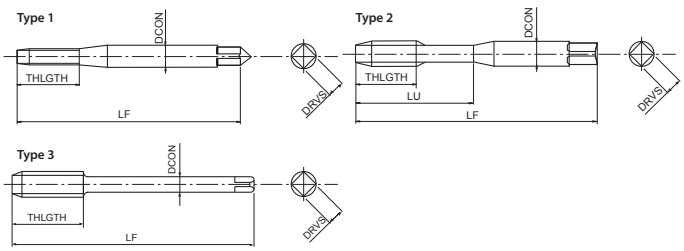
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48381125	2	0,4	80	3,2	12	2,8	2,1	2	1	371
48381133	2,5	0,45	100	3,6	15,5	2,8	2,1	2	1	371
48381138	3	0,5	100	4	21	3,5	2,7	3	1	371
48381144	4	0,7	125	5,6	25	4,5	3,4	3	1	371
48381149	5	0,8	160	6,4	30	6	4,9	3	1	371
48381155	6	1	160	8	36	6	4,9	3	1	371
48381161	8	1,25	180	10	43	8	6,2	3	1	371
48381169	10	1,5	200	12	49	10	8	4	1	371
48381187	6	1	160	8	-	4,5	3,4	3	2	376
48381188	8	1,25	180	10	-	6	4,9	3	2	376
48381189	10	1,5	200	12	-	7	5,5	4	2	376
48381179	12	1,75	200	14	-	9	7	4	2	376
48381191	14	2	200	16	-	11	9	4	2	376
48381202	16	2	200	16	-	12	9	4	2	376
48381214	18	2,5	200	20	-	14	11	4	2	376
48381228	20	2,5	200	20	-	16	12	4	2	376

CC-SFT

INDEX

Threading | Cutting taps | Metric





- HSSE spiral-fluted cutting tap for blind holes
- CrN coating
- For general steels, stainless steels and aluminium
- Developed for rigid tapping on CNC machines

P	P	P	P	M	N	
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	INOX	Al	
15-25	15-25	10-25	10-25	6-10	15-35	m/min

M	HSSE	CrN	45°	ISO 2 6HX	C/2,5	≥2D	
DIN 371	DIN 376						

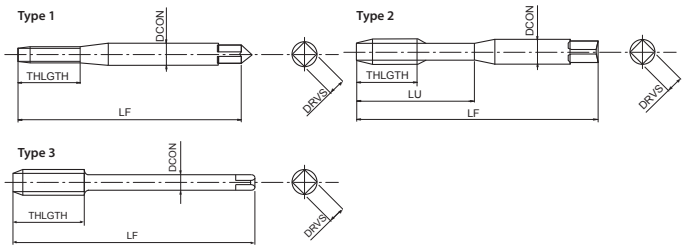
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48032125	2	0,4	45	-	8	2,8	2,1	2	1	371
48032133	2,5	0,45	50	-	10	2,8	2,1	2	1	371
48032138	3	0,5	56	-	12	3,5	2,7	3	1	371
48032144	4	0,7	63	-	16	4,5	3,4	3	1	371
48032149	5	0,8	70	-	20	6	4,9	3	1	371
48032155	6	1	80	-	24	6	4,9	3	1	371
48032161	8	1,25	90	-	35	8	6,2	3	2	371
48032169	10	1,5	100	-	39	10	8	4	2	371
48035138	3	0,5	56	5	-	2,2	-	3	3	376
48035144	4	0,7	63	7	-	2,8	2,1	3	3	376
48035149	5	0,8	70	8	-	3,5	2,7	3	3	376
48035155	6	1	80	10	-	4,5	3,4	3	3	376
48035161	8	1,25	90	11	-	6	4,9	3	3	376
48035169	10	1,5	100	14	-	7	5,5	4	3	376
48032179	12	1,75	110	16	-	9	7	4	3	376
48032191	14	2	110	18	-	11	9	4	3	376
48032202	16	2	110	18	-	12	9	4	3	376
48032214	18	2,5	125	23	-	14	11	4	3	376
48032228	20	2,5	140	23	-	16	12	4	3	376
48032238	22	2,5	140	23	-	18	14,5	4	3	376
48032247	24	3	160	27	-	18	14,5	4	3	376
48032262	27	3	160	27	-	20	16	4	3	376
48032271	30	3,5	180	32	-	22	18	4	3	376
48032294	36	4	200	36	-	28	22	4	3	376

CC-LT-SFT

INDEX

Threading | Cutting taps | Metric





- HSSE spiral-fluted cutting tap for blind holes
- CrN coating
- For general steels, stainless steels and aluminium
- With long shank for long reach threading

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	
15-25	15-25	10-25	10-25	6-10	15-35	m/min

M | HSSE | CrN | 45° | ISO 2 6HX | C/2,5 | ≥2D

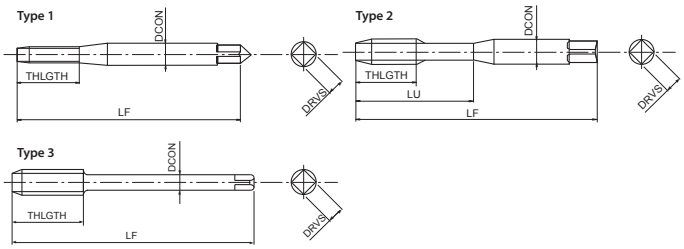
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type
48113125	2	0,4	80	-	8	2,8	2,1	2	1
48113133	2,5	0,45	100	-	10	2,8	2,1	2	1
48113138	3	0,5	100	-	12	3,5	2,7	3	1
48113144	4	0,7	125	-	16	4,5	3,4	3	1
48113149	5	0,8	140	-	20	6	4,9	3	1
48113155	6	1	160	-	24	6	4,9	3	1
48113161	8	1,25	180	-	35	8	6,2	3	2
48113169	10	1,5	200	-	39	10	8	4	2
48113179	12	1,75	200	16	-	9	7	4	3

CC-NEO-SFT

INDEX

Threading | Cutting taps | Metric





- HSSE spiral-fluted cutting tap for blind holes
- TiN coating
- For general steels, stainless steels and aluminium
- Variable helix for better chip evacuation

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	
15-25	15-25	10-25	10-25	6-10	15-35	m/min

M | HSSE | TiN | 45° | ISO 2 6HX | C/2,5 | ≥2D | DIN 371 | DIN 376

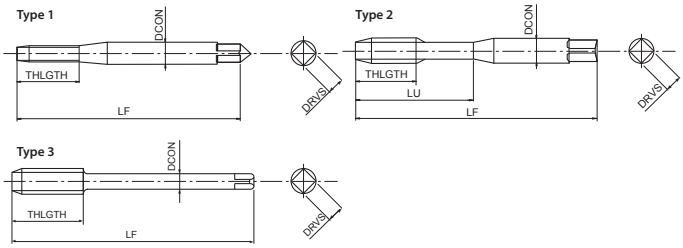
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48081125	2	0,4	45	-	8	2,8	2,1	2	1	371
48081133	2,5	0,45	50	-	9	2,8	2,1	2	1	371
48081138	3	0,5	56	-	18	3,5	2,7	2	2	371
48081144	4	0,7	63	-	21	4,5	3,4	2	2	371
48081149	5	0,8	70	-	25	6	4,9	2	2	371
48081155	6	1	80	-	30	6	4,9	2	2	371
48081161	8	1,25	90	-	35	8	6,2	3	2	371
48081169	10	1,5	100	-	39	10	8	3	2	371
48081179	12	1,75	110	13	-	9	7	3	3	376
48081191	14	2	110	14	-	11	9	3	3	376
48081202	16	2	110	14	-	12	9	3	3	376

SUS-SFT

INDEX

Threading | Cutting taps | Metric





- HSSE high spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- For stainless steels



6-10

m/min

M | HSSE | 0X | 50° | ISO 2 6HX | C/2,5 | <1,5D | DIN 371 | DIN 376

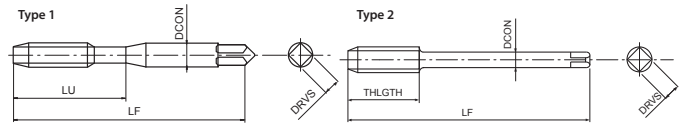
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48025125	2	0,4	45	-	8	2,8	2,1	2	1	371
48025128	2,2	0,45	45	-	9	2,8	2,1	2	1	371
48025133	2,5	0,45	50	-	9	2,8	2,1	2	1	371
48025138	3	0,5	56	-	18	3,5	2,7	3	2	371
48025140	3,5	0,6	56	-	20	4	3	3	2	371
48025144	4	0,7	63	-	21	4,5	3,4	3	2	371
48025149	5	0,8	70	-	25	6	4,9	3	2	371
48025155	6	1	80	-	30	6	4,9	3	2	371
48025161	8	1,25	90	-	35	8	6,2	3	2	371
48025169	10	1,5	100	-	39	10	8	3	2	371
48026179	12	1,75	110	18	-	9	7	3	3	376
48026191	14	2	110	20	-	11	9	3	3	376
48026202	16	2	110	20	-	12	9	3	3	376
48026214	18	2,5	125	25	-	14	11	4	3	376
48026228	20	2,5	140	25	-	16	12	4	3	376
48026238	22	2,5	140	25	-	18	14,5	4	3	376
48026247	24	3	160	30	-	18	14,5	4	3	376

HS-SFT-TIN

INDEX

Threading | Cutting taps | Metric





- HSSE spiral-fluted cutting tap for blind holes
- TiN coating
- For high speed tapping in various materials



27-32 | 27-32 | 22-27 | 22-27 | 15-20 | 50-100 | 40-100

m/min

M | HSSE | TiN | 45° | ISO 2 6H | C/3

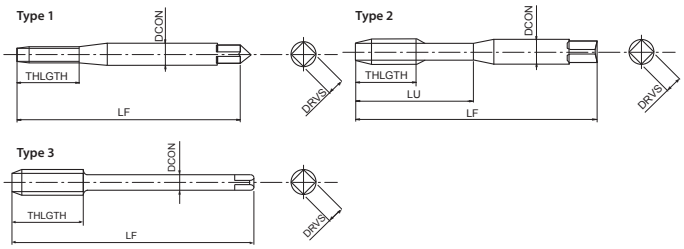
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type
20810	3	0,5	46	4	19	4	3,2	3	1
20814	4	0,7	52	5,6	21	6	4,5	3	1
20818	5	0,8	60	6,4	24	6	4,5	3	1
20822	6	1	62	8	29	6	4,5	3	1
20828	8	1,25	70	10	37	8	6	3	1
20834	10	1,5	75	12	41	8	6	3	2
20839	12	1,75	82	14	48	10	8	3	2

AL-SFT

INDEX

Threading | Cutting taps | Metric





- HSSE spiral-fluted cutting tap for blind holes
- Bright finish
- For aluminium and cast aluminium

N Al 10-20

N AC, ADC 10-15

m/min

M | HSSE | 50° | ISO 2 6H | C/2,5 | DIN 371 | DIN 376

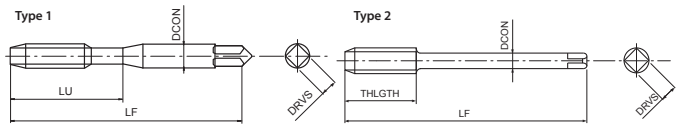
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
70211860	1,6	0,35	40	-	8	2,5	2,1	2	1	371
70212560	2	0,4	45	-	8	2,8	2,1	2	1	371
70212860	2,2	0,45	45	-	9	2,8	2,1	2	1	371
70213360	2,5	0,45	50	-	9	2,8	2,1	2	1	371
70213860	3	0,5	56	-	18	3,5	2,7	2	2	371
70214060	3,5	0,6	56	-	20	4	3	2	2	371
70214460	4	0,7	63	-	21	4,5	3,4	2	2	371
70214960	5	0,8	70	-	25	6	4,9	2	2	371
70215560	6	1	80	-	30	6	4,9	2	2	371
70216160	8	1,25	90	-	35	8	6,2	2	2	371
70216960	10	1,5	100	-	39	10	8	2	2	371
70317960	12	1,75	110	18	-	9	7	2	3	376
70319160	14	2	110	20	-	11	9	2	3	376
70320260	16	2	110	20	-	12	9	2	3	376
70321460	18	2,5	125	25	-	14	11	2	3	376
70322860	20	2,5	140	25	-	16	12	3	3	376

US-AL-SFT

INDEX

Threading | Cutting taps | Metric





- HSSE spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- For high speed tapping in aluminium and cast aluminium
- Developed for rigid tapping on CNC machines

N Al 100-400

N AC, ADC 100-400

m/min

M | HSSE | V | ±45° | ISO 2 6H | C/3

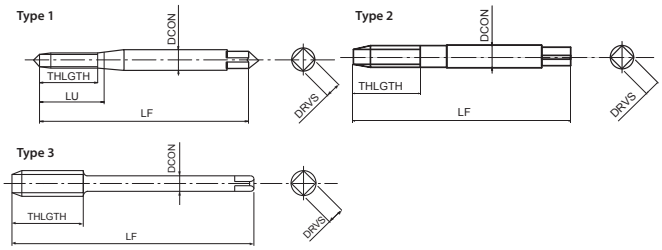
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8311669	3	0,5	46	4	19	4	3,2	2	1
8311683	4	0,7	52	5,6	21	6	4,5	2	1
8311697	5	0,8	60	6,4	24	6	4,5	2	1
8311711	6	1	62	8	29	6	4,5	2	1
8311725	8	1,25	70	10	37	8	6	2	1
8311739	10	1,5	75	12	41	8	6	2	2
8311757	12	1,75	82	14	48	10	8	2	2

V-TI-SFT

INDEX

Threading | Cutting taps | Metric





- Powder metal low spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- For Titanium alloys

S Ti 3-5 m/min

M | PM | V | 10° | ISO 2 6H | C/2,5 | DIN 371 | DIN 376

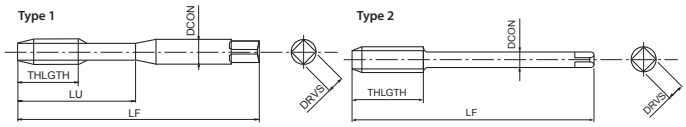
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48011118	1,6	0,35	40	-	8	2,5	2,1	2	1	371
48011125	2	0,4	45	-	8	2,8	2,1	2	1	371
48011133	2,5	0,45	50	-	9	2,8	2,1	2	2	371
48011138	3	0,5	56	-	11	3,5	2,7	3	2	371
48011144	4	0,7	63	-	14	4,5	3,4	3	2	371
48011149	5	0,8	70	-	17	6	4,9	3	2	371
48011155	6	1	80	-	21	6	4,9	3	2	371
48011161	8	1,25	90	-	28	8	6,2	3	2	371
48011169	10	1,5	100	-	35	10	8	3	2	371
48011179	12	1,75	110	18	-	10	8	3	3	376

E-SFT

INDEX

Threading | Cutting taps | Metric





- Powder metal low spiral-fluted cutting tap for blind holes
- Bright finish
- For Nickel-based alloys including Inconel 718

S Ni 1-3 m/min

M | PM | 10° | ISO 2 6H | C/2,5 | DIN 371

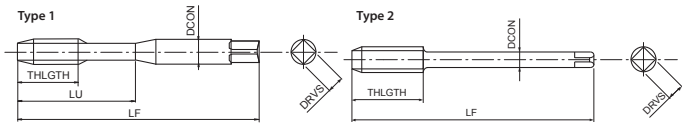
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
89513860	3	0,5	56	-	11	3,5	2,7	3	1	371
89514460	4	0,7	63	-	14	4,5	3,4	3	1	371
89514960	5	0,8	70	-	18	6	4,9	3	1	371
89515560	6	1	80	-	21	6	4,9	3	1	371
89516160	8	1,25	90	-	28	8	6,2	3	1	371
89516960	10	1,5	100	-	35	10	8	3	1	371
89617960	12	1,75	110	18	-	10	8	3	2	-

WHR-NI-SFT

INDEX

Threading | Cutting taps | Metric





- Powder metal low spiral-fluted cutting tap for blind holes
- HR coating
- For Nickel-based alloys including Inconel 718

S Ni 1-3

m/min

M | PM | HR | 11° | ISO 2 6H | C/2,5 | DIN 371

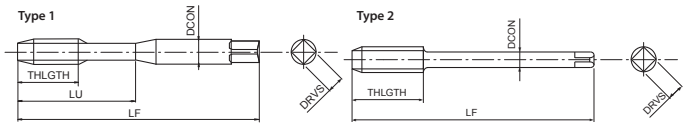
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48078138	3	0,5	56	-	11	3,5	2,7	3	1	371
48078144	4	0,7	63	-	14	4,5	3,4	3	1	371
48078149	5	0,8	70	-	18	6	4,9	3	1	371
48078155	6	1	80	-	21	6	4,9	3	1	371
48078161	8	1,25	90	-	28	8	6,2	3	1	371
48078169	10	1,5	100	-	35	10	8	3	1	371
48078179	12	1,75	110	18	-	10	8	3	2	-

CPM-SFT

INDEX

Threading | Cutting taps | Metric





- Powder metal low spiral-fluted cutting tap for blind holes
- Bright finish
- For steels up to 900 N/mm² and cast iron

P C ≥ 0,45% 7-12 | P SCM 7-12 | K GG 7-12 | K GGG 7-12 | H 25-35 HRC 4-8 | H 35-45 HRC 4-8

m/min

M | PM | 15° | ISO 2 6H | C/3 | DIN 371 | DIN 376

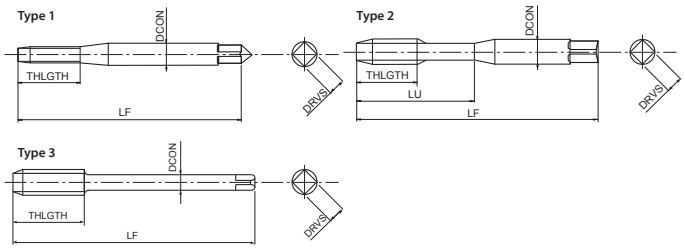
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
81913860	3	0,5	56	-	18	3,5	2,7	3	1	371
81914460	4	0,7	63	-	21	4,5	3,4	3	1	371
81914960	5	0,8	70	-	25	6	4,9	3	1	371
81915560	6	1	80	-	30	6	4,9	3	1	371
81916160	8	1,25	90	-	35	8	6,2	3	1	371
81916960	10	1,5	100	-	39	10	8	3	1	371
82016160	8	1,25	90	13	-	6	4,9	3	2	376
82016960	10	1,5	100	15	-	7	5,5	3	2	376
82017960	12	1,75	110	18	-	9	7	3	2	376
82019160	14	2	110	20	-	11	9	3	2	376
82020260	16	2	110	20	-	12	9	3	2	376
82021460	18	2,5	125	25	-	14	11	4	2	376
82022860	20	2,5	140	25	-	16	12	4	2	376

H-SFT

INDEX

Threading | Cutting taps | Metric





- Powder metal low spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- For hardened steels up to 45 HRC

P C ≥ 0,45%	P SCM	K GGG	S Ti	S Ni	H 25-35 HRC	H 35-45 HRC	
7-12	7-12	7-12	3-5	1-3	4-8	4-8	m/min

M	PM	0X	15°	ISO 2 6H	C/3	
DIN 371	DIN 376					

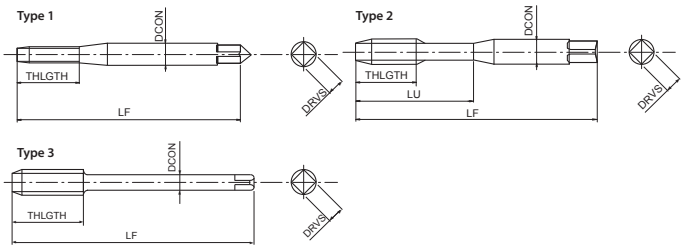
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
83212560	2	0,4	45	-	8	2,8	2,1	2	1	371
83213360	2,5	0,45	50	-	9	2,8	2,1	2	1	371
83213860	3	0,5	56	-	18	3,5	2,7	3	2	371
83214460	4	0,7	63	-	21	4,5	3,4	3	2	371
83214960	5	0,8	70	-	25	6	4,9	3	2	371
83215560	6	1	80	-	30	6	4,9	3	2	371
83216160	8	1,25	90	-	35	8	6,2	3	2	371
83216960	10	1,5	100	-	39	10	8	3	2	371
83317960	12	1,75	110	18	-	9	7	3	3	376
83319160	14	2	110	20	-	11	9	3	3	376
83320260	16	2	110	20	-	12	9	3	3	376
83321460	18	2,5	125	25	-	14	11	4	3	376
83322860	20	2,5	140	25	-	16	12	4	3	376

VP-H-SFT

INDEX

Threading | Cutting taps | Metric





- Powder metal low spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- For hardened steels up to 45 HRC

P C ≥ 0,45%	P SCM	K GGG	S Ti	S Ni	H 25-35 HRC	H 35-45 HRC	
7-12	7-12	7-12	3-5	1-3	4-8	4-8	m/min

M	PM	V	15°	ISO 2 6HX	C/3	
DIN 371	DIN 376					

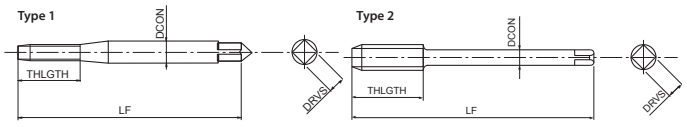
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48082125	2	0,4	45	-	8	2,8	2,1	2	1	371
48082133	2,5	0,45	50	-	9	2,8	2,1	2	1	371
48082138	3	0,5	56	-	18	3,5	2,7	3	2	371
48082144	4	0,7	63	-	21	4,5	3,4	3	2	371
48082149	5	0,8	70	-	25	6	4,9	3	2	371
48082155	6	1	80	-	30	6	4,9	3	2	371
48082161	8	1,25	90	-	35	8	6,2	3	2	371
48082169	10	1,5	100	-	39	10	8	3	2	371
48082179	12	1,75	110	18	-	9	7	3	3	376
48082191	14	2	110	20	-	11	9	3	3	376
48082202	16	2	110	20	-	12	9	3	3	376
48082214	18	2,5	125	25	-	14	11	4	3	376
48082228	20	2,5	140	25	-	16	12	4	3	376
48082238	22	2,5	140	25	-	18	14,5	4	3	376
48082247	24	3	160	30	-	18	14,5	4	3	376
48082262	27	3	160	30	-	20	16	4	3	376
48082271	30	3,5	180	35	-	22	18	4	3	376
48082281	33	3,5	180	35	-	25	20	4	3	376
48082294	36	4	200	40	-	28	22	4	3	376

VPO-H-SFT

INDEX

Threading | Cutting taps | Metric





- Powder metal spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- For hardened steels up to 45 HRC
- Centre through coolant

P ◉ C ≥ 0,45%	P ○ SCM	K ○ GGG	S ◉ Ti	S ◉ Ni	H ◉ 25-35 HRC	H ◉ 35-45 HRC	
7-12	7-12	7-12	3-5	1-3	4-8	4-8	m/min

M	PM	V	15°	ISO 2 6HX	C/3	
	DIN 371	DIN 376				

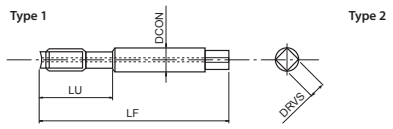
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48083155	6	1	80	-	30	6	4,9	3	1	371
48083161	8	1,25	90	-	35	8	6,2	3	1	371
48083169	10	1,5	100	-	39	10	8	3	1	371
48083179	12	1,75	110	18	-	9	7	3	2	376
48083191	14	2	110	20	-	11	9	3	2	376
48083202	16	2	110	20	-	12	9	3	2	376
48083214	18	2,5	125	25	-	14	11	4	2	376
48083228	20	2,5	140	25	-	16	12	4	2	376
48083238	22	2,5	140	25	-	18	14,5	4	2	376
48083247	24	3	160	30	-	18	14,5	4	2	376
48083262	27	3	160	30	-	20	16	4	2	376
48083271	30	3,5	180	35	-	22	18	4	2	376
48083281	33	3,5	180	35	-	25	20	4	2	376
48083294	36	4	200	40	-	28	22	4	2	376

V-EM-SFT

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Threading | Cutting taps | Metric





- HSSE spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- For die cast aluminium
- Centre through coolant, with end cut, for pre-formed cast holes

N ◉ AC, ADC	
10-15	m/min

M	HSSE	V	45°	ISO 2 6H	C/2,5	

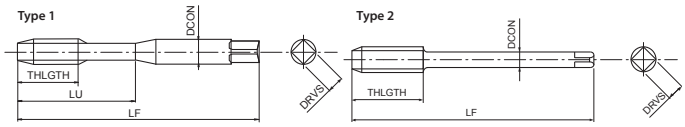
EDP	TD	TP	LF	LU	DCON	DRVS	NOF
1001480570	4	0,7	80	21	6	4,5	3
1001480580	5	0,8	80	24	6	4,5	3
1001480450	6	1	100	29	6	4,5	3
1001480210	8	1,25	100	37	8	6	3
1001480590	10	1,5	100	41	8	6	3
1001480610	12	1,75	100	48	10	8	3
1001480640	14	2	120	48	12	10	3
1001480650	16	2	120	52	16	12	3

VP-DC-MT

INDEX

Threading | Cutting taps | Metric





- Powder metal straight flute cutting tap for through and blind holes
- Multilayer TiCN coating
- For cast iron and cast aluminium
- Synchro taps at cutting speeds > 30 m/min

P C ≥ 0,45%	P SCM	K GG	K GGG	N AC, ADC	H 25-35 HRC	H 35-45 HRC	
10-25	10-20	15-60	15-40	25-70	8-20	8-20	m/min

M | PM | V | ISO 2 6HX | C/2,5

DIN 371 | DIN 376

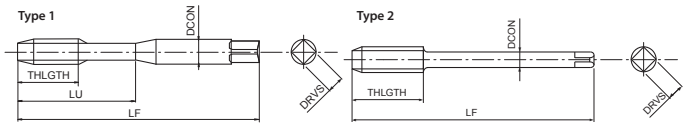
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	LH	Type	DIN
48020125	2	0,4	45	8	10	2,8	2,1	3	15	1	371
48020133	2,5	0,45	50	9	14	2,8	2,1	3	14	1	371
48020138	3	0,5	56	6	18	3,5	2,7	3	22	1	371
48020142	3,5	0,6	56	7	20	4	3	3	24	1	371
48020144	4	0,7	63	9	21	4,5	3,4	3	26	1	371
48020149	5	0,8	70	10	25	6	4,9	3	31	1	371
48020155	6	1	80	12	30	6	4,9	3	36	1	371
48020158	7	1	80	12	30	7	5,5	4	36	1	371
48020161	8	1,25	90	15	35	8	6,2	4	43	1	371
48020169	10	1,5	100	18	39	10	8	4	49	1	371
48020175	11	1,5	100	18	-	8	6,2	4	40	2	376
48020179	12	1,75	110	21	-	9	7	4	44	2	376
48022191	14	2	110	24	-	11	9	4	44	2	376
48022202	16	2	110	24	-	12	9	4	44	2	376
48022214	18	2,5	125	30	-	14	11	4	50	2	376
48022228	20	2,5	140	30	-	16	12	4	56	2	376
48020238	22	2,5	140	30	-	18	14,5	5	56	2	376
48020247	24	3	160	36	-	18	14,5	5	64	2	376
48020271	30	3,5	180	42	-	22	18	6	72	2	376

VP-DC-MT FORM E

INDEX

Threading | Cutting taps | Metric





Type 3

- Powder metal straight flute cutting tap for through and blind holes
- Multilayer TiCN coating
- For cast iron and cast aluminium
- Synchro taps at cutting speeds > 30 m/min, chamfer Form E

P C ≥ 0,45%	P SCM	K GG	K GGG	N AC, ADC	H 25-35 HRC	H 35-45 HRC	
10-25	10-20	15-60	15-40	25-70	8-20	8-20	m/min

M | PM | V | ISO 2 6HX | E/1,5 | ≥2D

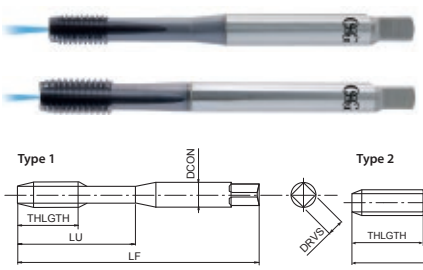
DIN 371 | DIN 376

EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	LH	Type	DIN
48037138	3	0,5	56	6	18	3,5	2,7	3	22	1	371
48037144	4	0,7	63	9	21	4,5	3,4	3	26	1	371
48037149	5	0,8	70	10	25	6	4,9	3	31	1	371
48037155	6	1	80	12	30	6	4,9	3	36	1	371
48037161	8	1,25	90	15	35	8	6,2	4	43	1	371
48037169	10	1,5	100	18	39	10	8	4	49	1	371
48037179	12	1,75	110	21	-	9	7	4	44	2	376
48037191	14	2	110	24	-	11	9	4	44	2	376
48037202	16	2	110	24	-	12	9	4	44	2	376
48037214	18	2,5	125	30	-	14	11	4	50	2	376
48037228	20	2,5	140	30	-	16	12	4	56	2	376
48037238	22	2,5	140	30	-	18	14,5	5	56	2	376
48037247	24	3	160	36	-	18	14,5	5	64	2	376

VPO-DC-MT Center

INDEX

Threading | Cutting taps | Metric



- Powder metal straight flute cutting tap for blind holes
- Multilayer TiCN coating
- For cast iron and cast aluminium
- Synchro taps at cutting speeds > 30 m/min, with centre through coolant

P	P	K	K	N	H	H	
C ≥ 0,45%	SCM	GG	GGG	AC, ADC	25-35 HRC	35-45 HRC	
10-25	10-20	15-60	15-40	25-70	8-20	8-20	m/min

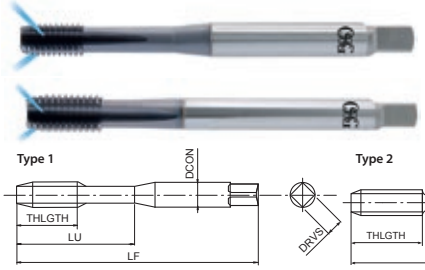
M	PM	V	ISO 2 6HX	C/2,5	≥2D		
DIN 371	DIN 376						

EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	LH	Type	DIN
48021155	6	1	80	12	30	6	4,9	3	36	1	371
48021161	8	1,25	90	15	35	8	6,2	4	43	1	371
48021169	10	1,5	100	18	39	10	8	4	49	1	371
48300179	12	1,75	110	21	-	9	7	4	44	2	376
48300191	14	2	110	24	-	11	9	4	44	2	376
48300202	16	2	110	24	-	12	9	4	44	2	376
48300214	18	2,5	125	30	-	14	11	4	50	2	376
48300228	20	2,5	140	30	-	16	12	4	56	2	376

VPO-DC-MT Side

INDEX

Threading | Cutting taps | Metric



- Powder metal straight flute cutting tap for through holes
- Multilayer TiCN coating
- For cast iron and cast aluminium
- Synchro taps at cutting speeds > 30 m/min, with side through coolant

P	P	K	K	N	H	H	
C ≥ 0,45%	SCM	GG	GGG	AC, ADC	25-35 HRC	35-45 HRC	
10-25	10-20	15-60	15-40	25-70	8-20	8-20	m/min

M	PM	V	ISO 2 6HX	C/2,5			
DIN 371	DIN 376						

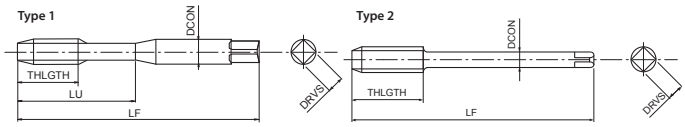
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	LH	Type	DIN
48299155	6	1	80	8	30	6	4,9	3	36	1	371
48299161	8	1,25	90	10	35	8	6,2	4	36	1	371
48299169	10	1,5	100	12	39	10	8	4	49	1	371
48021179	12	1,75	110	21	-	9	7	4	44	2	376
48024191	14	2	110	24	-	11	9	4	44	2	376
48024202	16	2	110	24	-	12	9	4	44	2	376
48024214	18	2,5	125	30	-	14	11	4	50	2	376
48024228	20	2,5	140	30	-	16	12	4	56	2	376

VPO-DC-MT FORM E

INDEX

Threading | Cutting taps | Metric





- Powder metal straight flute cutting tap for blind holes
- Multilayer TiCN coating
- For cast iron and cast aluminium
- Synchro taps at cutting speeds > 30 m/min, with centre through coolant, chamfer Form E

P	P	K	K	N	H	H	
C ≥ 0,45%	SCM	GG	GGG	AC, ADC	25-35 HRC	35-45 HRC	
10-25	10-20	15-60	15-40	25-70	8-20	8-20	m/min

M | PM | V | ISO 2 6HX | E/1,5 | ≥2D

DIN 371 | DIN 376

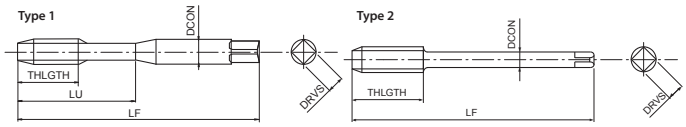
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	LH	Type	DIN
48038155	6	1	80	12	30	6	4,9	3	36	1	371
48038161	8	1,25	90	15	35	8	6,2	4	43	1	371
48038169	10	1,5	100	18	39	10	8	4	49	1	371
48038179	12	1,75	110	21	-	9	7	4	44	2	376
48038191	14	2	110	24	-	11	9	4	44	2	376
48038202	16	2	110	24	-	12	9	4	44	2	376
48038214	18	2,5	125	30	-	14	11	4	50	2	376
48038228	20	2,5	140	30	-	16	12	4	56	2	376
48038238	22	2,5	140	30	-	18	14,5	5	56	2	376
48038247	24	3	160	36	-	18	14,5	5	64	2	376

A-CHT OIL Center

INDEX

Threading | Cutting taps | Metric





- First choice in quality and performance
- Carbide straight flute cutting tap for blind holes
- TiAlN coating
- For cast iron and cast aluminium
- Centre through coolant

K	K	N	
GG	GGG	AC, ADC	
10-100	10-100	10-100	m/min

A | M | CARBIDE | FX | h6 | ISO 2 6HX | C/2,5

DIN 371 | DIN 376

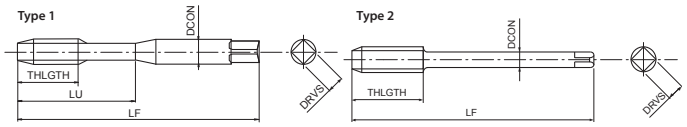
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48264149	5	0,8	70	10	25	6	4,9	3	1	371
48264155	6	1	80	12	30	6	4,9	3	1	371
48264161	8	1,25	90	15	35	8	6,2	4	1	371
48264169	10	1,5	100	18	39	10	8	4	1	371
48264179	12	1,75	110	21	-	9	7	4	2	376

A-CHT OIL Side

INDEX

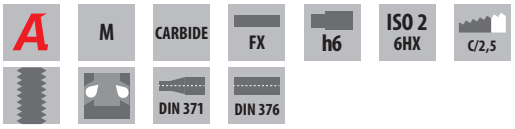
Threading | Cutting taps | Metric





- First choice in quality and performance
- Carbide straight flute cutting tap for through holes
- TiAlN coating
- For cast iron and cast aluminium
- Side through coolant

K GG	K GGG	N AC, ADC	
10-100	10-100	10-100	m/min



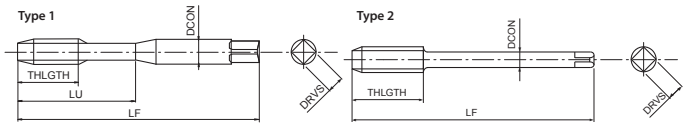
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48265149	5	0,8	70	10	25	6	4,9	3	1	371
48265155	6	1	80	12	30	6	4,9	3	1	371
48265161	8	1,25	90	15	35	8	6,2	4	1	371
48265169	10	1,5	100	18	39	10	8	4	1	371
48265179	12	1,75	110	21	-	9	7	4	2	376

A-CHT OIL FORM E

INDEX

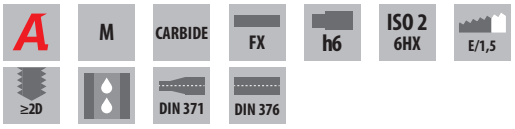
Threading | Cutting taps | Metric





- First choice in quality and performance
- Carbide straight flute cutting tap for blind holes
- TiAlN coating
- For cast iron and cast aluminium
- Centre through coolant, Form E chamfer

K GG	K GGG	N AC, ADC	
10-100	10-100	10-100	m/min



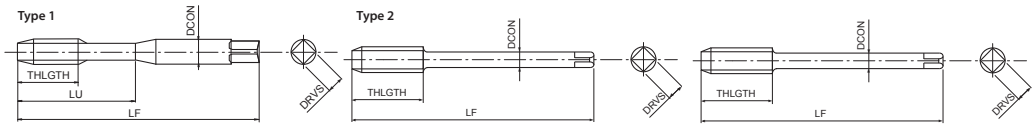
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48263149	5	0,8	70	10	25	6	4,9	3	1	371
48263155	6	1	80	12	30	6	4,9	3	1	371
48263161	8	1,25	90	15	35	8	6,2	4	1	371
48263169	10	1,5	100	18	39	10	8	4	1	371
48263179	12	1,75	110	21	-	9	7	4	2	376

GG-MT

INDEX

Threading | Cutting taps | Metric





- HSSE straight flute cutting tap for blind and through holes
- NiOx coating
- For cast iron

K GG 10-15 | K GGG 7-12 — m/min

M | HSSE | NI-OX | ISO 2 6HX | C/2,5 | DIN 371 | DIN 376

EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
62214460	4	0,7	63	-	21	4,5	3,4	3	1	371
62214960	5	0,8	70	-	25	6	4,9	3	1	371
62215560	6	1	80	-	30	6	4,9	3	1	371
62216160	8	1,25	90	-	35	8	6,2	4	1	371
62216960	10	1,5	100	-	39	10	8	4	1	371
62314460	4	0,7	63	13	-	2,8	2,1	3	2	376
62314960	5	0,8	70	16	-	3,5	2,7	3	2	376
62315560	6	1	80	19	-	4,5	3,4	3	2	376
62316160	8	1,25	90	22	-	6	4,9	4	2	376
62316960	10	1,5	100	24	-	7	5,5	4	2	376
62317960	12	1,75	110	29	-	9	7	4	2	376
62319160	14	2	110	30	-	11	9	4	2	376
62320260	16	2	110	32	-	12	9	4	2	376
62321460	18	2,5	125	34	-	14	11	4	2	376
62322860	20	2,5	140	34	-	16	12	4	2	376

OIL-TXL-MT

INDEX

Threading | Cutting taps | Metric



- HSSE straight flute cutting tap for blind and through holes
- Steam oxide treatment
- For cast iron and general steels
- For vertical and horizontal applications, side through coolant, up to M56

P C <0,2% 8-13 | P 0,25<C<0,4 7-12 | P C ≥ 0,45% 7-12 | P SCM 6-9 | K GG 10-15 | K GGG 7-12 | H 25-35 HRC 3-5 — m/min

M | HSSE | OX | ISO 2 6HX | C/2,5

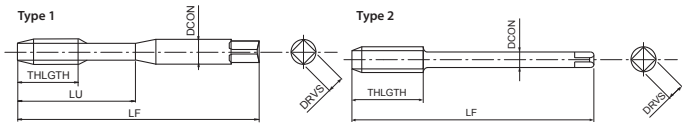
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF
48052228	20	2,5	140	20	69	16	12	5
48052247	24	3	160	24	81	18	14,5	5
48052262	27	3	160	24	90	20	16	5
48052271	30	3,5	250	28	161	22	18	6
48052281	33	3,5	250	28	176	25	20	6
48052294	36	4	250	32	174	28	22	6
48052304	39	4	300	32	188	32	24	6
48052314	42	4,5	300	36	203	32	24	6
48052325	48	5	300	40	183	36	29	6
48052337	52	5	300	40	197	40	32	6
48052347	56	5,5	300	44	213	45	35	6

EX-MCT

INDEX

Threading | Cutting taps | Metric





- HSSE low left-hand helix for blind and through holes
- Steam oxide treatment
- For cast iron, cast aluminium and general steels
- Long shank for long reach tapping

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	K GG	K GGG	N AC, ADC	
8-13	7-12	7-12	6-9	10-15	7-12	10-15	m/min

M	HSSE	0X	8°	ISO 2 6H	C/3		

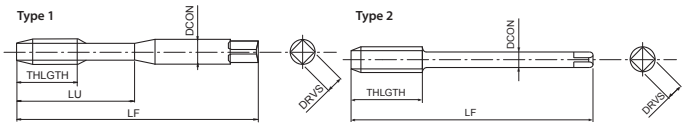
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type
84015560	6	1	120	-	28	6	4,9	2	1
84016160	8	1,25	120	-	35	8	6,2	3	1
84016960	10	1,5	150	24	-	7	5,5	3	2
84017960	12	1,75	150	29	-	9	7	3	2
84019160	14	2	150	30	-	11	9	3	2
84020260	16	2	150	32	-	12	9	3	2
84021460	18	2,5	200	34	-	14	11	4	2
84022860	20	2,5	200	34	-	16	12	4	2

V-XPM-HT

INDEX

Threading | Cutting taps | Metric





- Powder metal straight flute cutting tap for through and blind holes
- Multilayer TiCN coating
- For hardened steels up to 52 HRC
- Highly wear resistant XPM tool substrate

H 45-52 HRC	
1-3	m/min

M	XPM	V	ISO 2 6HX	C/2,5		

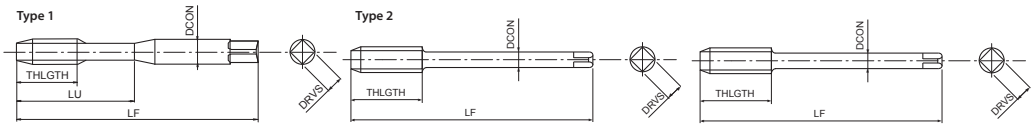
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type
89913868	3	0,5	46	11	19	3,5	2,7	4	1
89914468	4	0,7	52	13	21	4,5	3,4	4	1
89914968	5	0,8	60	16	24	6	4,9	4	1
89915568	6	1	62	19	29	6	4,9	5	1
89916168	8	1,25	70	22	37	6	4,9	5	2
89916968	10	1,5	75	24	41	7	5,5	5	2
89917968	12	1,75	82	29	48	9	7	5	2

V-XPM-HT FORM D

INDEX

Threading | Cutting taps | Metric





- Powder metal straight flute cutting tap for through holes
- Multilayer TiCN coating
- For hardened steels up to 52 HRC
- Highly wear resistant XPM tool substrate



1-3

m/min



EDP	TD	TP	LF	LU	DCON	DRVS	NOF	Type
48335138	3	0,5	46	19	3,5	2,7	4	1
48335144	4	0,7	52	21	4,5	3,4	4	1
48335149	5	0,8	60	24	6	4,9	4	1
48335155	6	1	62	29	6	4,9	5	1
48335161	8	1,25	70	22	6	4,9	5	2
48335169	10	1,5	75	24	7	5,5	5	2
48335179	12	1,75	82	29	9	7	5	2

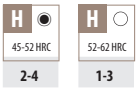
WH55-OT

INDEX

Threading | Cutting taps | Metric



- Carbide straight flute cutting tap for blind and through holes
- Multilayer TiCN coating
- For hardened steels up to 55 HRC



2-4 | 1-3

m/min



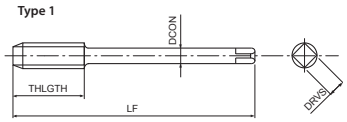
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF
48100138	3	0,5	46	11	19	3,5	2,7	4
48100144	4	0,7	52	13	21	4,5	3,4	4
48100149	5	0,8	60	16	24	6	4,9	4
48100155	6	1	62	19	29	6	4,9	4
48100161	8	1,25	70	22	-	6	4,9	5
48100169	10	1,5	75	24	-	7	5,5	5
48100179	12	1,75	82	29	-	9	7	5

WH55-OT FORM D

INDEX

Threading | Cutting taps | Metric





- Carbide straight flute cutting tap for through holes
- Multilayer TiCN coating
- For hardened steels up to 55 HRC
- Chamfer Form D

H 45-52 HRC 2-4 | H 52-62 HRC 1-3 | m/min

M | CARBIDE | V | D/5

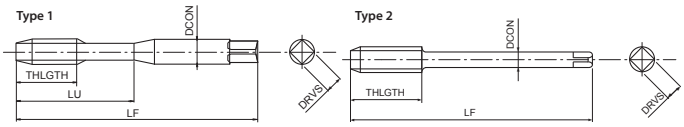
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF
48111138	3	0,5	46	11	19	3,5	2,7	4
48111144	4	0,7	52	13	21	4,5	3,4	4
48111149	5	0,8	60	16	24	6	4,9	4
48111155	6	1	62	19	29	6	4,9	4
48111161	8	1,25	70	22	-	6	4,9	5
48111169	10	1,5	75	24	-	7	5,5	5
48111179	12	1,75	82	29	-	9	7	5

VX-OT

INDEX

Threading | Cutting taps | Metric





- Carbide straight flute cutting tap for blind and through holes
- Multilayer TiCN coating
- For hardened steels up to 62 HRC

H 52-62 HRC 1-3 | m/min

M | CARBIDE | V | ISO 2 6HX | C/3

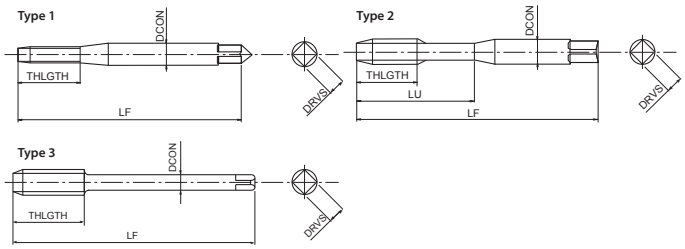
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type
93413868	3	0,5	46	11	19	3,5	2,7	4	1
93414468	4	0,7	52	13	21	4,5	3,4	4	1
93414968	5	0,8	60	16	24	6	4,9	4	1
93415568	6	1	62	19	29	6	4,9	5	1
93416168	8	1,25	70	22	-	6	4,9	5	2
93416968	10	1,5	75	24	-	7	5,5	5	2
93417968	12	1,75	82	29	-	9	7	5	2

A-XPF

INDEX

Threading | Forming taps | Metric





- First choice in quality and performance
- Powder metal forming tap for through & blind holes
- Multilayer TiCN coating
- High speed tapping in general steels and aluminium
- Powder metal for long tool life

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	N Al	N AC, ADC	H 25-35 HRC	
15-40	15-40	15-30	15-30	20-50	20-40	5-20	m/min

A	M	PM	VI	ISO 2 6HX	M≤1,4 4HX	C/2,5
		DIN 2174	DIN 2174			

* Tolerance 4HX

EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48133111*	1	0,25	40	5,5	5,5	2,5	2,1	4	0,89 ~ 0,90	1	2174
48133112*	1,1	0,25	40	5,5	5,5	2,5	2,1	4	0,99 ~ 1,00	1	2174
48133113*	1,2	0,25	40	5,5	5,5	2,5	2,1	4	1,09 ~ 1,10	1	2174
48133115*	1,4	0,3	40	7	7	2,5	2,1	4	1,26 ~ 1,28	1	2174
48133118	1,6	0,35	40	8	8	2,5	2,1	4	1,45 ~ 1,48	1	2174
48133119	1,7	0,35	40	8	8	2,5	2,1	4	1,55 ~ 1,58	1	2174
48133120	1,8	0,35	40	8	8	2,5	2,1	4	1,65 ~ 1,68	1	2174
48133125	2	0,4	45	8	8	2,8	2,1	5	1,82 ~ 1,85	1	2174
48133127	2,2	0,45	45	9	9	2,8	2,1	5	2,00 ~ 2,04	1	2174
48133128	2,3	0,4	45	9	9	2,8	2,1	5	2,12 ~ 2,15	1	2174
48133133	2,5	0,45	50	9	9	2,8	2,1	5	2,30 ~ 2,34	1	2174
48133136	2,6	0,45	50	9	9	2,8	2,1	5	2,40 ~ 2,44	1	2174
48133138	3	0,5	56	8	18	3,5	2,7	5	2,77~2,82	2	2174
48133142	3,5	0,6	56	9	20	4	3	5	3,23 ~ 3,28	2	2174
48133144	4	0,7	63	11	21	4,5	3,4	5	3,66~3,72	2	2174
48133147	4,5	0,75	70	12	25	6	4,9	5	4,14 ~ 4,20	2	2174
48133149	5	0,8	70	12	25	6	4,9	6	4,62~4,68	2	2174
48133152	5,5	0,9	80	12	30	6	4,9	6	5,06 ~ 5,13	2	2174
48133155	6	1	80	10	30	6	4,9	6	5,51~5,59	2	2174
48133158	7	1	80	10	30	7	5,5	6	6,51 ~ 6,59	2	2174
48133161	8	1,25	90	12	35	8	6,2	6	7,37~7,45	2	2174
48133165	9	1,25	90	12	35	9	7	6	8,37 ~ 8,45	2	2174
48133169	10	1,5	100	15	39	10	8	8	9,24~9,33	2	2174
48133175	11	1,5	100	15	-	8	6,2	8	10,24 ~ 10,33	3	2174
48133179	12	1,75	110	17	-	9	7	9	11,10~11,20	3	2174
48133191	14	2	110	20	-	11	9	9	12,96~13,08	3	2174
48133202	16	2	110	20	-	12	9	9	14,96~15,08	3	2174
48133214	18	2,5	125	20	-	14	11	8	16,66~16,81	3	2174
48133228	20	2,5	140	20	-	16	12	8	18,66~18,81	3	2174
48133238	22	2,5	140	20	-	18	14,5	8	20,66~20,81	3	2174
48133247	24	3	160	24	-	18	14,5	8	22,39~22,56	3	2174
48133262	27	3	160	18	-	20	16	8	25,39~25,56	3	2174
48133271	30	3,5	180	21	-	22	18	8	28,09~28,68	3	2174

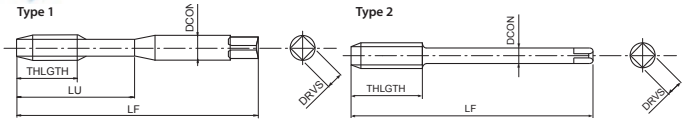
A-OIL-XPF

INDEX

Threading | Forming taps | Metric

NEW SIZE





- First choice in quality and performance
- Powder metal forming tap for through & blind holes
- Multilayer TiCN coating
- High speed tapping in general steels and aluminium
- Side through coolant

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	N Al	N AC, ADC	H 25-35 HRC	
15-40	15-40	15-30	15-30	20-50	20-40	5-20	m/min

A	M	PM	V	VI (TD≥27)	ISO 2 6HX	C/2,5
			DIN 2174	DIN 2174		

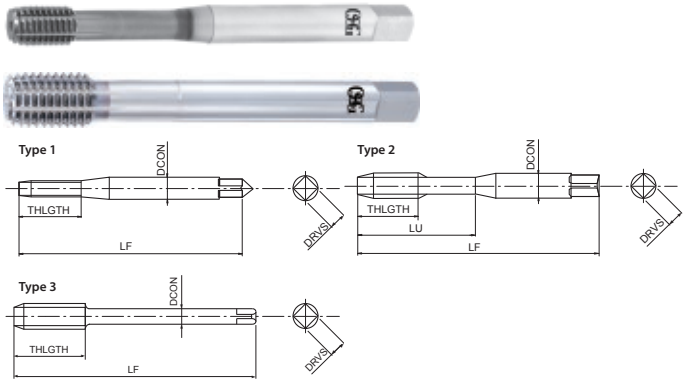
* Centre through coolant

EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48225144*	4	0,7	63	11	21	4,5	3,4	5	3,66~3,72	1	2174
48225149	5	0,8	70	12	25	6	4,9	5	4,62 ~ 4,68	1	2174
48225155	6	1	80	10	30	6	4,9	5	5,51 ~ 5,59	1	2174
48225161	8	1,25	90	12	35	8	6,2	5	7,37 ~ 7,45	1	2174
48225169	10	1,5	100	15	39	10	8	8	9,24 ~ 9,33	1	2174
48225179	12	1,75	110	17	-	9	7	8	11,10 ~ 11,20	2	2174
48225191	14	2	110	20	-	11	9	8	12,96 ~ 13,08	2	2174
48225202	16	2	110	20	-	12	9	8	14,96 ~ 15,08	2	2174
48225214	18	2,5	125	20	-	14	11	8	16,66 ~ 16,81	2	2174
48225228	20	2,5	140	20	-	16	12	8	18,66 ~ 18,81	2	2174
48225238	22	2,5	140	20	-	18	14,5	8	20,66 ~ 20,81	2	2174
48225247	24	3	160	24	-	18	14,5	8	22,39 ~ 22,56	2	2174
48225262	27	3	160	18	-	20	16	8	25,39 ~ 25,56	2	2174
48225271	30	3,5	180	21	-	22	18	8	28,09 ~ 28,28	2	2174
48225281	33	3,5	180	21	-	25	20	8	31,09 ~ 31,28	2	2174
48225294	36	4	200	32	-	28	22	8	33,80 ~ 34,01	2	2174
48225304	39	4	200	32	-	32	24	9	36,80 ~ 37,01	2	2174
48225314	42	4,5	200	36	-	32	24	9	39,52 ~ 39,73	2	2174
48225319	45	4,5	220	36	-	36	29	9	42,52 ~ 42,73	2	2174

A-XPF 6GX

INDEX

Threading | Forming taps | Metric **NEW**



- First choice in quality and performance
- Powder metal forming tap for through & blind holes
- Multilayer VI coating
- High speed tapping in general steels and aluminium
- For 6G internal thread tolerance

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	N Al	N AC, ADC	H 25-35 HRC	
15-40	15-40	15-30	15-30	20-50	20-40	5-20	m/min

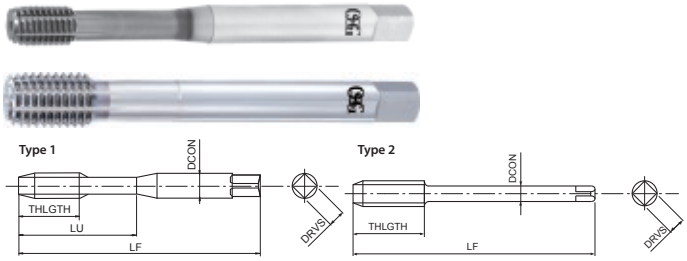
A | M | PM | VI | ISO 3 6GX | C/2,5 | DIN 2174 | DIN 374

EDP	TD	TP	oversize	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48434125	2	0,4	0.019	45	8	-	2,8	2,1	5	1,85 ~ 1,88	1	2174
48434138	3	0,5	0.02	56	8	18	3,5	2,7	5	2,79 ~ 2,83	2	2174
48434144	4	0,7	0.022	63	11	21	4,5	3,4	5	3,69 ~ 3,75	2	2174
48434149	5	0,8	0.024	70	12	25	6	4,9	6	4,64 ~ 4,71	2	2174
48434155	6	1	0.026	80	10	30	6	4,9	6	5,55 ~ 5,63	2	2174
48434161	8	1,25	0.028	90	12	35	8	6,2	6	7,40 ~ 7,47	2	2174
48434169	10	1,5	0.032	100	15	39	10	8	8	9,26 ~ 9,35	2	2174
48434179	12	1,75	0.034	110	17	-	9	7	9	11,14 ~ 11,24	3	2174
48434202	16	2	0.038	110	20	-	12	9	9	15,00 ~ 15,12	3	2174

A-XPF 7GX

INDEX

Threading | Forming taps | Metric **NEW**



- First choice in quality and performance
- Powder metal forming tap for through & blind holes
- Multilayer VI coating
- High speed tapping in general steels and aluminium
- For 7G internal thread tolerance

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	N Al	N AC, ADC	H 25-35 HRC	
15-40	15-40	15-30	15-30	20-50	20-40	5-20	m/min

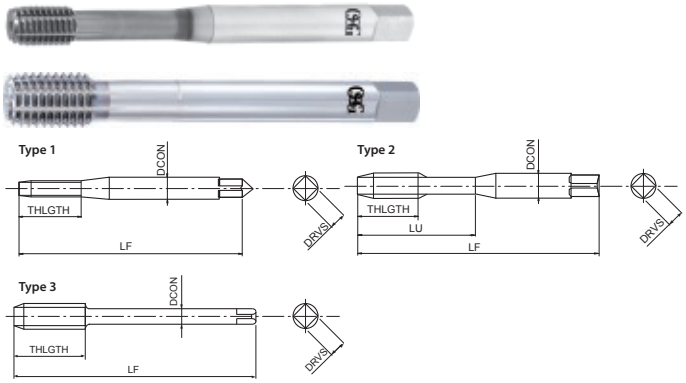
A | M | PM | VI | 7GX | C/2,5 | DIN 2174 | DIN 374

EDP	TD	TP	oversize	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48435138	3	0,5	0.04	56	8	18	3,5	2,7	5	2,81 ~ 2,85	1	2174
48435144	4	0,7	0.044	63	11	21	4,5	3,4	5	3,71 ~ 3,77	1	2174
48435149	5	0,8	0.048	70	12	25	6	4,9	6	4,67 ~ 4,73	1	2174
48435155	6	1	0.052	80	10	30	6	4,9	6	5,56 ~ 5,64	1	2174
48435161	8	1,25	0.056	90	12	35	8	6,2	6	7,42 ~ 7,50	1	2174
48435169	10	1,5	0.064	100	15	39	10	8	8	9,30 ~ 9,39	1	2174
48435179	12	1,75	0.068	110	17	-	9	7	9	11,17 - 11,28	2	2174

A-XPF FORM E

INDEX

Threading | Forming taps | Metric **NEW**



- First choice in quality and performance
- Powder metal forming tap for through & blind holes
- Multilayer VI coating
- High speed tapping in general steels and aluminium
- Form E chamfer

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	N Al	N AC, ADC	H 25-35 HRC	
15-40	15-40	15-30	15-30	20-50	20-40	5-20	m/min

A | M | PM | VI | ISO 2 6HX | E/1,5

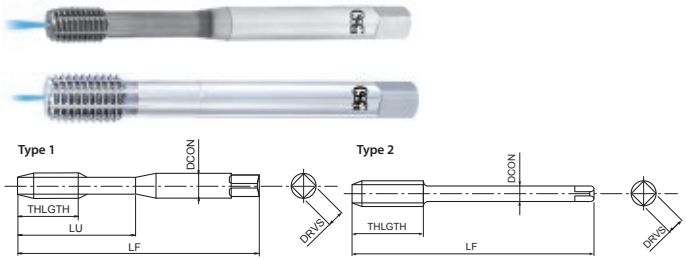
DIN 2174 | DIN 374

EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48436125	2	0,4	45	8	-	2,8	2,1	5	1,82 ~ 1,85	1	2174
48436138	3	0,5	56	8	18	3,5	2,7	5	2,77 ~ 2,82	2	2174
48436144	4	0,7	63	11	21	4,5	3,4	5	3,66 ~ 3,72	2	2174
48436149	5	0,8	70	12	25	6	4,9	6	4,62 ~ 4,68	2	2174
48436155	6	1	80	10	30	6	4,9	6	5,51 ~ 5,59	2	2174
48436161	8	1,25	90	12	35	8	6,2	6	7,37 ~ 7,45	2	2174
48436169	10	1,5	100	15	39	10	8	8	9,24 ~ 9,33	2	2174
48436179	12	1,75	110	17	-	9	7	9	11,10 ~ 11,20	3	2174
48436202	16	2	110	20	-	12	9	9	14,96 ~ 15,08	3	2174

A-OIL-XPF FORM E

INDEX

Threading | Forming taps | Metric **NEW**



- First choice in quality and performance
- Powder metal forming tap for blind holes
- Multilayer VI coating
- High speed tapping in general steels and aluminium
- Centre through coolant, Form E chamfer

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	N Al	N AC, ADC	H 25-35 HRC	
15-40	15-40	15-30	15-30	20-50	20-40	5-20	m/min

A | M | PM | VI | ISO 2 6HX | E/1,5

DIN 2174 | DIN 2174

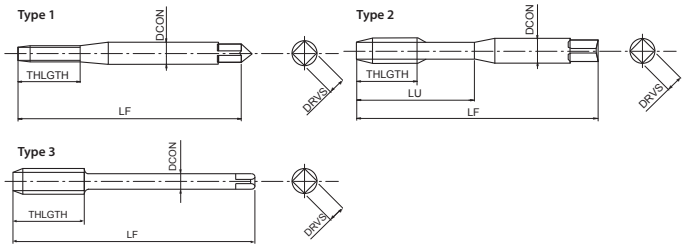
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48437144	4	0,7	63	11	21	4,5	3,4	5	3,66~3,72	1	2174
48437149	5	0,8	70	12	25	6	4,9	6	4,62 ~ 4,68	1	2174
48437155	6	1	80	10	30	6	4,9	6	5,51 ~ 5,59	1	2174
48437161	8	1,25	90	12	35	8	6,2	6	7,37 ~ 7,45	1	2174
48437169	10	1,5	100	15	39	10	8	8	9,24 ~ 9,33	2	2174
48437179	12	1,75	110	17	-	9	7	9	11,10 ~ 11,20	2	2174
48437202	16	2	110	20	-	12	9	9	14,96 ~ 15,08	2	2174

S-XPF

INDEX

Threading | Forming taps | Metric





- First choice in quality and performance
- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC	
5-20	

A	M	HSS-Co	V	ISO 2 6HX	M≤1,4 4HX	C/2,5
		DIN 2174	DIN 2174			

* Tolerance 4HX

EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48030111*	1	0,25	40	5,5	5,5	2,5	2,1	4	0,89 ~ 0,90	1	2174
48030112*	1,1	0,25	40	5,5	5,5	2,5	2,1	4	0,99 ~ 1,00	1	2174
48030113*	1,2	0,25	40	6	5,5	2,5	2,1	4	1,09 ~ 1,10	1	2174
48030115*	1,4	0,3	40	7	7	2,5	2,1	4	1,26 ~ 1,28	1	2174
48030118	1,6	0,35	40	8	8	2,5	2,1	4	1,45 ~ 1,48	1	2174
48030119	1,7	0,35	40	8	8	2,5	2,1	4	1,55 ~ 1,58	1	2174
48030120	1,8	0,35	40	8	8	2,5	2,1	4	1,65 ~ 1,68	1	2174
48030125	2	0,4	45	8	8	2,8	2,1	4	1,82 ~ 1,85	1	2174
48030127	2,2	0,45	45	9	9	2,8	2,1	4	2,00 ~ 2,04	1	2174
48030128	2,3	0,4	45	9	9	2,8	2,1	4	2,12 ~ 2,15	1	2174
48030133	2,5	0,45	50	9	9	2,8	2,1	4	2,30 ~ 2,34	1	2174
48030136	2,6	0,45	50	9	9	2,8	2,1	4	2,40 ~ 2,44	1	2174
48030138	3	0,5	56	8	18	3,5	2,7	4	2,77 ~ 2,82	2	2174
48030142	3,5	0,6	56	9	20	4	3	4	3,23 ~ 3,28	2	2174
48030144	4	0,7	63	11	21	4,5	3,4	4	3,67 ~ 3,72	2	2174
48030147	4,5	0,75	70	12	25	6	4,9	5	4,14 ~ 4,20	2	2174
48030149	5	0,8	70	12	25	6	4,9	5	4,62 ~ 4,68	2	2174
48030152	5,5	0,9	80	12	30	6	4,9	5	5,06 ~ 5,13	2	2174
48030155	6	1	80	10	30	6	4,9	5	5,51 ~ 5,59	2	2174
48030158	7	1	80	10	30	7	5,5	5	6,51 ~ 6,59	2	2174
48030161	8	1,25	90	12	35	8	6,2	5	7,37 ~ 7,45	2	2174
48030165	9	1,25	90	12	35	9	7	8	8,37 ~ 8,45	2	2174
48030169	10	1,5	100	15	39	10	8	8	9,24 ~ 9,33	2	2174
48030175	11	1,5	100	15	-	8	6,2	8	10,24 ~ 10,33	3	2174
48030179	12	1,75	110	17	-	9	7	8	11,10 ~ 11,20	3	2174
48030191	14	2	110	20	-	11	9	8	12,96 ~ 13,08	3	2174
48030202	16	2	110	20	-	12	9	8	14,96 ~ 15,08	3	2174
48069214	18	2,5	125	20	-	14	11	8	16,66 ~ 16,81	3	2174
48069228	20	2,5	140	20	-	16	12	8	18,66 ~ 18,81	3	2174
48069238	22	2,5	140	20	-	18	14,5	8	20,66 ~ 20,81	3	2174
48069247	24	3	160	24	-	18	14,5	8	22,39 ~ 22,56	3	2174
48069262	27	3	160	18	-	20	16	8	25,39 ~ 25,56	3	2174
48069271	30	3,5	180	21	-	22	18	8	28,09 ~ 28,28	3	2174

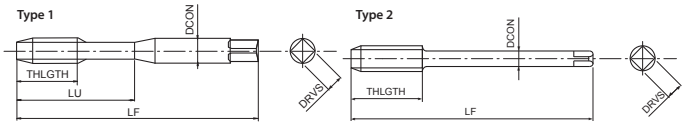
S-OIL-XPF

INDEX

Threading | Forming taps | Metric

NEW SIZE





- First choice in quality and performance
- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- Side through coolant

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC	
5-20	

A	M	HSS-Co	V	ISO 2 6HX	C/2,5	
		DIN 2174	DIN 2174			

* Centre through coolant

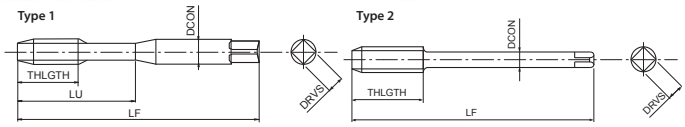
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48042144*	4	0,7	63	11	21	4,5	3,4	4	3,67~3,72	1	2174
48042149	5	0,8	70	12	25	6	4,9	5	4,62 ~ 4,68	1	2174
48042155	6	1	80	10	30	6	4,9	5	5,51 ~ 5,59	1	2174
48042161	8	1,25	90	12	35	8	6,2	5	7,37 ~ 7,45	1	2174
48042169	10	1,5	100	15	39	10	8	8	9,24 ~ 9,33	1	2174
48042179	12	1,75	110	17	-	9	7	8	11,10 ~ 11,20	2	2174
48042191	14	2	110	20	-	11	9	8	12,96 ~ 13,08	2	2174
48042202	16	2	110	20	-	12	9	8	14,96 ~ 15,08	2	2174
48071214	18	2,5	125	20	-	14	11	8	16,66 ~ 16,81	2	2174
48071228	20	2,5	140	20	-	16	12	8	18,66 ~ 18,81	2	2174
48071238	22	2,5	140	20	-	18	14,5	8	20,66 ~ 20,81	2	2174
48071247	24	3	160	24	-	18	14,5	8	22,39 ~ 22,56	2	2174
48071262	27	3	160	18	-	20	16	8	25,39 ~ 25,56	2	2174
48071271	30	3,5	180	21	-	22	18	8	28,09 ~ 28,28	2	2174
48071281	33	3,5	180	21	-	25	20	8	31,09 ~ 31,28	2	2174
48071294	36	4	200	24	-	28	22	8	33,80 ~ 34,01	2	2174
48071304	39	4	200	24	-	32	24	9	36,80 ~ 37,01	2	2174
48071314	42	4,5	200	27	-	32	24	9	39,52 ~ 39,73	2	2174
48071319	45	4,5	220	27	-	36	29	9	42,52 ~ 42,73	2	2174

S-XPF 6GX

INDEX

Threading | Forming taps | Metric





- First choice in quality and performance
- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- For 6G internal thread tolerance

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC
5-20

A	M	HSS-Co	V	ISO 3 6GX	C/2,5	
	DIN 2174	DIN 2174				

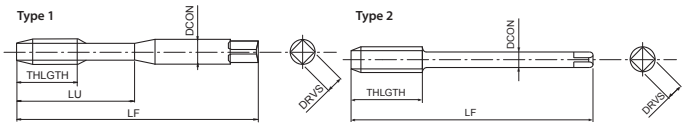
EDP	TD	TP	oversize	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48086125	2	0,4	0.019	45	8	8	2,8	2,1	4	1,85 ~ 1,88	1	2174
48086133	2,5	0,45	0.02	50	9	9	2,8	2,1	4	2,32 ~ 2,35	1	2174
48086138	3	0,5	0.02	56	8	18	3,5	2,7	4	2,79 ~ 2,83	1	2174
48086142	3,5	0,6	0.021	56	9	20	4	3	4	3,24 ~ 3,29	1	2174
48086144	4	0,7	0.022	63	11	21	4,5	3,4	4	3,69 ~ 3,75	1	2174
48086149	5	0,8	0.024	70	12	25	6	4,9	5	4,64 ~ 4,71	1	2174
48086155	6	1	0.026	80	10	30	6	4,9	5	5,55 ~ 5,63	1	2174
48086161	8	1,25	0.028	90	12	35	8	6,2	5	7,40 ~ 7,47	1	2174
48086169	10	1,5	0.032	100	15	39	10	8	8	9,26 ~ 9,35	1	2174
48086179	12	1,75	0.034	110	17	-	9	7	8	11,14 ~ 11,24	2	2174
48086191	14	2	0.038	110	20	-	11	9	8	13,00 ~ 13,12	2	2174
48086202	16	2	0.038	110	20	-	12	9	8	15,00 ~ 15,12	2	2174

S-OIL-XPF 6GX

INDEX

Threading | Forming taps | Metric





- First choice in quality and performance
- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- For 6G internal thread tolerance, side through coolant

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC
5-20

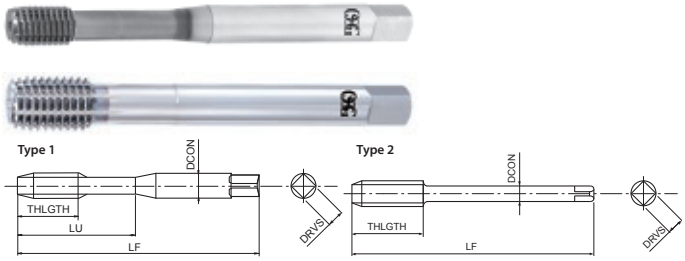
A	M	HSS-Co	V	ISO 3 6GX	C/2,5	
		DIN 2174	DIN 2174			

EDP	TD	TP	oversize	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48293149	5	0,8	0.024	70	12	25	6	4,9	5	4,64 ~ 4,71	1	2174
48293155	6	1	0.026	80	10	30	6	4,9	5	5,55 ~ 5,63	1	2174
48293161	8	1,25	0.028	90	12	35	8	6,2	5	7,40 ~ 7,47	1	2174
48293169	10	1,5	0.032	100	15	39	10	8	8	9,26 ~ 9,35	1	2174
48293179	12	1,75	0.034	110	18	-	9	7	8	11,14 ~ 11,24	2	2174
48293191	14	2	0.038	110	20	-	11	9	8	13,00 ~ 13,12	2	2174
48293202	16	2	0.038	110	20	-	12	9	8	15,00 ~ 15,12	2	2174

S-XPF 7GX

INDEX

Threading | Forming taps | Metric



- First choice in quality and performance
- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- For 7G internal thread tolerance

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC
5-20

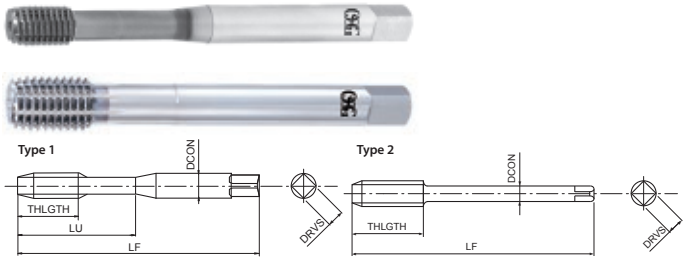
A	M	HSS-Co	V	7GX	C/2,5	
	DIN 2174	DIN 2174				

EDP	TD	TP	oversize	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48087125	2	0,4	0.038	45	8	8	2,8	2,1	4	1,86 ~ 1,90	1	2174
48087133	2,5	0,45	0.04	50	9	9	2,8	2,1	4	2,34 ~ 2,38	1	2174
48087138	3	0,5	0.04	56	8	18	3,5	2,7	4	2,81 ~ 2,85	1	2174
48087142	3,5	0,6	0.044	56	9	20	4	3	4	3,27 ~ 3,31	1	2174
48087144	4	0,7	0.044	63	11	21	4,5	3,4	4	3,71 ~ 3,77	1	2174
48087149	5	0,8	0.048	70	12	25	6	4,9	5	4,67 ~ 4,73	1	2174
48087155	6	1	0.052	80	10	30	6	4,9	5	5,56 ~ 5,64	1	2174
48087161	8	1,25	0.056	90	12	35	8	6,2	5	7,42 ~ 7,50	1	2174
48087169	10	1,5	0.064	100	15	39	10	8	8	9,30 ~ 9,39	1	2174
48087179	12	1,75	0.068	110	17	-	9	7	8	11,17 ~ 11,28	2	2174
48087191	14	2	0.076	110	20	-	11	9	8	13,04 ~ 13,16	2	2174
48087202	16	2	0.076	110	20	-	12	9	8	15,04 ~ 15,16	2	2174

S-XPF +0.1

INDEX

Threading | Forming taps | Metric



- First choice in quality and performance
- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- Oversized tap for 6H +0,1mm thread tolerance

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC
5-20

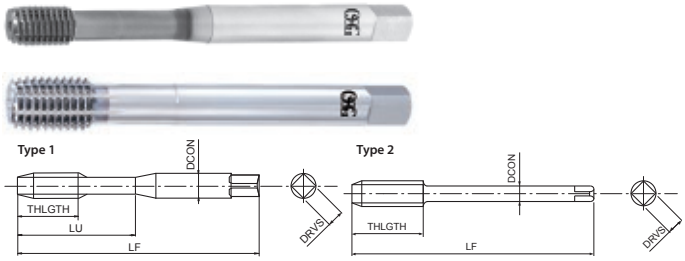
A	M	HSS-Co	V	6H +0.1	C/2,5	
	DIN 2174	DIN 2174				

EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48298138	3	0,5	56	8	18	3,5	2,7	4	2,87~2,92	1	2174
48298144	4	0,7	63	11	21	4,5	3,4	4	3,77 ~ 3,82	1	2174
48298149	5	0,8	70	12	25	6	4,9	5	4,72~4,78	1	2174
48298155	6	1	80	10	30	6	4,9	5	5,61 ~ 5,69	1	2174
48298161	8	1,25	90	12	35	8	6,2	5	7,47 ~ 7,55	1	2174
48298169	10	1,5	100	15	39	10	8	8	9,34 ~ 9,43	1	2174
48298179	12	1,75	110	18	-	9	7	8	11,20 ~ 11,30	2	2174
48298202	16	2	110	20	-	12	9	8	15,06 ~ 15,18	2	2174

S-XPF FORM D

INDEX

Threading | Forming taps | Metric



- First choice in quality and performance
- HSSE forming tap for through holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- Chamfer Form D

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC
5-20

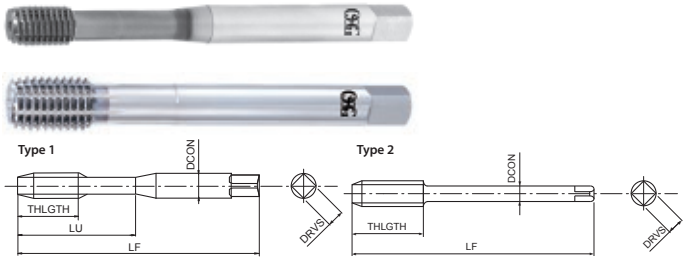
A	M	HSS-Co	V	ISO 2 6HX	D/4	
DIN 2174	DIN 2174					

EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48088138	3	0,5	56	8	18	3,5	2,7	4	2,77~2,82	1	2174
48088144	4	0,7	63	11	21	4,5	3,4	4	3,67~3,72	1	2174
48088149	5	0,8	70	12	25	6	4,9	5	4,62~4,68	1	2174
48088155	6	1	80	10	30	6	4,9	5	5,51~5,59	1	2174
48088161	8	1,25	90	12	35	8	6,2	5	7,37~7,45	1	2174
48088169	10	1,5	100	15	39	10	8	8	9,24~9,33	1	2174
48088179	12	1,75	110	17	-	9	7	8	11,10~11,20	2	2174
48088191	14	2	110	20	-	11	9	8	12,96~13,08	2	2174
48088202	16	2	110	20	-	12	9	8	14,96~15,08	2	2174

S-XPF FORM E

INDEX

Threading | Forming taps | Metric



- First choice in quality and performance
- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- Chamfer Form E

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC
5-20

A	M	HSS-Co	V	ISO 2 6HX	E/1,5	
	DIN 2174	DIN 2174				

EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48089125	2	0,4	45	8	8	2,8	2,1	4	1,82 ~ 1,85	1	2174
48089133	2,5	0,45	50	9	9	2,8	2,1	4	2,30 ~ 2,34	1	2174
48089138	3	0,5	56	8	18	3,5	2,7	4	2,77 ~ 2,82	1	2174
48089142	3,5	0,6	56	9	20	4	3	4	3,23 ~ 3,28	1	2174
48089144	4	0,7	63	11	21	4,5	3,4	4	3,66 ~ 3,72	1	2174
48089149	5	0,8	70	12	25	6	4,9	5	4,62 ~ 4,68	1	2174
48089155	6	1	80	10	30	6	4,9	5	5,51 ~ 5,59	1	2174
48089161	8	1,25	90	12	35	8	6,2	5	7,37 ~ 7,45	1	2174
48089169	10	1,5	100	15	39	10	8	8	9,24 ~ 9,33	1	2174
48089179	12	1,75	110	17	-	9	7	8	11,10 ~ 11,20	2	2174
48089191	14	2	110	20	-	11	9	8	12,96 ~ 13,08	2	2174
48089202	16	2	110	20	-	12	9	8	14,96 ~ 15,08	2	2174

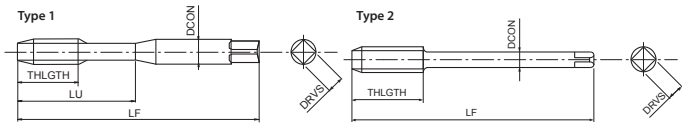
S-OIL-XPF FORM E

INDEX

NEW SIZE

Threading | Forming taps | Metric





- First choice in quality and performance
- HSSE forming tap for blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- Centre through coolant, chamfer Form E

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC
5-20

A	M	HSS-Co	V	ISO 2 6HX	E/1,5	
	DIN 2174	DIN 2174				

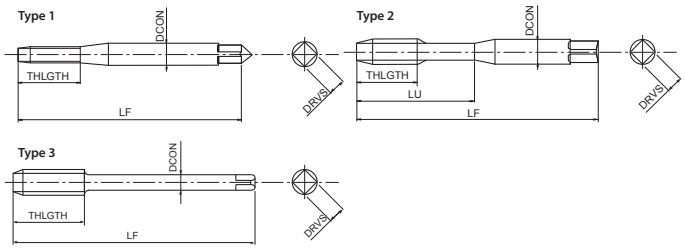
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48294144 NEW	4	0,7	63	11	21	4,5	3,4	4	3,67~3,72	1	2174
48294149	5	0,8	70	12	25	6	4,9	5	4,62 ~ 4,68	1	2174
48294155	6	1	80	10	30	6	4,9	5	5,51 ~ 5,59	1	2174
48294161	8	1,25	90	12	35	8	6,2	5	7,37 ~ 7,45	1	2174
48294169	10	1,5	100	15	39	10	8	8	9,24 ~ 9,33	1	2174
48294179	12	1,75	110	18	-	9	7	8	11,10 ~ 11,20	2	2174
48294191	14	2	110	20	-	11	9	8	12,96 ~ 13,08	2	2174
48294202	16	2	110	20	-	12	9	8	14,96 ~ 15,08	2	2174

S-LT-XPF

INDEX

Threading | Forming taps | Metric





- First choice in quality and performance
- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- With long shank for long reach threading

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC
5-20

A	M	HSS-Co	V	ISO 2 6HX	C/2,5	

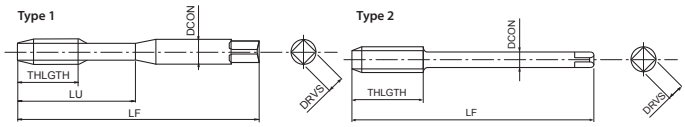
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type
48115125	2	0,4	80	8	8	2,8	2,1	0	1,82 ~ 1,85	1
48115133	2,5	0,45	100	9	9	2,8	2,1	0	2,30 ~ 2,34	1
48115138	3	0,5	100	8	18	3,5	2,7	4	2,77 ~ 2,82	2
48115144	4	0,7	125	11	21	4,5	3,4	4	3,67 ~ 3,72	2
48115149	5	0,8	140	12	25	6	4,9	5	4,62 ~ 4,68	2
48115155	6	1	160	10	30	6	4,9	5	5,51 ~ 5,59	2
48115161	8	1,25	180	12	35	8	6,2	5	7,37 ~ 7,45	2
48115169	10	1,5	200	15	39	10	8	8	9,24 ~ 9,33	2
48115179	12	1,75	200	17	-	9	7	8	11,10 ~ 11,20	3

S-OIL-LT-XPF

INDEX

Threading | Forming taps | Metric





- First choice in quality and performance
- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- With long shank for long reach threading, side through coolant

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC
5-20

A	M	HSS-Co	V	ISO 2 6HX	C/2,5	

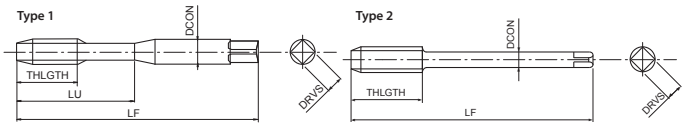
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type
48295155	6	1	160	10	30	6	4,9	5	5,51 ~ 5,59	1
48295161	8	1,25	180	12	35	8	6,2	5	7,37 ~ 7,45	1
48295169	10	1,5	200	15	39	10	8	8	9,24 ~ 9,33	1
48295179	12	1,75	200	18	-	9	7	8	11,10 ~ 11,20	2

S-XPF-LH

INDEX

Threading | Forming taps | Metric





- First choice in quality and performance
- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- For left-hand threads

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC
5-20

A	M	HSS-Co	V	ISO 2 6HX	C/2,5	
	DIN 2174	DIN 2174	LH			

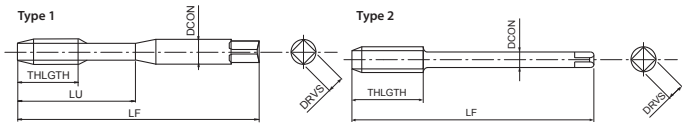
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48219138	3	0,5	56	8	18	3,5	2,7	4	2,77 ~ 2,82	1	2174
48219144	4	0,7	63	11	21	4,5	3,4	4	3,67 ~ 3,72	1	2174
48219149	5	0,8	70	12	25	6	4,9	5	4,62 ~ 4,68	1	2174
48219155	6	1	80	10	30	6	4,9	5	5,51 ~ 5,59	1	2174
48219161	8	1,25	90	12	35	8	6,2	5	7,37 ~ 7,45	1	2174
48219169	10	1,5	100	15	39	10	8	8	9,24 ~ 9,33	1	2174
48219179	12	1,75	110	17	-	9	7	8	11,10 ~ 11,20	2	2174
48219191	14	2	110	20	-	11	9	8	12,96 ~ 13,08	2	2174
48219202	16	2	110	20	-	12	9	8	14,96 ~ 15,08	2	2174
48219214	18	2,5	125	20	-	14	11	8	16,66 ~ 16,81	2	2174
48219228	20	2,5	140	20	-	16	12	8	18,66 ~ 18,81	2	2174
48219238	22	2,5	140	20	-	18	14,5	8	20,66 ~ 20,81	2	2174
48219247	24	3	160	24	-	18	14,5	8	22,39 ~ 22,56	2	2174

S-XPF-HB Weldon

INDEX

Threading | Forming taps | Metric





- First choice in quality and performance
- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- With Weldon shank

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC
5-20

A	M	HSS-Co	V	ISO 2 6HX	C/2,5	
	DIN 2174	DIN 2174	DIN 1835	HB		

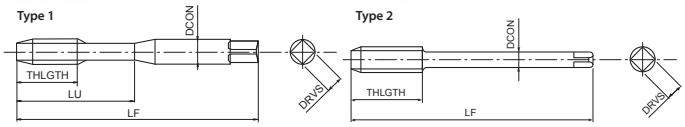
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48222138	3	0,5	56	8	18	6	4,9	4	2,77 ~ 2,82	1	2174/1835
48222144	4	0,7	63	11	21	6	4,9	4	3,67 ~ 3,72	1	2174/1835
48222149	5	0,8	70	12	25	6	4,9	5	4,62 ~ 4,68	1	2174/1835
48222155	6	1	80	10	30	6	4,9	5	5,51 ~ 5,59	1	2174/1835
48222161	8	1,25	90	12	35	8	6,2	5	7,37 ~ 7,45	1	2174/1835
48222169	10	1,5	100	15	39	10	8	8	9,24 ~ 9,33	1	2174/1835
48222179	12	1,75	110	17	46	12	9	8	11,10 ~ 11,20	2	2174/1835
48222191	14	2	110	20	49	14	11	8	12,96 ~ 13,08	2	2174/1835
48222202	16	2	110	20	56	16	12	8	14,96 ~ 15,08	2	2174/1835

S-XPF-GL

INDEX

Threading | Forming taps | Metric





- First choice in quality and performance
- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- Without oil grooves for higher rigidity

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC
5-20

A	M	HSS-Co	V	ISO 2 6HX	C/2,5	
	DIN 2174	DIN 2174				

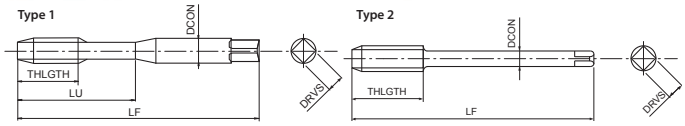
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	PHD	Type	DIN
48296138	3	0,5	56	8	18	3,5	2,7	2,77 ~ 2,82	1	2174
48296144	4	0,7	63	11	21	4,5	3,4	3,67 ~ 3,72	1	2174
48296149	5	0,8	70	12	25	6	4,9	4,62 ~ 4,68	1	2174
48296155	6	1	80	8	30	6	4,9	5,51 ~ 5,59	1	2174
48296161	8	1,25	90	12	35	8	6,2	7,37 ~ 7,45	1	2174
48296169	10	1,5	100	12	39	10	8	9,24 ~ 9,33	1	2174
48296179	12	1,75	110	17	-	9	7	11,10 ~ 11,20	2	2174

S-XPF-GL 6GX

INDEX

Threading | Forming taps | Metric





- First choice in quality and performance
- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- Without oil grooves for higher rigidity, for 6G internal thread tolerance

P ◉ C <0,2%	P ◉ 0,25<C<0,4	P ◉ C ≥ 0,45%	P ◉ SCM	M ◉ INOX	N ◉ Al	N ◉ AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

A	M	HSS-Co	V	ISO 3 6GX	C/2,5		
	DIN 2174	DIN 2174					

EDP	TD	TP	oversize	LF	THLGTH	LU	DCON	DRVS	PHD	Type	DIN
48297138	3	0,5	0.02	56	8	18	3,5	2,7	2,79 ~ 2,83	1	2174
48297144	4	0,7	0.022	63	11	21	4,5	3,4	3,69 ~ 3,75	1	2174
48297149	5	0,8	0.024	70	12	25	6	4,9	4,64 ~ 4,71	1	2174
48297155	6	1	0.026	80	10	30	6	4,9	5,55 ~ 5,63	1	2174
48297161	8	1,25	0.028	90	12	35	8	6,2	7,40 ~ 7,47	1	2174
48297169	10	1,5	0.032	100	15	39	10	8	9,26 ~ 9,35	1	2174
48297179	12	1,75	0.034	110	18	-	9	7	11,14 ~ 11,24	2	2174

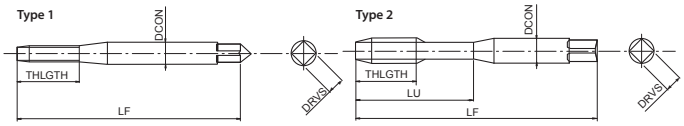
GRT

INDEX

Threading | Forming taps | Metric

NEW





- Environmentally friendly
- Powder metal forming tap for through & blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium

P ◉ 0,25<C<0,4	P ◉ C ≥ 0,45%	P ○ SCM	M ◉ INOX	N ○ Al	N ○ AC, ADC	
15-40	15-30	15-30	5-15	20-40	20-40	m/min

M	PM	V	ISO 2 6HX	C/2,5		
DIN 2174						

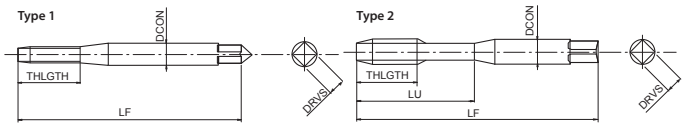
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	PHD	Type	DIN
48432125	2	0,4	45	9	-	2,8	2,1	1,82~1,85	1	2174
48432138	3	0,5	56	10,5	18	3,5	2,7	2,77~2,82	2	2174
48432144	4	0,7	63	12	21	4,5	3,4	3,66~3,72	2	2174
48432149	5	0,8	70	13	25	6	4,9	4,62~4,68	2	2174
48432155	6	1	80	14	30	6	4,9	5,51~5,59	2	2174

GRT FORM F

INDEX

Threading | Forming taps | Metric





- Environmentally friendly
- Powder metal forming tap for through & blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- Chamfer Form F

P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-30	15-30	5-15	20-45	20-40	m/min

M	PM	V	ISO 2 6HX	M≤1,4 4HX	F/1,0		
	DIN 2174						

* Tolerance 4HX

EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	PHD	Type	DIN
48423111*	1	0,25	40	5,5	-	2,5	2,1	0,89~0,90	1	2174
48423113*	1,2	0,25	40	6,5	-	2,5	2,1	1,09~1,10	1	2174
48423115*	1,4	0,3	40	7	-	2,5	2,1	1,26~1,28	1	2174
48423125	2	0,4	45	9	-	2,8	2,1	1,82~1,85	1	2174
48423138	3	0,5	56	10,5	18	3,5	2,7	2,77~2,82	2	2174
48423144	4	0,7	63	12	21	4,5	3,4	3,66~3,72	2	2174
48423149	5	0,8	70	13	25	6	4,9	4,62~4,68	2	2174
48423155	6	1	70	14	30	6	4,9	5,51~5,59	2	2174

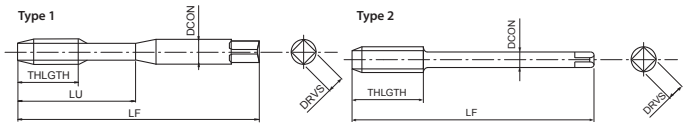
P-OIL-CXPF

INDEX

NEW

Threading | Forming taps | Metric





- Carbide forming tap for blind holes
- EgiAs coating
- For general steels and hardened steels
- With centre through coolant

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	N Cu	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	15-30	20-50	20-40	m/min

H 25-35 HRC	H ~40 HRC	H ~45 HRC
5-20	5-20	5-20

M	CARBIDE	EgiAs	ISO 2 6HX	C/2,5		
DIN 2174	DIN 2174					

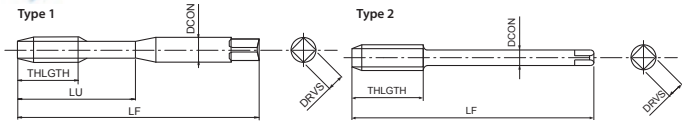
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48362149	5	0,8	70	-	25	6	4,9	6	4,62 ~ 4,68	1	2174
48362155	6	1	80	-	30	6	4,9	6	5,51 ~ 5,59	1	2174
48362161	8	1,25	90	-	35	8	6,2	6	7,37 ~ 7,45	1	2174
48362169	10	1,5	100	-	39	10	8	9	9,24 ~ 9,33	1	2174
48362179	12	1,75	110	17	-	9	7	9	11,10 ~ 11,20	2	2174
48362191	14	2	110	20	-	11	9	9	12,96 ~ 13,08	2	2174
48362202	16	2	110	20	-	12	9	9	14,96 ~ 15,08	2	2174

C-OIL-XPF

INDEX

Threading | Forming taps | Metric





- First choice in quality and performance
- Carbide forming tap for through & blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- With side through coolant

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC
5-20

A	M	CARBIDE	V	ISO 2 6HX	C/2,5	
		DIN 2174	DIN 2174			

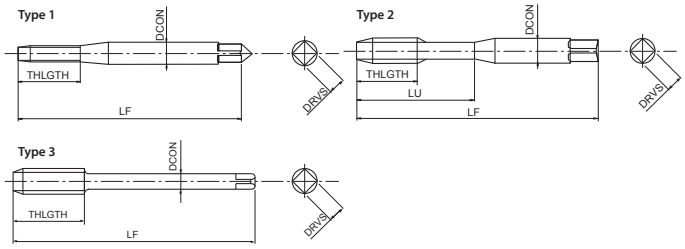
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Typ	DIN
48226149	5	0,8	70	12	25	6	4,9	5	4,62 ~ 4,68	1	2174
48226155	6	1	80	10	30	6	4,9	5	5,51 ~ 5,59	1	2174
48226161	8	1,25	90	12	35	8	6,2	5	7,37 ~ 7,45	1	2174
48226169	10	1,5	100	15	39	10	8	8	9,24 ~ 9,33	1	2174
48226179	12	1,75	110	17	-	9	7	8	11,10 ~ 11,20	2	2174
48226191	14	2	110	20	-	11	9	8	12,96 ~ 13,08	2	2174
48226202	16	2	110	20	-	12	9	8	14,96 ~ 15,08	2	2174

V-NRT

INDEX

Threading | Forming taps | Metric





- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
10-15	10-15	10-15	8-12	5-10	10-20	10-20	m/min

M	HSS-Co	V	ISO 2 6HX	M≤1,4 4HX	C/2,5	
	DIN 2174	DIN 2174				

* Tolerance 4HX

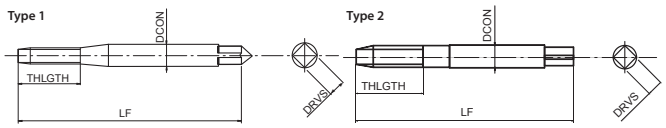
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48003111*	1	0,25	40	5,5	-	2,5	2,1	0	0,89 ~ 0,90	1	2174
48003113*	1,2	0,25	40	5,5	-	2,5	2,1	0	1,09 ~ 1,10	1	2174
66711568*	1,4	0,3	40	7	-	2,5	2,1	0	1,26 ~ 1,28	1	2174
66711868	1,6	0,35	40	8	-	2,5	2,1	0	1,45 ~ 1,48	1	2174
66712568	2	0,4	45	8	-	2,8	2,1	0	1,82 ~ 1,85	1	2174
66712868	2,2	0,45	45	9	-	2,8	2,1	0	2,00 ~ 2,04	1	2174
66713368	2,5	0,45	50	9	-	2,8	2,1	0	2,30 ~ 2,34	1	2174
66713868	3	0,5	56	11	18	3,5	2,7	2	2,77 ~ 2,82	2	2174
66714068	3,5	0,6	56	12	20	4	3	2	3,23 ~ 3,28	2	2174
66714468	4	0,7	63	13	21	4,5	3,4	2	3,67 ~ 3,72	2	2174
66714968	5	0,8	70	16	25	6	4,9	2	4,62 ~ 4,68	2	2174
66715568	6	1	80	19	30	6	4,9	2	5,51 ~ 5,59	2	2174
66716168	8	1,25	90	22	35	8	6,2	3	7,37 ~ 7,45	2	2174
66716968	10	1,5	100	24	39	10	8	4	9,24 ~ 9,33	2	2174
69117968	12	1,75	110	28	-	9	7	4	11,10 ~ 11,20	3	2174

V-NRT 6GX

INDEX

Threading | Forming taps | Metric





- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- For 6G internal thread tolerance

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
10-15	10-15	10-15	8-12	5-10	10-20	10-20	m/min

M | HSS-Co | V | ISO 3 6GX | C/2,5 | DIN 2174

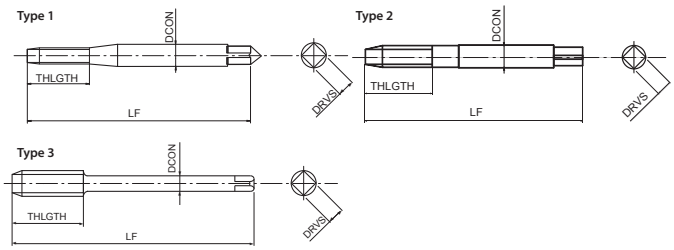
EDP	TD	TP	oversize	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48003125	2	0,4	0.019	45	8	-	2,8	2,1	0	1,85 ~ 1,88	1	2174
48003128	2,2	0,45	0.02	45	9	-	2,8	2,1	0	2,02 ~ 2,05	1	2174
48003133	2,5	0,45	0.02	50	9	-	2,8	2,1	0	2,32 ~ 2,35	1	2174
48003138	3	0,5	0.02	56	11	18	3,5	2,7	2	2,79 ~ 2,83	2	2174
48003140	3,5	0,6	0.021	56	12	20	4	3	2	3,24 ~ 3,29	2	2174
48003144	4	0,7	0.022	63	13	21	4,5	3,4	2	3,69 ~ 3,75	2	2174
48003149	5	0,8	0.024	70	16	25	6	4,9	2	4,64 ~ 4,71	2	2174
48003155	6	1	0.026	80	19	30	6	4,9	2	5,55 ~ 5,63	2	2174
48003161	8	1,25	0.028	90	22	35	8	6,2	3	7,40 ~ 7,47	2	2174
48003169	10	1,5	0.032	100	24	39	10	8	4	9,26 ~ 9,35	2	2174

V-NRT FORM D

INDEX

Threading | Forming taps | Metric





- HSSE forming tap for through holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- Chamfer Form D

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
10-15	10-15	10-15	8-12	5-10	10-20	10-20	m/min

M | HSS-Co | V | ISO 2 6HX | D/4 | DIN 2174

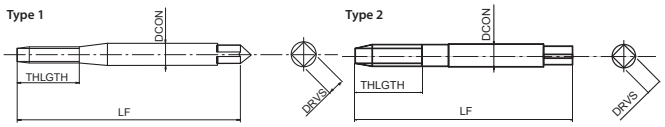
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
66612568	2	0,4	45	8	-	2,8	2,1	0	1,82 ~ 1,85	1	2174
66612868	2,2	0,45	45	9	-	2,8	2,1	0	2,00 ~ 2,04	1	2174
66613368	2,5	0,45	50	9	-	2,8	2,1	0	2,30 ~ 2,34	1	2174
66613868	3	0,5	56	11	18	3,5	2,7	2	2,77 ~ 2,82	2	2174
66614068	3,5	0,6	56	12	20	4	3	2	3,23 ~ 3,28	2	2174
66614468	4	0,7	63	13	21	4,5	3,4	2	3,66 ~ 3,72	2	2174
66614968	5	0,8	70	16	25	6	4,9	2	4,62 ~ 4,68	2	2174
66615568	6	1	80	19	30	6	4,9	2	5,51 ~ 5,59	2	2174
66616168	8	1,25	90	22	35	8	6,2	3	7,37 ~ 7,45	2	2174
66616968	10	1,5	100	24	39	10	8	4	9,24 ~ 9,33	2	2174
69017968	12	1,75	110	28	-	9	7	4	11,10 ~ 11,20	3	2174

V-NRT 6GX FORM D

INDEX

Threading | Forming taps | Metric





- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- For 6G internal thread tolerance, chamfer Form D

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
10-15	10-15	10-15	8-12	5-10	10-20	10-20	m/min

M	HSS-Co	V	ISO 3 6GX	D/4		DIN 2174

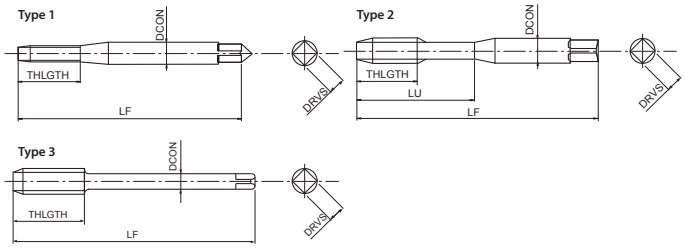
VA-XPF

INDEX

Threading | Forming taps | Metric

NEW





- Powder metal forming tap for through & blind holes
- AlCrN coating
- For general steels, stainless steels and aluminium

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
20-30	20-30	15-30	10-20	6-12	10-25	15-40	m/min

S Ti	
1-3	

M	PM	AlCrN	ISO 2 6HX	M≤1,4 4HX	C/2,5		
	DIN 2174	DIN 2174					

* Tolerance 4HX

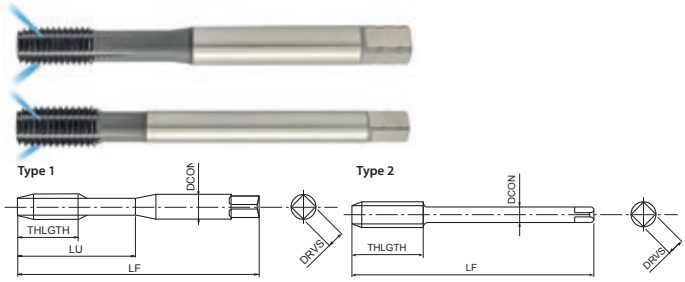
EDP	TD	TP	oversize	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48004125	2	0,4	0.019	45	8	-	2,8	2,1	0	1,85 ~ 1,88	1	2174
48004128	2,2	0,45	0.02	45	9	-	2,8	2,1	0	2,02 ~ 2,05	1	2174
48004133	2,5	0,45	0.02	50	9	-	2,8	2,1	0	2,32 ~ 2,35	1	2174
48004138	3	0,5	0.02	56	11	18	3,5	2,7	0	2,79 ~ 2,83	2	2174
48004140	3,5	0,6	0.021	56	12	20	4	3	2	3,24 ~ 3,29	2	2174
48004144	4	0,7	0.022	63	13	21	4,5	3,4	2	3,69 ~ 3,75	2	2174
48004149	5	0,8	0.024	70	16	25	6	4,9	2	4,64 ~ 4,71	2	2174
48004155	6	1	0.026	80	19	30	6	4,9	2	5,55 ~ 5,63	2	2174
48004161	8	1,25	0.028	90	22	35	8	6,2	3	7,40 ~ 7,47	2	2174
48004169	10	1,5	0.032	100	24	39	10	8	4	9,26 ~ 9,35	2	2174

EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48442111*	1	0,25	40	5,5	-	2,5	2,1	3	0,89	1	2174
48442115*	1,4	0,3	40	7	-	2,5	2,1	3	1,27	1	2174
48442118	1,6	0,35	40	8	-	2,5	2,1	3	1,44	1	2174
48442125	2	0,4	45	9	-	2,8	2,1	3	1,82	1	2174
48442133	2,5	0,45	50	9	14	2,8	2,1	4	2,3	2	2174
48442138	3	0,5	56	7	18	3,5	2,7	4	2,8	2	2174
48442142	3,5	0,6	56	7	20	4	3	4	3,25	2	2174
48442144	4	0,7	63	8	21	4,5	3,4	4	3,7	2	2174
48442147	4,5	0,75	70	8	25	6	4,9	4	4,15	2	2174
48442149	5	0,8	70	9	25	6	4,9	5	4,65	2	2174
48442152	5,5	0,9	80	10	30	6	4,9	5	5,1	2	2174
48442155	6	1	80	10	30	6	4,9	5	5,55	2	2174
48442158	7	1	80	10	30	7	5,5	5	6,55	2	2174
48442161	8	1,25	90	13	35	8	6,2	5	7,45	2	2174
48442165	9	1,25	90	13	35	9	7	5	8,45	2	2174
48442169	10	1,5	100	15	39	10	8	5	9,35	2	2174
48442175	11	1,5	100	15	-	8	6,2	5	10,35	3	2174
48442179	12	1,75	110	18	-	9	7	5	11,2	3	2174
48442191	14	2	110	20	-	11	9	6	13,1	3	2174
48442202	16	2	110	20	-	12	9	6	15,1	3	2174
48442214	18	2,5	125	25	-	14	11	7	16,8	3	2174
48442228	20	2,5	140	25	-	16	12	7	18,8	3	2174
48442238	22	2,5	140	25	-	18	14,5	7	20,8	3	2174
48442247	24	3	160	30	-	18	14,5	7	22,6	3	2174

VA-OIL-XPF

INDEX

Threading | Forming taps | Metric **NEW**



- Powder metal forming tap for through & blind holes
- AlCrN coating
- For general steels, stainless steels and aluminium
- Side through coolant

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
20-30	20-30	15-30	10-20	6-12	10-25	15-40	m/min

S Ti
1-3

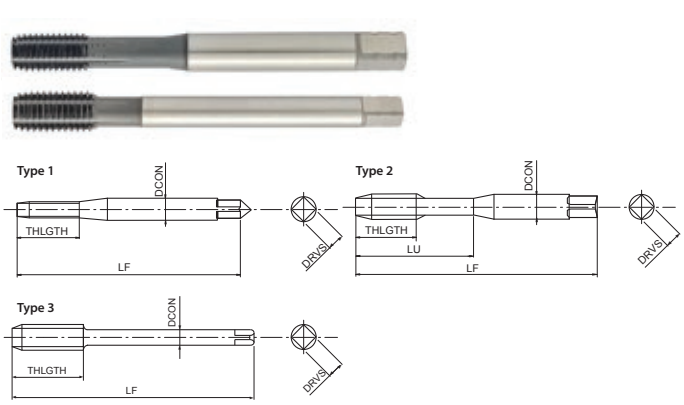
M	PM	AlCrN	ISO 2 6HX	C/2,5		
	DIN 2174	DIN 2174				

EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48444149	5	0,8	70	9	25	6	4,9	5	4,65	1	2174
48444155	6	1	80	10	30	6	4,9	5	5,55	1	2174
48444161	8	1,25	90	13	35	8	6,2	5	7,45	1	2174
48444169	10	1,5	100	15	39	10	8	5	9,35	1	2174
48444179	12	1,75	110	18	-	9	7	5	11,2	2	2174
48444191	14	2	110	20	-	11	9	6	13,1	2	2174
48444202	16	2	110	20	-	12	9	6	15,1	2	2174
48444214	18	2,5	125	25	-	14	11	7	16,8	2	2174
48444228	20	2,5	140	25	-	16	12	7	18,8	2	2174
48444238	22	2,5	140	25	-	18	14,5	7	20,8	2	2174
48444247	24	3	160	30	-	18	14,5	7	22,6	2	2174

VA-XPF 6GX

INDEX

Threading | Forming taps | Metric **NEW**



- Powder metal forming tap for through & blind holes
- AlCrN coating
- For general steels, stainless steels and aluminium
- For 6G internal thread tolerance

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
20-30	20-30	15-30	10-20	6-12	10-25	15-40	m/min

S Ti
1-3

M	PM	AlCrN	ISO 3 6GX	C/2,5		
	DIN 2174	DIN 2174				

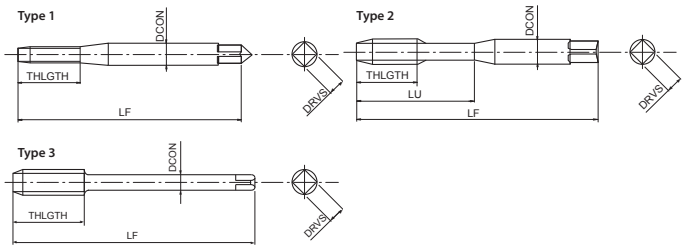
EDP	TD	TP	oversize	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48447125	2	0,4	0.019	45	9	-	2,8	2,1	3	1,82	1	2174
48447133	2,5	0,45	0.02	50	9	14	2,8	2,1	4	2,3	2	2174
48447138	3	0,5	0.02	56	7	18	3,5	2,7	4	2,8	2	2174
48447142	3,5	0,6	0.021	56	7	20	4	3	4	3,25	2	2174
48447144	4	0,7	0.022	63	8	21	4,5	3,4	4	3,7	2	2174
48447149	5	0,8	0.024	70	9	25	6	4,9	5	4,65	2	2174
48447155	6	1	0.026	80	10	30	6	4,9	5	5,55	2	2174
48447161	8	1,25	0.028	90	13	35	8	6,2	5	7,45	2	2174
48447169	10	1,5	0.032	100	15	39	10	8	5	9,35	2	2174
48447179	12	1,75	0.034	110	18	-	9	7	5	11,2	3	2174
48447191	14	2	0.038	110	20	-	11	9	6	13,1	3	2174
48447202	16	2	0.038	110	20	-	12	9	6	15,1	3	2174

VA-XPF FORM E

INDEX

Threading | Forming taps | Metric **NEW**





- Powder metal forming tap for through & blind holes
- AlCrN coating
- For general steels, stainless steels and aluminium
- Chamfer Form E

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
20-30	20-30	15-30	10-20	6-12	10-25	15-40	m/min

S Ti
1-3

M	PM	AlCrN	ISO 2 6HX	E/1,5		
DIN 2174	DIN 2174					

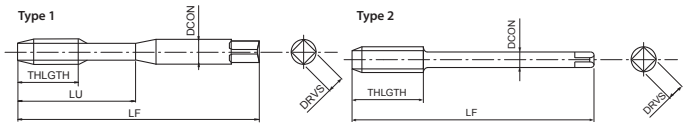
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48445125	2	0,4	45	9	-	2,8	2,1	3	1,82	1	2174
48445133	2,5	0,45	50	9	14	2,8	2,1	4	2,3	2	2174
48445138	3	0,5	56	7	18	3,5	2,7	4	2,8	2	2174
48445142	3,5	0,6	56	7	20	4	3	4	3,25	2	2174
48445144	4	0,7	63	8	21	4,5	3,4	4	3,7	2	2174
48445149	5	0,8	70	9	25	6	4,9	5	4,65	2	2174
48445155	6	1	80	10	30	6	4,9	5	5,55	2	2174
48445161	8	1,25	90	13	35	8	6,2	5	7,45	2	2174
48445169	10	1,5	100	15	39	10	8	5	9,35	2	2174
48445179	12	1,75	110	18	-	9	7	5	11,2	3	2174
48445191	14	2	110	20	-	11	9	6	13,1	3	2174
48445202	16	2	110	20	-	12	9	6	15,1	3	2174

VA-OIL-XPF FORM E

INDEX

Threading | Forming taps | Metric **NEW**





- Powder metal forming tap for blind holes
- AlCrN coating
- For general steels, stainless steels and aluminium
- Chamfer Form E, centre through coolant

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
20-30	20-30	15-30	10-20	6-12	10-25	15-40	m/min

S Ti
1-3

M	PM	AlCrN	ISO 2 6HX	E/1,5		
DIN 2174	DIN 2174					

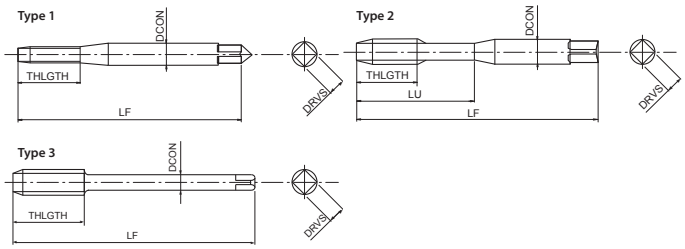
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48446149	5	0,8	70	9	25	6	4,9	5	4,65	1	2174
48446155	6	1	80	10	30	6	4,9	5	5,55	1	2174
48446161	8	1,25	90	13	35	8	6,2	5	7,45	1	2174
48446169	10	1,5	100	15	39	10	8	5	9,35	1	2174
48446179	12	1,75	110	18	-	9	7	5	11,2	2	2174
48446191	14	2	110	20	-	11	9	6	13,1	2	2174
48446202	16	2	110	20	-	12	9	6	15,1	2	2174

M-NRT

INDEX

Threading | Forming taps | Metric





- Powder metal forming tap for through & blind holes
- TiN coating
- For general steels, stainless steels and aluminium

P ◉ C <0,2%	P ◉ 0,25<C<0,4	P ○ C ≥ 0,45%	P ○ SCM	M ◉ INOX	N ◉ Al	N ◉ AC, ADC	
20-30	20-30	15-30	10-20	6-12	10-25	15-40	m/min

M	PM	TiN	ISO 2 6HX	M≤1,4 4HX	C/2,5		
	DIN 2174	DIN 2174					

* Tolerance 4HX

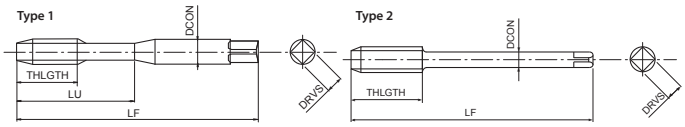
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
EP0203111*	1	0,25	40	5,5	-	2,5	2,1	3	0,89	1	2174
EP0203115*	1,4	0,3	40	7	-	2,5	2,1	3	1,27	1	2174
EP0203118	1,6	0,35	40	8	-	2,5	2,1	3	1,44	1	2174
EP0203125	2	0,4	45	9	-	2,8	2,1	3	1,82	1	2174
EP0203133	2,5	0,45	50	9	14	2,8	2,1	4	2,3	2	2174
EP0203138	3	0,5	56	10	18	3,5	2,7	4	2,8	2	2174
EP0203142	3,5	0,6	56	11	20	4	3	4	3,25	2	2174
EP0203144	4	0,7	63	12	21	4,5	3,4	4	3,7	2	2174
EP0203147	4,5	0,75	70	14	25	6	4,9	4	4,15	2	2174
EP0203149	5	0,8	70	14	25	6	4,9	5	4,65	2	2174
EP0203152	5,5	0,9	80	14	30	6	4,9	5	5,1	2	2174
EP0203155	6	1	80	16	30	6	4,9	5	5,55	2	2174
EP0203158	7	1	80	16	30	7	5,5	5	6,55	2	2174
EP0203161	8	1,25	90	18	35	8	6,2	5	7,45	2	2174
EP0203165	9	1,25	90	18	35	9	7	5	8,45	2	2174
EP0203169	10	1,5	100	20	39	10	8	5	9,35	2	2174
EP0203175	11	1,5	100	22	-	8	6,2	5	10,35	3	2174
EP0203179	12	1,75	110	24	-	9	7	5	11,2	3	2174
EP0203191	14	2	110	25	-	11	9	6	13,1	3	2174
EP0203202	16	2	110	27	-	12	9	6	15,1	3	2174
EP0203214	18	2,5	125	32	-	14	11	7	16,8	3	2174
EP0203228	20	2,5	140	32	-	16	12	7	18,8	3	2174
EP0203238	22	2,5	140	32	-	18	14,5	7	20,8	3	2174
EP0203247	24	3	160	36	-	18	14,5	7	22,6	3	2174

M-OIL-NRT

INDEX

Threading | Forming taps | Metric





- Powder metal forming tap for through & blind holes
- TiN coating
- For general steels, stainless steels and aluminium
- Side through coolant

P ◉ C <0,2%	P ◉ 0,25<C<0,4	P ○ C ≥ 0,45%	P ○ SCM	M ◉ INOX	N ◉ Al	N ◉ AC, ADC	
20-30	20-30	15-30	10-20	6-12	10-25	15-40	m/min

M	PM	TiN	ISO 2 6HX	C/2,5			
	DIN 2174	DIN 2174					

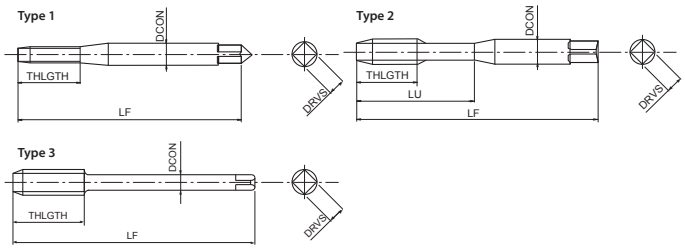
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
EP0206149	5	0,8	70	14	25	6	4,9	5	4,65	1	2174
EP0206155	6	1	80	16	30	6	4,9	5	5,55	1	2174
EP0206161	8	1,25	90	18	35	8	6,2	5	7,45	1	2174
EP0206169	10	1,5	100	20	39	10	8	5	9,35	1	2174
EP0206179	12	1,75	110	24	-	9	7	5	11,2	2	2174
EP0206191	14	2	110	25	-	11	9	6	13,1	2	2174
EP0206202	16	2	110	27	-	12	9	6	15,1	2	2174
EP0206214	18	2,5	125	32	-	14	11	7	16,8	2	2174
EP0206228	20	2,5	140	32	-	16	12	7	18,8	2	2174
EP0206238	22	2,5	140	32	-	18	14,5	7	20,8	2	2174
EP0206247	24	3	160	36	-	18	14,5	7	22,6	2	2174

M-NRT 6GX

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Threading | Forming taps | Metric





- Powder metal forming tap for through & blind holes
- TiN coating
- For general steels, stainless steels and aluminium
- For 6G internal thread tolerance

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
20-30	20-30	15-30	10-20	6-12	10-25	15-40	m/min

M	PM	TiN	ISO 3 6GX	C/2,5		
DIN 2174	DIN 2174					

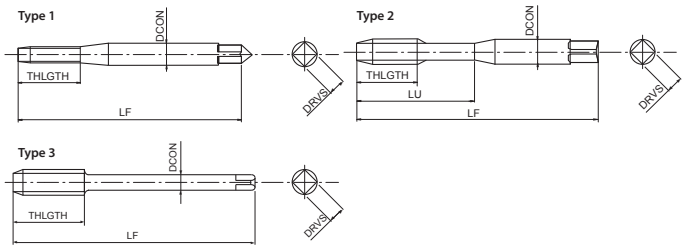
EDP	TD	TP	oversize	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
EP0204125	2	0,4	0.019	45	9	-	2,8	2,1	3	1,82	1	2174
EP0204133	2,5	0,45	0.02	50	9	14	2,8	2,1	4	2,3	2	2174
EP0204138	3	0,5	0.02	56	10	18	3,5	2,7	4	2,8	2	2174
EP0204142	3,5	0,6	0.021	56	11	20	4	3	4	3,25	2	2174
EP0204144	4	0,7	0.022	63	12	21	4,5	3,4	4	3,7	2	2174
EP0204149	5	0,8	0.024	70	14	25	6	4,9	5	4,65	2	2174
EP0204155	6	1	0.026	80	16	30	6	4,9	5	5,55	2	2174
EP0204161	8	1,25	0.028	90	18	35	8	6,2	5	7,45	2	2174
EP0204169	10	1,5	0.032	100	20	39	10	8	5	9,35	2	2174
EP0204179	12	1,75	0.034	110	24	-	9	7	5	11,2	3	2174
EP0204191	14	2	0.038	110	25	-	11	9	6	13,1	3	2174
EP0204202	16	2	0.038	110	27	-	12	9	6	15,1	3	2174

M-NRT FORM E

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Threading | Forming taps | Metric





- Powder metal forming tap for through & blind holes
- TiN coating
- For general steels, stainless steels and aluminium
- Chamfer Form E

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
20-30	20-30	15-30	10-20	6-12	10-25	15-40	m/min

M	PM	TiN	ISO 2 6HX	E/1,5		
DIN 2174	DIN 2174					

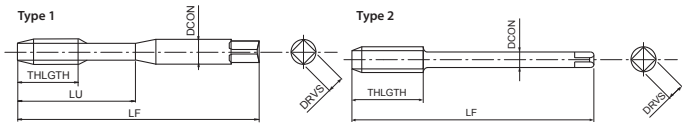
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
EP0205125	2	0,4	45	9	-	2,8	2,1	3	1,82	1	2174
EP0205133	2,5	0,45	50	9	14	2,8	2,1	4	2,3	2	2174
EP0205138	3	0,5	56	10	18	3,5	2,7	4	2,8	2	2174
EP0205142	3,5	0,6	56	11	20	4	3	4	3,25	2	2174
EP0205144	4	0,7	63	12	21	4,5	3,4	4	3,7	2	2174
EP0205149	5	0,8	70	14	25	6	4,9	5	4,65	2	2174
EP0205155	6	1	80	16	30	6	4,9	5	5,55	2	2174
EP0205161	8	1,25	90	18	35	8	6,2	5	7,45	2	2174
EP0205169	10	1,5	100	20	39	10	8	5	9,35	2	2174
EP0205179	12	1,75	110	24	-	9	7	5	11,2	3	2174
EP0205191	14	2	110	25	-	11	9	6	13,1	3	2174
EP0205202	16	2	110	27	-	12	9	6	15,1	3	2174

M-OIL-NRT FORM E

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Threading | Forming taps | Metric





- Powder metal forming tap for blind holes
- TiN coating
- For general steels, stainless steels and aluminium
- Chamfer Form E, centre through coolant

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
20-30	20-30	15-30	10-20	6-12	10-25	15-40	m/min

M	PM	TiN	ISO 2 6HX	E/1,5		
DIN 2174	DIN 2174					

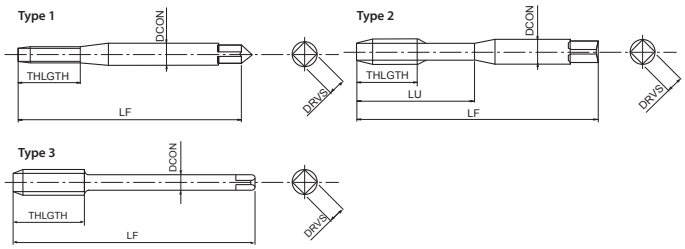
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
EP0207149	5	0,8	70	14	25	6	4,9	5	4,65	1	2174
EP0207155	6	1	80	16	30	6	4,9	5	5,55	1	2174
EP0207161	8	1,25	90	18	35	8	6,2	5	7,45	1	2174
EP0207169	10	1,5	100	20	39	10	8	5	9,35	1	2174
EP0207179	12	1,75	110	24	-	9	7	5	11,2	2	2174
EP0207191	14	2	110	25	-	11	9	6	13,1	2	2174
EP0207202	16	2	110	27	-	12	9	6	15,1	2	2174

A-POT

INDEX

Threading | Cutting taps | Metric Fine





- First choice in quality and performance
- Powder metal spiral-point cutting tap for through holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-60	15-60	10-60	8-30	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC					
5-10	8-20					

A	MF	PM	V	ISO 2 6HX	B/4	
DIN 371	DIN 374					

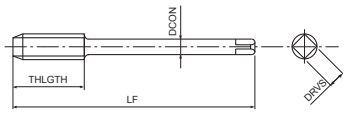
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48145135	2,5	0,35	50	-	9	2,8	2,1	2	1	371
48145137	2,6	0,35	50	-	9	2,8	2,1	2	1	371
48145141	3	0,35	56	8	18	3,5	2,7	3	2	371
48145143	3,5	0,35	56	9	20	4	3	3	2	371
48145146	4	0,35	63	10	21	4,5	3,4	3	2	371
48145145	4	0,5	63	10	21	4,5	3,4	3	2	371
48145148	4,5	0,5	70	12	25	6	4,9	3	2	371
48145151	5	0,5	70	12	25	6	4,9	3	2	371
48145602	6	0,5	80	14	30	6	4,9	3	2	371
48145601	6	0,75	80	14	30	6	4,9	3	2	371
48145160	7	0,75	80	14	30	7	5,5	3	2	371
48145604	8	0,75	80	18	30	8	6,2	3	2	371
48145603	8	1	90	22	35	8	6,2	3	2	371
48145605	9	1	90	22	35	9	7	3	2	371
48145608	10	0,75	90	20	35	10	8	3	2	371
48145607	10	1	90	20	35	10	8	3	2	371
48145606	10	1,25	100	24	39	10	8	3	2	371
48145157	6	0,5	80	14	-	4,5	3,4	3	3	374
48145156	6	0,75	80	14	-	4,5	3,4	3	3	374
48145163	8	0,75	80	18	-	6	4,9	3	3	374
48145162	8	1	90	22	-	6	4,9	3	3	374
48145167	9	1	90	22	-	7	5,5	3	3	374
48145172	10	0,75	90	20	-	7	5,5	3	3	374
48145171	10	1	90	20	-	7	5,5	3	3	374
48145170	10	1,25	100	24	-	7	5,5	3	3	374
48145176	11	1	90	20	-	8	6,2	3	3	374
48145182	12	1	100	22	-	9	7	3	3	374
48145181	12	1,25	100	22	-	9	7	3	3	374
48145180	12	1,5	100	22	-	9	7	3	3	374
48145194	14	1	100	22	-	11	9	4	3	374
48145193	14	1,25	100	22	-	11	9	4	3	374
48145192	14	1,5	100	22	-	11	9	4	3	374
48145204	16	1	100	22	-	12	9	4	3	374
48145203	16	1,5	100	22	-	12	9	4	3	374
48145218	18	1	110	25	-	14	11	4	3	374
48145216	18	1,5	110	25	-	14	11	4	3	374
48145232	20	1	125	25	-	16	12	4	3	374
48145230	20	1,5	125	25	-	16	12	4	3	374
48145220	20	2	140	34	-	16	12	4	3	374
48145241	22	1	125	25	-	18	14,5	4	3	374
48145240	22	1,5	125	25	-	18	14,5	4	3	374
48145239	22	2	140	34	-	18	14,5	4	3	374
48145251	24	1	140	28	-	18	14,5	4	3	374
48145250	24	1,5	140	28	-	18	14,5	4	3	374
48145249	24	2	140	28	-	18	14,5	4	3	374

A-OIL-POT

INDEX

Threading | Cutting taps | Metric Fine





- First choice in quality and performance
- Powder metal spiral-point cutting tap for through holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels
- Side through coolant

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-60	15-60	10-60	8-30	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC
5-10	8-20

A	MF	PM	V	ISO 2 6HX	B/4	
	DIN 374					

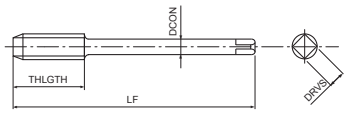
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
48214162	8	1	90	22	6	4,9	3	374
48214171	10	1	90	20	7	5,5	3	374
48214170	10	1,25	100	24	7	5,5	3	374
48214180	12	1,5	100	22	9	7	3	374
48214192	14	1,5	100	22	11	9	4	374
48214203	16	1,5	100	22	12	9	4	374
48214216	18	1,5	110	25	14	11	4	374
48214230	20	1,5	125	25	16	12	4	374

A-POT 6GX

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Threading | Cutting taps | Metric Fine





- First choice in quality and performance
- Powder metal spiral-point cutting tap for through holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels
- For 6G internal thread tolerance

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-60	15-60	10-60	8-30	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC
5-10	8-20

A	MF	PM	V	ISO 3 6GX	B/4	
	DIN 374					

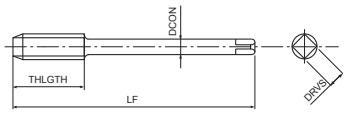
EDP	TD	TP	oversize	LF	THLGTH	DCON	DRVS	NOF	DIN
48205156	6	0,75	0.022	80	14	4,5	3,4	3	374
48205163	8	0,75	0.022	80	18	6	4,9	3	374
48205162	8	1	0.026	80	22	6	4,9	3	374
48205171	10	1	0.026	90	20	7	5,5	3	374
48205170	10	1,25	0.028	90	24	7	5,5	3	374
48205182	12	1	0.026	90	22	9	7	3	374
48205181	12	1,25	0.028	90	22	9	7	3	374
48205180	12	1,5	0.032	90	22	9	7	3	374
48205192	14	1,5	0.032	90	22	11	9	4	374
48205203	16	1,5	0.032	100	22	12	9	4	374
48205216	18	1,5	0.032	100	25	14	11	4	374
48205230	20	1,5	0.032	125	25	16	12	4	374
48205240	22	1,5	0.032	125	25	18	14,5	4	374
48205250	24	1,5	0.032	140	28	18	14,5	4	374

S-POT

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Threading | Cutting taps | Metric Fine





- HSSE spiral-point cutting tap for through holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
15-24	10-15	10-15	8-13	8-16	10-15	m/min

MF | HSSE | 0X | ISO 2 6H | B/4 | DIN 374

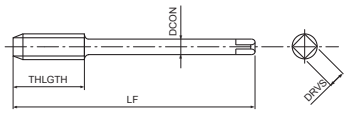
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
48224139	3	0,35	56	9	2,2	-	3	374
48224145	4	0,5	63	10	2,8	2,1	3	374
48224151	5	0,5	70	12	3,5	2,7	3	374
48224157	6	0,5	80	14	4,5	3,4	3	374
48224156	6	0,75	80	14	4,5	3,4	3	374
48224163	8	0,75	80	18	6	4,9	3	374
48224162	8	1	90	22	6	4,9	3	374
48224167	9	1	90	22	7	5,5	3	374
48224172	10	0,75	90	20	7	5,5	3	374
48224171	10	1	90	20	7	5,5	3	374
48224170	10	1,25	100	24	7	5,5	3	374
48224176	11	1	90	20	8	6,2	3	374
48224182	12	1	100	22	9	7	3	374
48224181	12	1,25	100	22	9	7	3	374
48224180	12	1,5	100	22	9	7	3	374
48224194	14	1	100	22	11	9	3	374
48224193	14	1,25	100	22	11	9	3	374
48224192	14	1,5	100	22	11	9	3	374
48224204	16	1	100	22	12	9	3	374
48224203	16	1,5	100	22	12	9	3	374
48224218	18	1	110	25	14	11	3	374
48224216	18	1,5	110	25	14	11	3	374
48224232	20	1	125	25	16	12	3	374
48224230	20	1,5	125	25	16	12	3	374
48224220	20	2	140	34	16	12	3	374
48224241	22	1	125	25	18	14,5	3	374
48224240	22	1,5	125	25	18	14,5	3	374
48224239	22	2	140	34	18	14,5	3	374
48224251	24	1	140	28	18	14,5	3	374
48224250	24	1,5	140	28	18	14,5	3	374
48224249	24	2	140	28	18	14,5	3	374

S-POT 6G

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Threading | Cutting taps | Metric Fine





- HSSE spiral-point cutting tap for through holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels
- For 6G internal thread tolerance

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
15-24	10-15	10-15	8-13	8-16	10-15	m/min

MF | HSSE | 0X | ISO 2 6G | B/4 | DIN 374

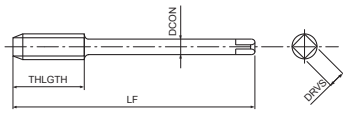
EDP	TD	TP	oversize	LF	THLGTH	DCON	DRVS	NOF	DIN
48272156	6	0,75	0.022	80	14	4,5	3,4	3	374
48272163	8	0,75	0.022	80	18	6	4,9	3	374
48272162	8	1	0.026	90	22	6	4,9	3	374
48272171	10	1	0.026	90	20	7	5,5	3	374
48272170	10	1,25	0.028	100	24	7	5,5	3	374
48272182	12	1	0.026	100	22	9	7	3	374
48272181	12	1,25	0.028	100	22	9	7	3	374
48272180	12	1,5	0.032	100	22	9	7	3	374
48272192	14	1,5	0.032	100	22	11	9	3	374
48272203	16	1,5	0.032	100	22	12	9	3	374
48272216	18	1,5	0.032	110	25	14	11	3	374
48272230	20	1,5	0.032	125	25	16	12	3	374
48272240	22	1,5	0.032	125	25	18	14,5	3	374
48272250	24	1,5	0.032	140	28	18	14,5	3	374

VA-POT

INDEX

Threading | Cutting taps | Metric Fine





- HSSE spiral-point cutting tap for through holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
15-24	10-15	10-15	8-13	8-16	10-15	m/min

MF	HSSE	0X	ISO 2 6H	B/4		DIN 374

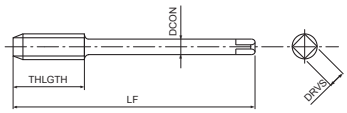
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
63713960	3	0,35	56	9	2,2	-	3	374
63714560	4	0,5	63	10	2,8	2,1	3	374
63715160	5	0,5	70	12	3,5	2,7	3	374
63715760	6	0,5	80	14	4,5	3,4	3	374
63715660	6	0,75	80	14	4,5	3,4	3	374
63716360	8	0,75	80	18	6	4,9	3	374
63716260	8	1	90	22	6	4,9	3	374
63717160	10	1	90	20	7	5,5	3	374
63717060	10	1,25	100	24	7	5,5	3	374
63718260	12	1	100	22	9	7	3	374
63718160	12	1,25	100	22	9	7	3	374
63718060	12	1,5	100	22	9	7	3	374
63719260	14	1,5	100	22	11	9	3	374
63720360	16	1,5	100	22	12	9	3	374
63721660	18	1,5	110	25	14	11	3	374
63723060	20	1,5	125	25	16	12	3	374
63724060	22	1,5	125	25	18	14,5	3	374
63725060	24	1,5	140	28	18	14,5	3	374

Z-POT

INDEX

Threading | Cutting taps | Metric Fine





- Powder metal spiral-point cutting tap for through holes
- Multilayer TiCN coating
- High speed tapping in general steels and stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-24	15-24	15-24	8-20	8-20	20-40	20-40	m/min

S Ti	H 25-35 HRC						
10-15	8-15						

MF	PM	V	ISO 2 6HX	B/4		DIN 374

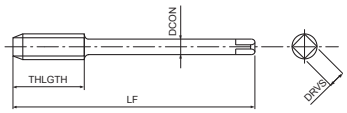
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
48028139	3	0,35	56	9	2,2	-	3	374
48028145	4	0,5	63	10	2,8	2,1	3	374
48028151	5	0,5	70	12	3,5	2,7	3	374
48028157	6	0,5	80	14	4,5	3,4	3	374
48028156	6	0,75	80	14	4,5	3,4	3	374
48028163	8	0,75	80	18	6	4,9	3	374
48028162	8	1	90	22	6	4,9	3	374
48028171	10	1	90	20	7	5,5	3	374
48028170	10	1,25	100	24	7	5,5	3	374
48028182	12	1	100	22	9	7	3	374
48028180	12	1,25	100	22	9	7	3	374
48028176	12	1,5	100	22	9	7	3	374
48028193	14	1,5	100	22	11	9	4	374
48028204	16	1,5	100	22	12	9	4	374
48028217	18	1,5	110	25	14	11	4	374
48028231	20	1,5	125	25	16	12	4	374
48028241	22	1,5	125	25	18	14,5	4	374
48028251	24	1,5	140	28	18	14,5	4	374

POT

INDEX

Threading | Cutting taps | Metric Fine





- HSSE spiral-point cutting tap for through holes
- Bright finish
- For general purpose applications

P ○	P ○	P ○	P ○	K ○	N ○	N ◉	
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	GGG	AI	AC, ADC	
12-20	8-12	8-12	8-12	8-12	15-25	15-20	m/min

MF | HSSE | ISO 2 6H | B/4 | DIN 374

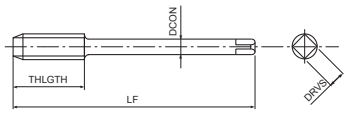
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
60614560	4	0,5	63	10	2,8	2,1	3	374
60615160	5	0,5	70	12	3,5	2,7	3	374
60615660	6	0,75	80	14	4,5	3,4	3	374
60616360	8	0,75	80	18	6	4,9	3	374
60616260	8	1	90	22	6	4,9	3	374
60617260	10	0,75	90	18	7	5,5	3	374
60617160	10	1	90	20	7	5,5	3	374
60617060	10	1,25	100	24	7	5,5	3	374
60618260	12	1	100	22	9	7	3	374
60618160	12	1,25	100	22	9	7	3	374
60618060	12	1,5	100	22	9	7	3	374
60619460	14	1	100	18	11	9	3	374
60619360	14	1,25	100	22	11	9	3	374
60619260	14	1,5	100	22	11	9	3	374
60620460	16	1	100	18	12	9	3	374
60620360	16	1,5	100	22	12	9	3	374
60621860	18	1	110	20	14	11	3	374
60621660	18	1,5	110	25	14	11	3	374
60621560	18	2	125	26	14	11	3	374
60623260	20	1	125	20	16	12	3	374
60623060	20	1,5	125	25	16	12	3	374
60622960	20	2	140	27	16	12	3	374
60624060	22	1,5	125	25	18	14,5	3	374
60623960	22	2	140	27	18	14,5	3	374
60625060	24	1,5	140	28	18	14,5	3	374
60624960	24	2	140	27	18	14,5	3	374
60627360	30	2	150	30	22	18	4	374

CC-POT

INDEX

Threading | Cutting taps | Metric Fine





- HSSE spiral-point cutting tap for through holes
- CrN coating
- For general steels and stainless steels
- Developed for rigid tapping on CNC machines

P ◉	P ◉	P ◉	P ○	M ◉	N ◉	
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	INOX	AI	
15-25	15-25	10-25	10-25	6-15	20-40	m/min

MF | HSSE | CrN | ISO 2 6HX | B/4 | DIN 374

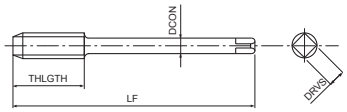
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
48061156	6	0,75	80	14	4,5	3,4	3	374
48061163	8	0,75	80	18	6	4,9	3	374
48061162	8	1	90	22	6	4,9	3	374
48061171	10	1	90	20	7	5,5	3	374
48061170	10	1,25	100	24	7	5,5	3	374
48061182	12	1	100	22	9	7	3	374
48061181	12	1,25	100	22	9	7	3	374
48061180	12	1,5	100	22	9	7	3	374
48061192	14	1,5	100	22	11	9	3	374
48061203	16	1,5	100	22	12	9	3	374
48061216	18	1,5	110	25	14	11	3	374
48061230	20	1,5	125	25	16	12	3	374
48061240	22	1,5	125	25	18	14,5	3	374
48061250	24	1,5	140	28	18	14,5	3	374

H-POT

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Threading | Cutting taps | Metric Fine





- Powder metal spiral-point cutting tap for through holes
- Steam oxide treatment
- For hardened steels up to 45 HRC





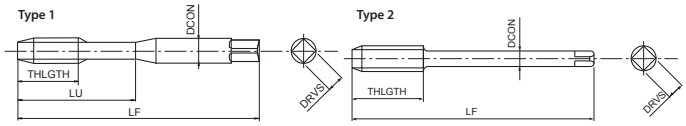
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
88414060	3	0,35	56	8	2,2	-	3	374
88414560	4	0,5	63	10	2,8	2,1	3	374
88415160	5	0,5	70	12	3,5	2,7	3	374
88415760	6	0,5	80	14	4,5	3,4	3	374
88415660	6	0,75	80	14	4,5	3,4	3	374
88416360	8	0,75	80	18	6	4,9	3	374
88416260	8	1	90	22	6	4,9	3	374
88417160	10	1	90	20	7	5,5	3	374
88417060	10	1,25	100	24	7	5,5	3	374
88418260	12	1	100	22	9	7	3	374
88418160	12	1,25	100	22	9	7	3	374
88418060	12	1,5	100	22	9	7	3	374
88419260	14	1,5	100	22	11	9	3	374
88420360	16	1,5	100	22	12	9	4	374
88421660	18	1,5	110	25	14	11	4	374
88423060	20	1,5	125	25	16	12	4	374
88424060	22	1,5	125	25	18	14,5	4	374
88425060	24	1,5	140	28	18	14,5	4	374

A-SFT

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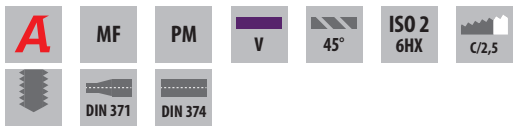
Threading | Cutting taps | Metric Fine





- First choice in quality and performance
- Powder metal spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels





EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48139135	2,5	0,35	50	3,6	13	2,8	2,1	2	1	371
48139137	2,6	0,35	50	3,6	13	2,8	2,1	2	1	371
48139141	3	0,35	56	4	18	3,5	2,7	3	1	371
48139143	3,5	0,35	56	4,8	20	4	3	3	1	371
48139146	4	0,35	63	5,6	21	4,5	3,4	3	1	371
48139145	4	0,5	63	5,6	21	4,5	3,4	3	1	371
48139148	4,5	0,5	70	6	25	6	4,9	3	1	371
48139151	5	0,5	70	6,4	25	6	4,9	3	1	371
48139602	6	0,5	80	8	30	6	4,9	3	1	371
48139601	6	0,75	80	8	30	6	4,9	3	1	371
48139160	7	0,75	80	8	30	7	5,5	3	1	371
48139604	8	0,75	80	10	35	8	6,2	3	1	371
48139603	8	1	90	10	35	8	6,2	3	1	371
48139605	9	1	90	10	35	9	7	3	1	371
48139608	10	0,75	90	12	35	10	8	3	1	371
48139607	10	1	90	12	35	10	8	3	1	371
48139606	10	1,25	100	12	39	10	8	3	1	371
48139157	6	0,5	80	8	-	4,5	3,4	3	2	374
48139156	6	0,75	80	8	-	4,5	3,4	3	2	374
48139163	8	0,75	80	8	-	6	4,9	3	2	374
48139162	8	1	90	10	-	6	4,9	3	2	374
48139167	9	1	90	10	-	7	5,5	3	2	374
48139172	10	0,75	90	10	-	7	5,5	3	2	374
48139171	10	1	90	10	-	7	5,5	3	2	374
48139170	10	1,25	100	12	-	7	5,5	3	2	374
48139176	11	1	90	12	-	8	6,2	3	2	374
48139182	12	1	100	12	-	9	7	3	2	374
48139181	12	1,25	100	12	-	9	7	3	2	374
48139180	12	1,5	100	14	-	9	7	3	2	374
48139194	14	1	100	16	-	11	9	3	2	374
48139193	14	1,25	100	16	-	11	9	3	2	374
48139192	14	1,5	100	16	-	11	9	3	2	374
48139204	16	1	100	16	-	12	9	3	2	374
48139203	16	1,5	100	16	-	12	9	3	2	374
48139218	18	1	110	16	-	14	11	4	2	374
48139216	18	1,5	110	16	-	14	11	4	2	374
48139232	20	1	125	16	-	16	12	4	2	374
48139230	20	1,5	125	16	-	16	12	4	2	374
48139220	20	2	140	25	-	16	12	4	2	374
48139241	22	1	125	16	-	18	14,5	4	2	374
48139240	22	1,5	125	16	-	18	14,5	4	2	374
48139251	24	1	140	16	-	18	14,5	4	2	374
48139250	24	1,5	140	16	-	18	14,5	4	2	374
48139249	24	2	140	30	-	18	14,5	4	2	374
48139249	24	2	140	30	-	18	14,5	4	2	374

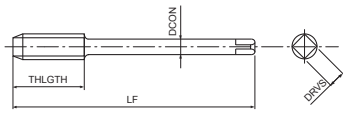


A-OIL-SFT

INDEX

Threading | Cutting taps | Metric Fine





- First choice in quality and performance
- Powder metal spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels
- Centre through coolant

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-60	15-60	10-60	8-30	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC
5-10	8-20

A	MF	PM	V	45°	ISO 2 6HX	C/2,5
		DIN 374				

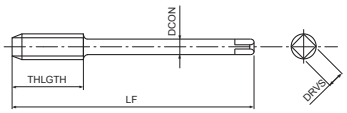
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
48140162	8	1	90	10	6	4,9	3	374
48140171	10	1	90	10	7	5,5	3	374
48140170	10	1,25	100	12	7	5,5	3	374
48140180	12	1,5	100	14	9	7	3	374
48140192	14	1,5	100	16	11	9	3	374
48140203	16	1,5	100	16	12	9	3	374
48140216	18	1,5	110	16	14	11	4	374
48140230	20	1,5	125	16	16	12	4	374

A-SFT 6GX

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Threading | Cutting taps | Metric Fine





- First choice in quality and performance
- Powder metal spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels
- For 6G internal thread tolerance

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-60	15-60	10-60	8-30	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC
5-10	8-20

A	MF	PM	V	45°	ISO 3 6GX	C/2,5
	DIN 374					

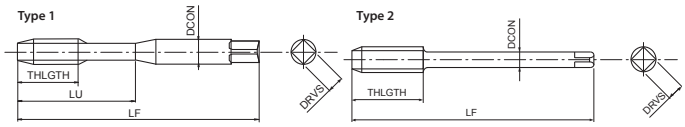
EDP	TD	TP	oversize	LF	THLGTH	DCON	DRVS	NOF	DIN
48201156	6	0,75	0.022	80	8	4,5	3,4	3	374
48201163	8	0,75	0.022	80	8	6	4,9	3	374
48201162	8	1	0.026	90	10	6	4,9	3	374
48201171	10	1	0.026	90	10	7	5,5	3	374
48201170	10	1,25	0.028	100	12	7	5,5	3	374
48201182	12	1	0.026	100	12	9	7	3	374
48201181	12	1,25	0.028	100	12	9	7	3	374
48201180	12	1,5	0.032	100	14	9	7	3	374
48201192	14	1,5	0.032	100	16	11	9	3	374
48201203	16	1,5	0.032	100	16	12	9	3	374
48201216	18	1,5	0.032	110	16	14	11	4	374
48201230	20	1,5	0.032	125	16	16	12	4	374
48201240	22	1,5	0.032	125	16	18	14,5	4	374
48201250	24	1,5	0.032	140	16	18	14,5	4	374

A-SFT FORM E

INDEX

Threading | Cutting taps | Metric Fine





- First choice in quality and performance
- Powder metal spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels
- Form E chamfer

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-60	15-60	10-60	8-30	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC
5-10	8-20

A	MF	PM	V	45°	ISO 2 6HX	E/1,5
	DIN 371	DIN 374				

EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48203135	2,5	0,35	50	3,6	13	2,8	2,1	2	1	371
48203137	2,6	0,35	50	3,6	13	2,8	2,1	2	1	371
48203141	3	0,35	56	4	18	3,5	2,7	3	1	371
48203143	3,5	0,35	56	4,8	20	4	3	3	1	371
48203146	4	0,35	63	5,6	21	4,5	3,4	3	1	371
48203145	4	0,5	63	5,6	21	4,5	3,4	3	1	371
48203148	4,5	0,5	70	6	25	6	4,9	3	1	371
48203151	5	0,5	70	6,4	25	6	4,9	3	1	371
48203602	6	0,5	80	8	30	6	4,9	3	1	371
48203601	6	0,75	80	8	30	6	4,9	3	1	371
48203160	7	0,75	80	8	30	7	5,5	3	1	371
48203604	8	0,75	80	10	35	8	6,2	3	1	371
48203603	8	1	90	10	35	8	6,2	3	1	371
48203605	9	1	90	10	35	9	7	3	1	371
48203608	10	0,75	90	12	35	10	8	3	1	371
48203607	10	1	90	12	35	10	8	3	1	371
48203606	10	1,25	100	12	39	10	8	3	1	371
48203157	6	0,5	80	8	-	4,5	3,4	3	2	374
48203156	6	0,75	80	8	-	4,5	3,4	3	2	374
48203163	8	0,75	80	8	-	6	4,9	3	2	374
48203162	8	1	90	10	-	6	4,9	3	2	374
48203167	9	1	90	10	-	7	5,5	3	2	374
48203172	10	0,75	90	10	-	7	5,5	3	2	374
48203171	10	1	90	10	-	7	5,5	3	2	374
48203170	10	1,25	100	12	-	7	5,5	3	2	374
48203176	11	1	90	12	-	8	6,2	3	2	374
48203182	12	1	100	12	-	9	7	3	2	374
48203181	12	1,25	100	12	-	9	7	3	2	374
48203180	12	1,5	100	14	-	9	7	3	2	374
48203194	14	1	100	16	-	11	9	3	2	374
48203193	14	1,25	100	16	-	11	9	3	2	374
48203192	14	1,5	100	16	-	11	9	3	2	374
48203204	16	1	100	16	-	12	9	3	2	374
48203203	16	1,5	100	16	-	12	9	3	2	374
48203218	18	1	110	16	-	14	11	4	2	374
48203216	18	1,5	110	16	-	14	11	4	2	374
48203232	20	1	125	16	-	16	12	4	2	374
48203230	20	1,5	125	16	-	16	12	4	2	374
48203220	20	2	140	25	-	16	12	4	2	374
48203241	22	1	125	16	-	18	14,5	4	2	374
48203240	22	1,5	125	16	-	18	14,5	4	2	374
48203239	22	2	140	25	-	18	14,5	4	2	374
48203251	24	1	140	16	-	18	14,5	4	2	374
48203250	24	1,5	140	16	-	18	14,5	4	2	374
48203249	24	2	140	30	-	18	14,5	4	2	374

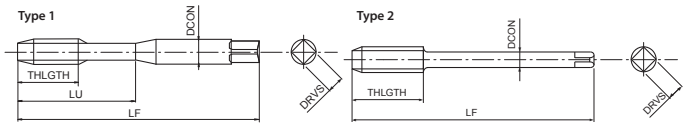
A-SFT-INOX

INDEX

NEW

Threading | Cutting taps | Metric Fine





- First choice in quality and performance
- Powder metal spiral-fluted cutting tap for blind holes
- Multilayer VI coating
- Eliminates chip entanglement issues in stainless steel

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N AC, ADC	
5-20	5-50	5-50	5-30	5-15	5-50	m/min

A	MF	PM	VI	45°	ISO 2 6HX
C/2,5		DIN 371	DIN 374		

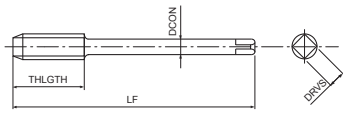
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48455135	2,5	0,35	50	3,6	13	2,8	2,1	2	1	371
48455137	2,6	0,35	50	3,6	13	2,8	2,1	2	1	371
48455141	3	0,35	56	4	18	3,5	2,7	3	1	371
48455143	3,5	0,35	56	4,8	20	4	3	3	1	371
48455146	4	0,35	63	5,6	21	4,5	3,4	3	1	371
48455145	4	0,5	63	5,6	21	4,5	3,4	3	1	371
48455148	4,5	0,5	70	6	25	6	4,9	3	1	371
48455151	5	0,5	70	6,4	25	6	4,9	3	1	371
48455602	6	0,5	80	8	30	6	4,9	3	1	371
48455601	6	0,75	80	8	30	6	4,9	3	1	371
48455160	7	0,75	80	8	30	7	5,5	3	1	371
48455604	8	0,75	80	10	35	8	6,2	3	1	371
48455603	8	1	90	10	35	8	6,2	3	1	371
48455605	9	1	90	10	35	9	7	3	1	371
48455608	10	0,75	90	12	35	10	8	3	1	371
48455607	10	1	90	12	35	10	8	3	1	371
48455606	10	1,25	100	12	39	10	8	3	1	371
48455157	6	0,5	80	8	-	4,5	3,4	3	2	374
48455156	6	0,75	80	8	-	4,5	3,4	3	2	374
48455163	8	0,75	80	8	-	6	4,9	3	2	374
48455162	8	1	90	10	-	6	4,9	3	2	374
48455167	9	1	90	10	-	7	5,5	3	2	374
48455172	10	0,75	90	10	-	7	5,5	3	2	374
48455171	10	1	90	10	-	7	5,5	3	2	374
48455170	10	1,25	100	12	-	7	5,5	3	2	374
48455176	11	1	90	12	-	8	6,2	3	2	374
48455182	12	1	100	12	-	9	7	3	2	374
48455181	12	1,25	100	12	-	9	7	3	2	374
48455180	12	1,5	100	14	-	9	7	3	2	374
48455194	14	1	100	16	-	11	9	3	2	374
48455193	14	1,25	100	16	-	11	9	3	2	374
48455192	14	1,5	100	16	-	11	9	3	2	374
48455204	16	1	100	16	-	12	9	3	2	374
48455203	16	1,5	100	16	-	12	9	3	2	374
48455218	18	1	110	16	-	14	11	4	2	374
48455216	18	1,5	110	16	-	14	11	4	2	374
48455232	20	1	125	16	-	16	12	4	2	374
48455230	20	1,5	125	16	-	16	12	4	2	374
48455220	20	2	140	25	-	16	12	4	2	374
48455241	22	1	125	16	-	18	14,5	4	2	374
48455240	22	1,5	125	16	-	18	14,5	4	2	374
48455239	22	2	140	25	-	18	14,5	4	2	374
48455251	24	1	140	16	-	18	14,5	4	2	374
48455250	24	1,5	140	16	-	18	14,5	4	2	374
48455249	24	2	140	30	-	18	14,5	4	2	374

A-SFT-AL

INDEX

Threading | Cutting taps | Metric Fine **NEW**





- First choice in quality and performance
- HSSE - spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in aluminium cast and aluminium die cast

N
AC, ADC
5-50 m/min

A | MF | HSSE | V | 45° | ISO 2 6HX | C/2,5 | DIN 374

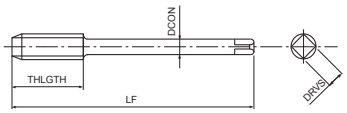
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
48456162	8	1	90	10	6	4,9	2	374
48456171	10	1	90	10	7	5,5	2	374
48456170	10	1,25	100	12	7	5,5	2	374
48456182	12	1	100	12	9	7	2	374
48456181	12	1,25	100	12	9	7	2	374
48456180	12	1,5	100	14	9	7	2	374

A-SFT-AL FORM E

INDEX

Threading | Cutting taps | Metric Fine **NEW**





- First choice in quality and performance
- HSSE - spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in aluminium cast and aluminium die cast
- Form E chamfer

N
AC, ADC
5-30 m/min

A | MF | HSSE | V | 45° | ISO 2 6HX | E/1,5 | DIN 374

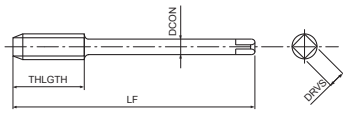
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
48457162	8	1	90	10	6	4,9	2	374
48457171	10	1	90	10	7	5,5	2	374
48457170	10	1,25	100	12	7	5,5	2	374
48457182	12	1	100	12	9	7	2	374
48457181	12	1,25	100	12	9	7	2	374
48457180	12	1,5	100	14	9	7	2	374

A-CSF OIL

INDEX

Threading | Cutting taps | Metric Fine

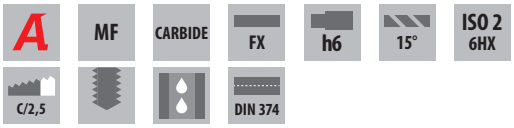




- First choice in quality and performance
- Carbide spiral-fluted cutting tap for blind holes
- TiAlN coating
- For cast iron and cast aluminium
- Centre through coolant



m/min



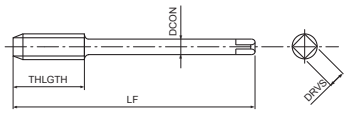
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
48267162	8	1	90	15	6	4,9	3	374
48267171	10	1	90	18	7	5,5	3	374
48267182	12	1	100	21	9	7	3	374
48267180	12	1,5	100	21	9	7	3	374
48267192	14	1,5	100	24	11	9	4	374
48267203	16	1,5	100	24	12	9	4	374
48267230	20	1,5	125	30	16	12	4	374

A-CSF OIL FORM E

INDEX

Threading | Cutting taps | Metric Fine

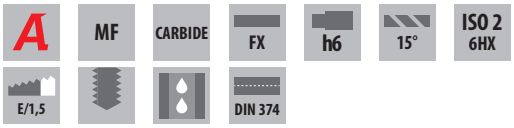




- First choice in quality and performance
- Carbide spiral-fluted cutting tap for blind holes
- TiAlN coating
- For cast iron and cast aluminium
- Centre through coolant, Form E chamfer



m/min



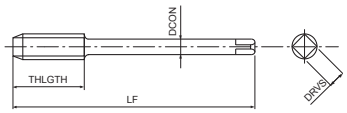
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
48266162	8	1	90	15	6	4,9	3	374
48266171	10	1	90	18	7	5,5	3	374
48266182	12	1	100	21	9	7	3	374
48266180	12	1,5	100	21	9	7	3	374
48266192	14	1,5	100	24	11	9	4	374
48266203	16	1,5	100	24	12	9	4	374

S-SFT

INDEX

Threading | Cutting taps | Metric Fine





- HSSE spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
10-15	8-14	8-14	7-11	7-12	7-14	m/min

MF | HSSE | 0X | 40° | ISO 2 6H | C/2,5 | DIN 374

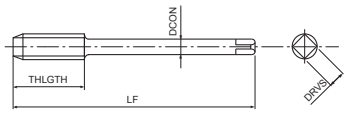
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
48223139	3	0,35	56	4	2,2	-	3	374
48223145	4	0,5	63	5,6	2,8	2,1	3	374
48223151	5	0,5	70	6,4	3,5	2,7	3	374
48223157	6	0,5	80	8	4,5	3,4	3	374
48223156	6	0,75	80	8	4,5	3,4	3	374
48223163	8	0,75	80	10	6	4,9	3	374
48223162	8	1	90	10	6	4,9	3	374
48223167	9	1	90	10	7	5,5	3	374
48223172	10	0,75	90	12	7	5,5	3	374
48223171	10	1	90	12	7	5,5	3	374
48223170	10	1,25	100	12	7	5,5	3	374
48223176	11	1	90	12	8	6,2	3	374
48223182	12	1	100	14	9	7	4	374
48223181	12	1,25	100	14	9	7	4	374
48223180	12	1,5	100	14	9	7	4	374
48223194	14	1	100	16	11	9	4	374
48223193	14	1,25	100	16	11	9	4	374
48223192	14	1,5	100	16	11	9	4	374
48223204	16	1	100	16	12	9	4	374
48223203	16	1,5	100	16	12	9	4	374
48223218	18	1	110	20	14	11	4	374
48223216	18	1,5	110	20	14	11	4	374
48223232	20	1	125	20	16	12	4	374
48223230	20	1,5	125	20	16	12	4	374
48223220	20	2	140	20	16	12	4	374
48223241	22	1	125	20	18	14,5	4	374
48223240	22	1,5	125	20	18	14,5	4	374
48223239	22	2	140	20	18	14,5	4	374
48223251	24	1	140	20	18	14,5	4	374
48223250	24	1,5	140	24	18	14,5	4	374
48223249	24	2	140	24	18	14,5	4	374

S-SFT 6G

INDEX

Threading | Cutting taps | Metric Fine





- HSSE spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels
- For 6G internal thread tolerance

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
10-15	8-14	8-14	7-11	7-12	7-14	m/min

MF | HSSE | 0X | 40° | ISO 2 6G | C/2,5 | DIN 374

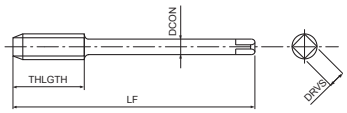
EDP	TD	TP	oversize	LF	THLGTH	DCON	DRVS	NOF	DIN
48269156	6	0,75	0.022	80	8	4,5	3,4	3	374
48269163	8	0,75	0.022	80	8	6	4,9	3	374
48269162	8	1	0.026	90	10	6	4,9	3	374
48269171	10	1	0.026	90	10	7	5,5	3	374
48269170	10	1,25	0.028	100	12	7	5,5	3	374
48269182	12	1	0.026	100	12	9	7	4	374
48269181	12	1,25	0.028	100	12	9	7	4	374
48269180	12	1,5	0.032	100	14	9	7	4	374
48269192	14	1,5	0.032	100	16	11	9	4	374
48269203	16	1,5	0.032	100	16	12	9	4	374
48269216	18	1,5	0.032	110	16	14	11	4	374
48269230	20	1,5	0.032	125	16	16	12	4	374
48269240	22	1,5	0.032	125	16	18	14,5	4	374
48269250	24	1,5	0.032	140	16	18	14,5	4	374

S-SFT FORM E

INDEX

Threading | Cutting taps | Metric Fine





- Powder metal spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels
- Form E chamfer

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
10-15	8-14	8-14	7-11	7-12	7-14	m/min

MF | HSSE | 0X | 40° | ISO 2 6H | E/1,5 | DIN 374

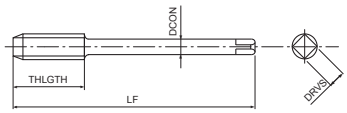
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
48268139	3	0,35	56	4	2,2	-	3	374
48268145	4	0,5	63	5,6	2,8	2,1	3	374
48268151	5	0,5	70	6,4	3,5	2,7	3	374
48268157	6	0,5	80	8	4,5	3,4	3	374
48268156	6	0,75	80	8	4,5	3,4	3	374
48268163	8	0,75	80	10	6	4,9	3	374
48268162	8	1	90	10	6	4,9	3	374
48268167	9	1	90	10	7	5,5	3	374
48268172	10	0,75	90	12	7	5,5	3	374
48268171	10	1	90	12	7	5,5	3	374
48268170	10	1,25	100	12	7	5,5	3	374
48268176	11	1	90	12	8	6,2	3	374
48268182	12	1	100	14	9	7	4	374
48268181	12	1,25	100	14	9	7	4	374
48268180	12	1,5	100	14	9	7	4	374
48268194	14	1	100	16	11	9	4	374
48268193	14	1,25	100	16	11	9	4	374
48268192	14	1,5	100	16	11	9	4	374
48268204	16	1	100	16	12	9	4	374
48268203	16	1,5	100	16	12	9	4	374
48268218	18	1	110	20	14	11	4	374
48268216	18	1,5	110	20	14	11	4	374
48268232	20	1	125	20	16	12	4	374
48268230	20	1,5	125	20	16	12	4	374
48268220	20	2	140	20	16	12	4	374
48268241	22	1	125	20	18	14,5	4	374
48268240	22	1,5	125	20	18	14,5	4	374
48268239	22	2	140	20	18	14,5	4	374
48268251	24	1	140	20	18	14,5	4	374
48268250	24	1,5	140	24	18	14,5	4	374
48268249	24	2	140	24	18	14,5	4	374

VA-SFT

INDEX

Threading | Cutting taps | Metric Fine





- HSSE spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
10-15	8-14	8-14	7-11	7-12	7-14	m/min

MF | HSSE | 0X | 40° | ISO 2 6H | C/2,5 | DIN 374

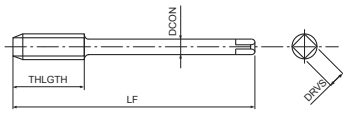
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
65513960	3	0,35	56	4	2,2	-	3	374
65514560	4	0,5	63	6	2,8	2,1	3	374
65515160	5	0,5	70	7	3,5	2,7	3	374
65515760	6	0,5	80	8	4,5	3,4	3	374
65515660	6	0,75	80	8	4,5	3,4	3	374
65516360	8	0,75	80	10	6	4,9	3	374
65516260	8	1	90	10	6	4,9	3	374
65517160	10	1	90	12	7	5,5	4	374
65517060	10	1,25	100	12	7	5,5	4	374
65518260	12	1	100	14	9	7	4	374
65518160	12	1,25	100	14	9	7	4	374
65518060	12	1,5	100	14	9	7	4	374
65519260	14	1,5	100	16	11	9	4	374
65520360	16	1,5	100	16	12	9	5	374
65521660	18	1,5	110	20	14	11	5	374
65523060	20	1,5	125	20	16	12	5	374
65524060	22	1,5	125	20	18	14,5	5	374
65525060	24	1,5	140	24	18	14,5	5	374

Z-SFT

INDEX

Threading | Cutting taps | Metric Fine





- Powder metal spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in general steels and stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
10-25	10-25	10-25	8-20	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC
5-10	8-15

MF	PM	V	50°	ISO 2 6H	C/2,5		DIN 374

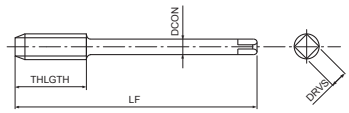
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
48029139	3	0,35	56	4	2,2	-	3	374
48029145	4	0,5	63	6	2,8	2,1	3	374
48029151	5	0,5	70	7	3,5	2,7	3	374
48029157	6	0,5	80	8	4,5	3,4	3	374
48029156	6	0,75	80	8	4,5	3,4	3	374
48029163	8	0,75	80	10	6	4,9	3	374
48029162	8	1	90	10	6	4,9	3	374
48029171	10	1	90	12	7	5,5	4	374
48029170	10	1,25	100	12	7	5,5	4	374
48029182	12	1	100	14	9	7	4	374
48029180	12	1,25	100	14	9	7	4	374
48029176	12	1,5	100	14	9	7	4	374
48029192	14	1,5	100	16	11	9	4	374
48029203	16	1,5	100	16	12	9	5	374
48029216	18	1,5	110	20	14	11	5	374
48029230	20	1,5	125	20	16	12	5	374
48029240	22	1,5	125	20	18	14,5	5	374
48029250	24	1,5	140	24	18	14,5	5	374

SFT

INDEX

Threading | Cutting taps | Metric Fine





- HSSE spiral-fluted cutting tap for blind holes
- Bright finish
- For general purpose applications

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	K GGG	N Al	N AC, ADC	
8-13	7-12	7-12	6-9	6-8	10-20	10-15	m/min

MF	HSSE	40°	ISO 2 6H	C/2,5		DIN 374

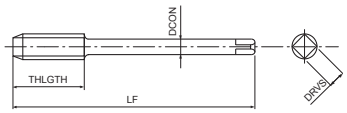
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
61214560	4	0,5	63	6	2,8	2,1	3	374
61215160	5	0,5	70	7	3,5	2,7	3	374
61215660	6	0,75	80	8	4,5	3,4	3	374
61216360	8	0,75	80	10	6	4,9	3	374
61216260	8	1	90	10	6	4,9	3	374
61217260	10	0,75	90	12	7	5,5	3	374
61217160	10	1	90	12	7	5,5	3	374
61217060	10	1,25	100	12	7	5,5	3	374
61218260	12	1	100	14	9	7	3	374
61218160	12	1,25	100	14	9	7	3	374
61218060	12	1,5	100	14	9	7	3	374
61219460	14	1	100	11	11	9	3	374
61219360	14	1,25	100	15	11	9	3	374
61219260	14	1,5	100	16	11	9	3	374
61220460	16	1	100	12	12	9	3	374
61220360	16	1,5	100	16	12	9	3	374
61221860	18	1	110	13	14	11	4	374
61221660	18	1,5	110	20	14	11	4	374
61221560	18	2	125	20	14	11	4	374
61223260	20	1	125	20	16	12	4	374
61223060	20	1,5	125	20	16	12	4	374
61222960	20	2	140	20	16	12	4	374
61224060	22	1,5	125	20	18	14,5	4	374
61223960	22	2	140	20	18	14,5	4	374
61225060	24	1,5	140	20	18	14,5	4	374
61224960	24	2	140	20	18	14,5	4	374
61227360	30	2	150	22	22	18	4	374

M-SFT-DUPLEX

INDEX

Threading | Cutting taps | Metric Fine





- Powder metal spiral-fluted cutting tap for blind holes
- TiN coating
- For stainless steels, Duplex, Super Duplex

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	S Inconel 625	S Ti Gr.2	
				3-15 Super Duplex	2-3 15-5 PH	3-6 17-4 PH	m/min

MF	PM	TiN	50°	ISO 2 6HX	C/2,5		
DIN 374							

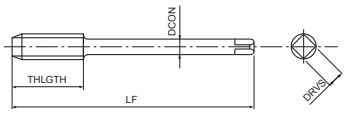
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	Type	DIN
48336157	6	0,5	80	8	4,5	3,4	3	2	374
48336156	6	0,75	80	8	4,5	3,4	3	2	374
48336163	8	0,75	80	10	6	4,9	3	2	374
48336162	8	1	90	10	6	4,9	3	2	374
48336171	10	1	90	12	7	5,5	4	2	374
48336170	10	1,25	100	12	7	5,5	4	2	374
48336182	12	1	100	14	9	7	4	2	374
48336181	12	1,25	100	14	9	7	4	2	374
48336180	12	1,5	100	14	9	7	4	2	374
48336192	14	1,5	100	16	11	9	4	2	374
48336203	16	1,5	100	16	12	9	4	2	374
48336216	18	1,5	110	20	14	11	4	2	374
48336230	20	1,5	125	20	16	12	4	2	374
48336240	22	1,5	125	20	18	14,5	4	2	374
48336250	24	1,5	140	24	18	14,5	4	2	374

M-OIL-SFT-DUPLEX

INDEX

Threading | Cutting taps | Metric Fine





- Powder metal spiral-fluted cutting tap for blind holes
- TiN coating
- For stainless steels, Duplex, Super Duplex
- Centre through coolant

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	S Inconel 625	S Ti Gr.2	
				3-15 Super Duplex	2-3 15-5 PH	3-6 17-4 PH	m/min

MF	PM	TiN	50°	ISO 2 6HX	C/2,5		
	DIN 374						

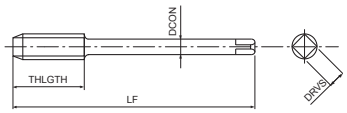
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	Type	DIN
48380162	8	1	90	10	6	4,9	3	2	374
48380171	10	1	90	12	7	5,5	4	2	374
48380170	10	1,25	100	12	7	5,5	4	2	374
48380180	12	1,5	100	14	9	7	4	2	374
48380192	14	1,5	100	16	11	9	4	2	374
48380203	16	1,5	100	16	12	9	4	2	374
48380216	18	1,5	110	20	14	11	4	2	374
48380230	20	1,5	125	20	16	12	4	2	374

CC-SFT

INDEX

Threading | Cutting taps | Metric Fine





- HSSE spiral-fluted cutting tap for blind holes
- CrN coating
- For general steels, stainless steels and aluminium
- Developed for rigid tapping on CNC machines

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	
15-25	15-25	10-25	10-25	6-10	15-35	m/min

MF | HSSE | CrN | 45° | ISO 2 6HX | C/2,5 | ≥2D | DIN 374

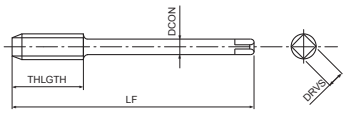
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
48032157	6	0,5	80	7,2	4,5	3,4	3	374
48032156	6	0,75	80	7,2	4,5	3,4	3	374
48032163	8	0,75	80	9	6	4,9	3	374
48032162	8	1	90	9	6	4,9	3	374
48032171	10	1	90	11	7	5,5	4	374
48032170	10	1,25	100	11	7	5,5	4	374
48032182	12	1	100	13	9	7	4	374
48032181	12	1,25	100	13	9	7	4	374
48032180	12	1,5	100	13	9	7	4	374
48032192	14	1,5	100	14	11	9	4	374
48032203	16	1,5	100	14	12	9	4	374
48032216	18	1,5	110	18	14	11	4	374
48032230	20	1,5	125	18	16	12	4	374
48032240	22	1,5	125	18	18	14,5	4	374
48032250	24	1,5	140	22	18	14,5	4	374

SUS-SFT

INDEX

Threading | Cutting taps | Metric Fine





- HSSE high spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- For stainless steels

M INOX	
6-10	m/min

MF | HSSE | 0X | 50° | ISO 2 6HX | C/2,5 | <1,5D | DIN 374

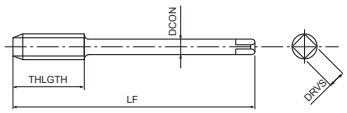
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
48027163	8	0,75	80	10	6	4,9	3	374
48027162	8	1	90	10	6	4,9	3	374
48027171	10	1	90	12	7	5,5	3	374
48027170	10	1,25	100	12	7	5,5	3	374
48027182	12	1	100	9	9	7	3	374
48027181	12	1,25	100	14	9	7	3	374
48027180	12	1,5	100	14	9	7	3	374
48027192	14	1,5	100	16	11	9	3	374
48027203	16	1,5	100	16	12	9	3	374
48027216	18	1,5	110	20	14	11	4	374
48027230	20	1,5	125	20	16	12	4	374
48027240	22	1,5	125	20	18	14,5	4	374
48027250	24	1,5	140	24	18	14,5	4	374

AL-SFT

INDEX

Threading | Cutting taps | Metric Fine





- HSSE spiral-fluted cutting tap for blind holes
- Bright finish
- For aluminium and cast aluminium

N Al	N AC, ADC	
10-20	10-15	m/min

MF | HSSE | 50° | ISO 2 6H | C/2,5 | DIN 374

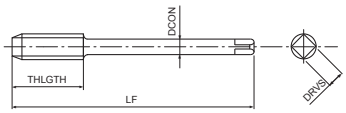
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
70416260	8	1	90	10	6	4,9	2	374
70417160	10	1	90	12	7	5,5	2	374
70417060	10	1,25	100	12	7	5,5	2	374
70418260	12	1	100	14	9	7	2	374
70418160	12	1,25	100	14	9	7	2	374
70418060	12	1,5	100	14	9	7	2	374

H-SFT

INDEX

Threading | Cutting taps | Metric Fine





- Powder metal low spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- For hardened steels up to 45 HRC

P C ≥ 0,45%	P SCM	K GGG	S Ti	S Ni	H 25-35 HRC	H 35-45 HRC	
7-12	7-12	7-12	3-5	1-3	4-8	4-8	m/min

MF | PM | 0X | 15° | ISO 2 6H | C/3 | DIN 374

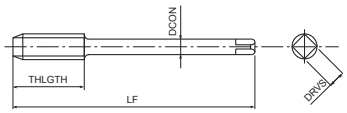
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
83214060	3	0,35	56	4	2,2	-	3	374
83214560	4	0,5	63	6	2,8	2,1	3	374
83215160	5	0,5	70	7	3,5	2,7	3	374
83215760	6	0,5	80	8	4,5	3,4	3	374
83215660	6	0,75	80	8	4,5	3,4	3	374
83216360	8	0,75	80	10	6	4,9	3	374
83216260	8	1	90	10	6	4,9	3	374
83217160	10	1	90	12	7	5,5	4	374
83217060	10	1,25	100	12	7	5,5	4	374
83218260	12	1	100	14	9	7	4	374
83218160	12	1,25	100	14	9	7	4	374
83218060	12	1,5	100	14	9	7	4	374
83219260	14	1,5	100	16	11	9	5	374
83220360	16	1,5	100	16	12	9	5	374
83221660	18	1,5	110	20	14	11	5	374
83223060	20	1,5	125	20	16	12	5	374
83224060	22	1,5	125	20	18	14,5	5	374
83225060	24	1,5	140	24	18	14,5	5	374

VP-DC-MT

INDEX

Threading | Cutting taps | Metric Fine





- Powder metal straight flute cutting tap for through and blind holes
- Multilayer TiCN coating
- For cast iron and cast aluminium
- Synchro taps at cutting speeds > 30 m/min

P ○	P ○	K ◉	K ◉	N ◉	H ○	H ○	
C ≥ 0,45%	SCM	GG	GGG	AC, ADC	25-35 HRC	35-45 HRC	
10-25	10-20	15-60	15-40	25-70	8-20	8-20	m/min

MF | PM | V | ISO 2 6HX | C/2,5 | | | DIN 374

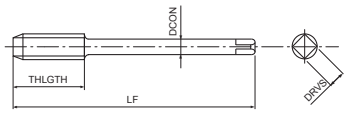
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	LH	DIN
48023140	3	0,35	56	6	2,2	-	3	-	374
48023145	4	0,5	63	9	2,8	2,1	3	25	374
48023151	5	0,5	70	10	3,5	2,7	3	28	374
48023157	6	0,5	80	12	4,5	3,4	3	32	374
48023156	6	0,75	80	12	4,5	3,4	3	32	374
48023163	8	0,75	80	15	6	4,9	4	32	374
48023162	8	1	90	15	6	4,9	4	36	374
48023171	10	1	90	18	7	5,5	4	36	374
48023170	10	1,25	100	18	7	5,5	4	40	374
48023182	12	1	100	21	9	7	4	40	374
48023181	12	1,25	100	21	9	7	4	40	374
48023180	12	1,5	100	21	9	7	4	40	374
48023192	14	1,5	100	24	11	9	4	40	374
48023203	16	1,5	100	24	12	9	4	40	374
48023216	18	1,5	110	30	14	11	4	44	374
48023230	20	1,5	125	30	16	12	4	50	374
48023240	22	1,5	125	20	18	14,5	5	50	374
48023250	24	1,5	140	24	18	14,5	5	56	374

VPO-DC-MT Center

INDEX

Threading | Cutting taps | Metric Fine





- Powder metal straight flute cutting tap for blind holes
- Multilayer TiCN coating
- For cast iron and cast aluminium
- Synchro taps at cutting speeds > 30 m/min, with Centre through coolant

P ○	P ○	K ◉	K ◉	N ◉	H ○	H ○	
C ≥ 0,45%	SCM	GG	GGG	AC, ADC	25-35 HRC	35-45 HRC	
10-25	10-20	15-60	15-40	25-70	8-20	8-20	m/min

MF | PM | V | ISO 2 6HX | C/2,5 | ≥2D | | DIN 374

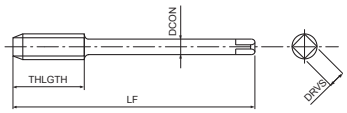
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	LH	DIN
48024162	8	1	90	15	6	4,9	4	36	374
48024171	10	1	90	18	7	5,5	4	36	374
48024170	10	1,25	100	18	7	5,5	4	40	374
48300181	12	1,25	100	21	9	7	4	40	374
48300180	12	1,5	100	21	9	7	4	40	374
48300192	14	1,5	100	24	11	9	4	40	374
48300203	16	1,5	100	24	12	9	4	40	374
48300216	18	1,5	110	30	14	11	4	44	374
48300230	20	1,5	125	30	16	12	4	50	374

VPO-DC-MT Side

INDEX

Threading | Cutting taps | Metric Fine





- Powder metal straight flute cutting tap for through holes
- Multilayer TiCN coating
- For cast iron and cast aluminium
- Synchro taps at cutting speeds > 30 m/min, with side through coolant

P C ≥ 0,45%	P SCM	K GG	K GGG	N AC, ADC	H 25-35 HRC	H 35-45 HRC	
10-25	10-20	15-60	15-40	25-70	8-20	8-20	m/min

MF | PM | V | ISO 2 6HX | C/2,5 | DIN 374

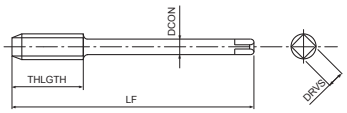
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	LH	DIN
48299162	8	1	90	15	6	4,9	4	36	374
48299171	10	1	90	18	7	5,5	4	36	374
48299170	10	1,25	100	18	7	5,5	4	40	374
48024181	12	1,25	100	21	9	7	4	40	374
48024180	12	1,5	100	21	9	7	4	40	374
48024192	14	1,5	100	24	11	9	4	40	374
48024203	16	1,5	100	24	12	9	4	40	374
48024216	18	1,5	110	30	14	11	4	44	374
48024230	20	1,5	125	30	16	12	4	50	374

A-CHT OIL Center

INDEX

Threading | Cutting taps | Metric Fine





- First choice in quality and performance
- Carbide straight flute cutting tap for blind holes
- TiAlN coating
- For cast iron and cast aluminium
- Centre through coolant

K GG	K GGG	N AC, ADC	
10-100	10-100	10-100	m/min

A | MF | CARBIDE | FX | h6 | ISO 2 6HX | C/2,5 | DIN 374

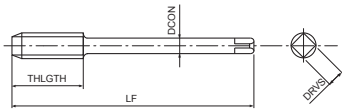
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48264171	10	1	90	18	7	5,5	4	374
48264182	12	1	100	21	9	7	4	374
48264180	12	1,5	100	21	9	7	4	374
48264192	14	1,5	100	24	11	9	4	374
48264203	16	1,5	100	24	12	9	4	374
48264230	20	1,5	125	30	16	12	4	374

A-CHT OIL Side

INDEX

Threading | Cutting taps | Metric Fine





- First choice in quality and performance
- Carbide straight flute cutting tap for through holes
- TiAlN coating
- For cast iron and cast aluminium
- Side through coolant

K GG	K GGG	N AC, ADC	
10-100	10-100	10-100	m/min

A	MF	CARBIDE	FX	h6	ISO 2 6HX	C/2,5
		DIN 374				

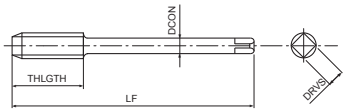
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
48265162	8	1	90	15	6	4,9	4	374
48265171	10	1	90	18	7	5,5	4	374
48265182	12	1	100	21	9	7	4	374
48265180	12	1,5	100	21	9	7	4	374
48265192	14	1,5	100	24	11	9	4	374
48265203	16	1,5	100	24	12	9	4	374
48265230	20	1,5	125	30	16	12	4	374

A-CHT OIL FORM E

INDEX

Threading | Cutting taps | Metric Fine





- First choice in quality and performance
- Carbide straight flute cutting tap for blind holes
- TiAlN coating
- For cast iron and cast aluminium
- Centre through coolant, Form E chamfer

K GG	K GGG	N AC, ADC	
10-100	10-100	10-100	m/min

A	MF	CARBIDE	FX	h6	ISO 2 6HX	E/1,5
		DIN 374				

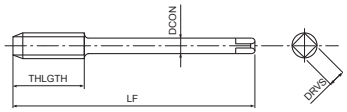
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
48263171	10	1	90	18	7	5,5	3	374
48263182	12	1	100	21	9	7	3	374
48263180	12	1,5	100	21	9	7	3	374
48263192	14	1,5	100	24	11	9	4	374
48263203	16	1,5	100	24	12	9	4	374

GG-MT

INDEX

Threading | Cutting taps | Metric Fine





- HSSE straight flute cutting tap for blind and through holes
- NiOx coating
- For cast iron

K GG	K GGG	
10-15	7-12	m/min

MF | HSSE | NI-OX | ISO 2 6HX | C/2,5 | DIN 374

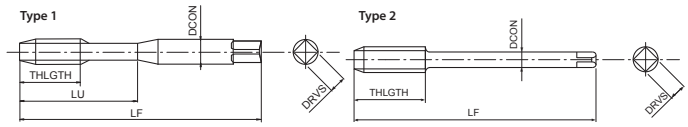
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
62113960	3	0,35	56	9	2,2	-	3	374
62114260	3,5	0,35	56	10	2,5	-	3	374
62114560	4	0,5	63	10	2,8	2,1	3	374
62115160	5	0,5	70	12	3,5	2,7	3	374
62115760	6	0,5	80	14	4,5	3,4	3	374
62115660	6	0,75	80	12	4,5	3,4	3	374
62116360	8	0,75	80	19	6	4,9	4	374
62116260	8	1	90	22	6	4,9	4	374
62117160	10	1	90	20	7	5,5	4	374
62117060	10	1,25	100	24	7	5,5	4	374
62118260	12	1	100	20	7	7	4	374
62118160	12	1,25	100	22	9	5	4	374
62118060	12	1,5	100	22	9	7	4	374
62119460	14	1	100	22	11	9	4	374
62119260	14	1,5	100	22	11	9	4	374
62120460	16	1	100	22	12	9	4	374
62120360	16	1,5	100	22	12	9	4	374
62121660	18	1,5	110	25	14	11	4	374
62121560	18	2	125	34	14	11	4	374
62123060	20	1,5	125	25	16	12	4	374
62124060	22	1,5	125	25	18	14,5	4	374
62125060	24	1,5	140	28	18	14,5	4	374

A-XPF

INDEX

Threading | Forming taps | Metric Fine





- First choice in quality and performance
- Powder metal forming tap for through & blind holes
- Multilayer TiCN coating
- High speed tapping in general steels and aluminium
- Powder metal for long tool life

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	N Al	N AC, ADC	H 25-35 HRC	
15-40	15-40	15-30	15-30	20-50	20-40	5-20	m/min

A | MF | PM | VI | ISO 2 6HX | C/2,5 | DIN 2174 | DIN 2174

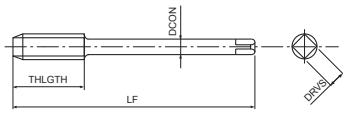
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48133145	4	0,5	63	8	21	4,5	3,4	5	3,77 ~ 3,82	1	2174
48133151	5	0,5	70	8	25	6	4,9	6	4,77 ~ 4,82	1	2174
48133157	6	0,5	80	8	30	6	4,9	6	5,79 ~ 5,83	1	2174
48133156	6	0,75	80	8	30	6	4,9	6	5,65 ~ 5,71	1	2174
48133160	7	0,75	80	8	30	7	5,5	6	6,65 ~ 6,71	1	2174
48133164	8	0,5	80	10	-	6	4,9	6	7,79 ~ 7,83	2	2174
48133163	8	0,75	80	10	-	6	4,9	6	7,65 ~ 7,71	2	2174
48133162	8	1	90	10	-	6	4,9	6	7,51 ~ 7,59	2	2174
48133171	10	1	90	12	-	7	5,5	8	9,51 ~ 9,59	2	2174
48133170	10	1,25	100	12	-	7	5,5	8	9,37 ~ 9,45	2	2174
48133182	12	1	100	15	-	9	7	9	11,52 ~ 11,60	2	2174
48133181	12	1,25	100	15	-	9	7	9	11,39 ~ 11,46	2	2174
48133180	12	1,5	100	15	-	9	7	9	11,25 ~ 11,34	2	2174
48133194	14	1	100	15	-	11	9	9	13,52 ~ 13,60	2	2174
48133193	14	1,25	100	12	-	11	9	9	13,39 ~ 13,46	2	2174
48133192	14	1,5	100	15	-	11	9	9	13,25 ~ 13,34	2	2174
48133204	16	1	100	15	-	12	9	9	15,52 ~ 15,60	2	2174
48133203	16	1,5	100	15	-	12	9	9	15,25 ~ 15,34	2	2174
48133218	18	1	110	15	-	14	11	8	17,52 ~ 17,60	2	2174
48133216	18	1,5	110	15	-	14	11	8	17,25 ~ 17,34	2	2174
48133232	20	1	125	15	-	16	12	8	19,52 ~ 19,60	2	2174
48133230	20	1,5	125	15	-	16	12	8	19,25 ~ 19,34	2	2174
48133240	22	1,5	125	15	-	18	14,5	8	21,25 ~ 21,34	2	2174
48133250	24	1,5	140	15	-	18	14,5	8	23,25 ~ 23,34	2	2174

A-OIL-XPF

INDEX

Threading | Forming taps | Metric Fine **NEW SIZES**





- First choice in quality and performance
- Powder metal forming tap for through & blind holes
- Multilayer TiCN coating
- High speed tapping in general steels and aluminium
- Side through coolant

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	N Al	N AC, ADC	H 25-35 HRC	
15-40	15-40	15-30	15-30	20-50	20-40	5-20	m/min

A	MF	PM	V	ISO 2 6HX	C/2,5	
		DIN 2174				

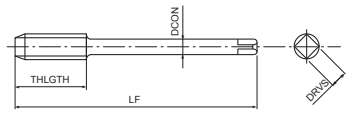
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	PHD	DIN
48225162	8	1	90	10	6	4,9	5	7,51 ~ 7,59	2174
48225171	10	1	90	12	7	5,5	8	9,51 ~ 9,59	2174
48225170	10	1,25	100	12	7	5,5	8	9,37 ~ 9,45	2174
48225182	12	1	100	15	9	7	8	11,52 ~ 11,60	2174
48225181	12	1,25	100	15	9	7	8	11,39 ~ 11,46	2174
48225180	12	1,5	100	15	9	7	8	11,25 ~ 11,34	2174
48225194 NEW	14	1	100	15	11	9	9	13,52 ~ 13,60	2174
48225193	14	1,25	100	12	11	9	8	13,39 ~ 13,46	2174
48225192	14	1,5	100	15	11	9	8	13,25 ~ 13,34	2174
48225204 NEW	16	1	100	15	12	9	9	15,52 ~ 15,60	2174
48225203	16	1,5	100	15	12	9	8	15,25 ~ 15,34	2174
48225218 NEW	18	1	110	15	14	11	9	17,52 ~17,60	2174
48225216	18	1,5	110	15	14	11	8	17,25 ~ 17,34	2174
48225232 NEW	20	1	125	15	16	12	9	19,52 ~ 19,60	2174
48225230	20	1,5	125	15	16	12	8	19,25 ~ 19,34	2174
48225240	22	1,5	125	15	18	14,5	8	21,25 ~ 21,34	2174
48225250	24	1,5	140	15	18	14,5	8	23,25 ~ 23,34	2174

A-XPF 6GX

INDEX

Threading | Forming taps | Metric Fine **NEW**





- First choice in quality and performance
- Powder metal forming tap for through & blind holes
- Multilayer VI coating
- High speed tapping in general steels and aluminium
- For 6G internal thread tolerance

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	N Al	N AC, ADC	H 25-35 HRC	
15-40	15-40	15-30	15-30	20-50	20-40	5-20	m/min

A	MF	PM	VI	ISO 3 6GX	C/2,5	
	DIN 2174	DIN 374				

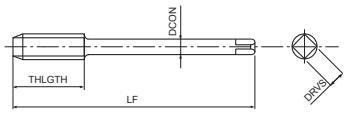
EDP	TD	TP	oversize	LF	THLGTH	DCON	DRVS	NOF	PHD	DIN
48434162	8	1	0.026	90	10	6	4,9	6	7,55 ~ 7,62	2174
48434171	10	1	0.026	90	12	7	5,5	8	9,54 ~ 9,62	2174
48434182	12	1	0.026	100	15	9	7	9	11,55 ~ 11,63	2174
48434181	12	1,25	0.028	100	15	9	7	9	11,41 ~ 11,49	2174
48434180	12	1,5	0.032	100	15	9	7	9	11,27 ~ 11,36	2174
48434192	14	1,5	0.032	100	15	11	9	9	13,27 ~ 13,36	2174
48434203	16	1,5	0.032	100	15	12	9	9	15,27 ~ 15,36	2174
48434216	18	1,5	0.032	110	15	14	11	9	17,27 ~ 17,36	2174
48434230	20	1,5	0.032	125	15	16	12	9	19,27 ~ 19,36	2174

A-XPF FORM E

INDEX

Threading | Forming taps | Metric Fine





- First choice in quality and performance
- Powder metal forming tap for through & blind holes
- Multilayer VI coating
- High speed tapping in general steels and aluminium
- Form E chamfer

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	N Al	N AC, ADC	H 25-35 HRC	
15-40	15-40	15-30	15-30	20-50	20-40	5-20	m/min

A	MF	PM	VI	ISO 2 6HX	E/1,5	
	DIN 2174	DIN 374				

EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	PHD	DIN
48436171	10	1	90	12	7	5,5	8	9,51 ~ 9,59	2174
48436180	12	1,5	100	15	9	7	9	11,25 ~ 11,34	2174
48436192	14	1,5	100	15	11	9	9	13,25 ~ 13,34	2174
48436203	16	1,5	100	15	12	9	9	15,25 ~ 15,34	2174

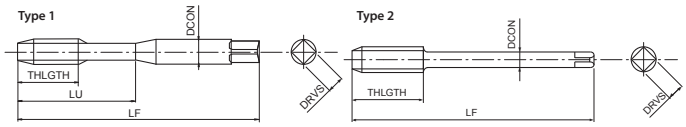
S-XPF

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NEW

Threading | Forming taps | Metric Fine





- First choice in quality and performance
- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC
5-20

A	MF	HSS-Co	V	ISO 2 6HX	C/2,5	
	DIN 2174	DIN 2174				

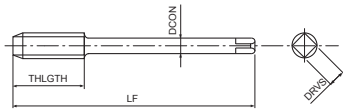
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48030145	4	0,5	63	8	21	4,5	3,4	4	3,77 ~ 3,82	1	2174
48030151	5	0,5	70	8	25	6	4,9	5	4,77 ~ 4,82	1	2174
48030157	6	0,5	80	8	30	6	4,9	5	5,79 ~ 5,83	1	2174
48030156	6	0,75	80	8	30	6	4,9	5	5,65 ~ 5,71	1	2174
48030160	7	0,75	80	8	30	7	5,5	5	6,65 ~ 6,71	1	2174
48030164	8	0,5	80	10	-	6	4,9	5	7,79 ~ 7,83	2	2174
48030163	8	0,75	80	10	-	6	4,9	5	7,65 ~ 7,71	2	2174
48030162	8	1	90	10	-	6	4,9	5	7,51 ~ 7,59	2	2174
48030171	10	1	90	12	-	7	5,5	8	9,51 ~ 9,59	2	2174
48030170	10	1,25	100	12	-	7	5,5	8	9,37 ~ 9,45	2	2174
48030182	12	1	100	15	-	9	7	8	11,52 ~ 11,60	2	2174
48030181	12	1,25	100	15	-	9	7	8	11,39 ~ 11,46	2	2174
48030180	12	1,5	100	15	-	9	7	8	11,25 ~ 11,34	2	2174
48030194	14	1	100	15	-	11	9	8	13,52 ~ 13,60	2	2174
48030193	14	1,25	100	15	-	11	9	8	13,39 ~ 13,46	2	2174
48030192	14	1,5	100	15	-	11	9	8	13,25 ~ 13,34	2	2174
48030204	16	1	100	15	-	12	9	8	15,52 ~ 15,60	2	2174
48030203	16	1,5	100	15	-	12	9	8	15,25 ~ 15,34	2	2174
48030218	18	1	110	15	-	14	11	8	17,52 ~ 17,60	2	2174
48030216	18	1,5	110	15	-	14	11	8	17,25 ~ 17,34	2	2174
48030232	20	1	125	15	-	16	12	8	19,52 ~ 19,60	2	2174
48030230	20	1,5	125	15	-	16	12	8	19,25 ~ 19,34	2	2174
48030240	22	1,5	125	15	-	18	14,5	8	21,25 ~ 21,34	2	2174
48030250	24	1,5	140	15	-	18	14,5	8	23,25 ~ 23,34	2	2174

S-OIL-XPF

INDEX

Threading | Forming taps | Metric Fine





- First choice in quality and performance
- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- Side through coolant

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min
H 25-35 HRC							
5-20							

A	MF	HSS-Co	V	ISO 2 6HX	C/2,5	
		DIN 2174				

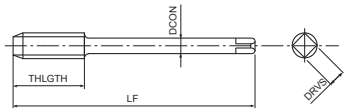
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	PHD	DIN
48042162	8	1	90	10	6	4,9	5	7,51 ~ 7,59	2174
48042171	10	1	90	12	7	5,5	8	9,51 ~ 9,59	2174
48042170	10	1,25	100	12	7	5,5	8	9,37 ~ 9,45	2174
48042182	12	1	100	15	9	7	8	11,52 ~ 11,60	2174
48042181	12	1,25	100	15	9	7	8	11,39 ~ 11,46	2174
48042180	12	1,5	100	15	9	7	8	11,25 ~ 11,34	2174
48042194	14	1	100	15	11	9	8	13,52 ~ 13,60	2174
48042193	14	1,25	100	12	11	9	8	13,39 ~ 13,46	2174
48042192	14	1,5	100	15	11	9	8	13,25 ~ 13,34	2174
48042204	16	1	100	15	12	9	8	15,52 ~ 15,60	2174
48042203	16	1,5	100	15	12	9	8	15,25 ~ 15,34	2174
48042218	18	1	110	15	14	11	8	17,52 ~ 17,60	2174
48042216	18	1,5	110	15	14	11	8	17,25 ~ 17,34	2174
48042232	20	1	125	15	16	12	8	19,52 ~ 19,60	2174
48071230	20	1,5	125	15	16	12	8	19,25 ~ 19,34	2174
48071240	22	1,5	125	15	18	14,5	8	21,25 ~ 21,34	2174
48071250	24	1,5	140	15	18	14,5	8	23,25 ~ 23,34	2174

S-XPF 6GX

INDEX

Threading | Forming taps | Metric Fine





- First choice in quality and performance
- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- For 6G internal thread tolerance

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min
H 25-35 HRC							
5-20							

A	MF	HSS-Co	V	ISO 3 6GX	C/2,5	
	DIN 2174					

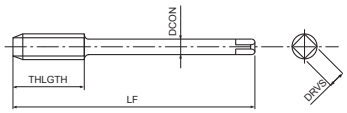
EDP	TD	TP	oversize	LF	THLGTH	DCON	DRVS	NOF	PHD	DIN
48086162	8	1	0.026	90	10	6	4,9	5	7,55 ~ 7,62	2174
48086171	10	1	0.026	90	12	7	5,5	8	9,54 ~ 9,62	2174
48086170	10	1,25	0.028	100	12	7	5,5	8	9,40 ~ 9,47	2174
48086182	12	1	0.026	100	15	9	7	8	11,55 ~ 11,63	2174
48086181	12	1,25	0.028	100	15	9	7	8	11,41 ~ 11,49	2174
48086180	12	1,5	0.032	100	15	9	7	8	11,27 ~ 11,36	2174
48086193	14	1,25	0.028	100	15	11	9	8	13,41 ~ 13,49	2174
48086192	14	1,5	0.032	100	15	11	9	8	13,27 ~ 13,36	2174
48086203	16	1,5	0.032	100	15	12	9	8	15,27 ~ 15,36	2174
48086216	18	1,5	0.032	110	15	14	11	8	17,27 ~ 17,36	2174
48086230	20	1,5	0.032	125	15	16	12	8	19,27 ~ 19,36	2174
48086240	22	1,5	0.032	125	15	18	14,5	8	21,27 ~ 21,36	2174
48086250	24	1,5	0.032	140	15	18	14,5	8	23,29 ~ 23,38	2174

S-OIL-XPF 6GX

INDEX

Threading | Forming taps | Metric Fine





- First choice in quality and performance
- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- For 6G internal thread tolerance, side through coolant

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC
5-20

A	MF	HSS-Co	V	ISO 3 6GX	C/2,5		
		DIN 2174					

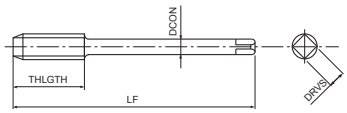
EDP	TD	TP	oversize	LF	THLGTH	DCON	DRVS	NOF	PHD	DIN
48293162	8	1	0.026	90	10	6	4,9	5	7,54 ~ 7,62	2174
48293171	10	1	0.026	90	12	7	5,5	8	9,54 ~ 9,62	2174
48293170	10	1,25	0.028	100	12	7	5,5	8	9,40 ~ 9,47	2174
48293182	12	1	0.026	100	15	9	7	8	11,55 ~ 11,63	2174
48293181	12	1,25	0.028	100	15	9	7	8	11,41 ~ 11,49	2174
48293180	12	1,5	0.032	100	15	9	7	8	11,27 ~ 11,36	2174
48293193	14	1,25	0.028	100	15	11	9	8	13,41 ~ 13,49	2174
48293192	14	1,5	0.032	100	15	11	9	8	13,27 ~ 13,36	2174
48293203	16	1,5	0.032	100	15	12	9	8	15,27 ~ 15,36	2174
48293216	18	1,5	0.032	110	15	14	11	8	17,27 ~ 17,36	2174
48293230	20	1,5	0.032	125	15	16	12	8	19,27 ~ 19,36	2174
48293240	22	1,5	0.032	125	15	18	14,5	8	21,27 ~ 21,36	2174
48293250	24	1,5	0.032	140	15	18	14,5	8	23,29 ~ 23,38	2174

S-XPF FORM D

INDEX

Threading | Forming taps | Metric Fine





- First choice in quality and performance
- HSSE forming tap for through holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- Chamfer Form D

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC
5-20

A	MF	HSS-Co	V	ISO 2 6HX	D/4		
		DIN 2174					

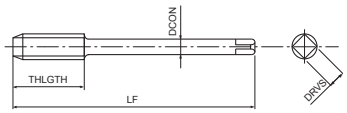
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	PHD	DIN
48088162	8	1	90	10	6	4,9	5	7,51 ~ 7,59	2174
48088171	10	1	90	12	7	5,5	8	9,51 ~ 9,59	2174
48088170	10	1,25	100	12	7	5,5	8	9,37 ~ 9,45	2174
48088182	12	1	100	15	9	7	8	11,52 ~ 11,60	2174
48088181	12	1,25	100	15	9	7	8	11,39 ~ 11,46	2174
48088180	12	1,5	100	15	9	7	8	11,25 ~ 11,34	2174
48088192	14	1,5	100	15	11	9	8	13,25 ~ 13,34	2174
48088203	16	1,5	100	15	12	9	8	15,25 ~ 15,34	2174
48088216	18	1,5	110	15	14	11	8	17,25 ~ 17,34	2174
48088230	20	1,5	125	15	16	12	8	19,25 ~ 19,34	2174

S-XPF FORM E

INDEX

Threading | Forming taps | Metric Fine





- First choice in quality and performance
- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- Chamfer Form E

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC
5-20

A | MF | HSS-Co | V | ISO 2 6HX | E/1,5 | DIN 2174

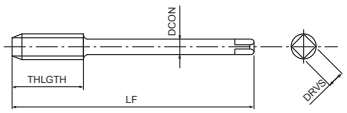
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	PHD	DIN
48089171	10	1	90	12	7	5,5	8	9,51 ~ 9,59	2174
48089180	12	1,5	100	15	9	7	8	11,25 ~ 11,34	2174
48089192	14	1,5	100	15	11	9	8	13,25 ~ 13,34	2174
48089203	16	1,5	100	15	12	9	8	15,25 ~ 15,34	2174

S-OIL-XPF FORM E

INDEX

Threading | Forming taps | Metric Fine





- First choice in quality and performance
- HSSE forming tap for blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- Centre through coolant, chamfer Form E

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC
5-20

A | MF | HSS-Co | V | ISO 2 6HX | E/1,5 | DIN 2174

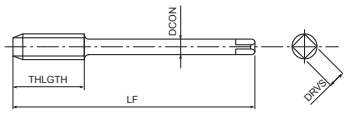
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	PHD	DIN
48294162	8	1	90	10	6	4,9	5	7,51 ~ 7,59	2174
48294171	10	1	90	10	7	5,5	8	9,51 ~ 9,59	2174
48294170	10	1,25	100	12	7	5,5	8	9,37 ~ 9,45	2174
48294182	12	1	100	15	9	7	8	11,52 ~ 11,60	2174
48294181	12	1,25	100	15	9	7	8	11,39 ~ 11,46	2174
48294180	12	1,5	100	15	9	7	8	11,25 ~ 11,34	2174
48294193	14	1,25	100	15	11	9	8	13,39 ~ 13,46	2174
48294192	14	1,5	100	15	11	9	8	13,25 ~ 13,34	2174
48294203	16	1,5	100	15	12	9	8	15,25 ~ 15,34	2174
48294216	18	1,5	110	15	14	11	8	17,25 ~ 17,34	2174
48294230	20	1,5	125	15	16	12	8	19,25 ~ 19,34	2174
48294240	22	1,5	125	15	18	14,5	8	21,25 ~ 21,34	2174
48294250	24	1,5	140	15	18	14,5	8	23,25 ~ 23,34	2174

S-OIL-LT-XPF

INDEX

Threading | Forming taps | Metric Fine





- First choice in quality and performance
- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- With long shank for long reach threading, side through coolant

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC
5-20

A	MF	HSS-Co	V	ISO 2 6HX	C/2,5	
		DIN 2174				

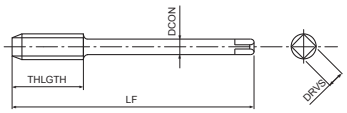
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	PHD
48295162	8	1	180	10	6	4,9	5	7,51 ~ 7,59
48295171	10	1	200	12	7	5,5	8	9,51 ~ 9,59
48295170	10	1,25	200	12	7	5,5	8	9,37 ~ 9,45
48295182	12	1	200	15	9	7	8	11,52 ~ 11,60
48295181	12	1,25	200	15	9	7	8	11,39 ~ 11,46
48295180	12	1,5	200	15	9	7	8	11,25 ~ 11,34
48295193	14	1,25	220	15	11	9	8	13,39 ~ 13,46
48295192	14	1,5	220	15	11	9	8	13,25 ~ 13,34

S-XPF-GL

INDEX

Threading | Forming taps | Metric Fine





- First choice in quality and performance
- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- Without oil grooves for higher rigidity

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC
5-20

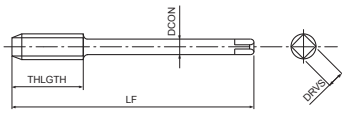
A	MF	HSS-Co	V	ISO 2 6HX	C/2,5	
	DIN 2174					

EDP	TD	TP	LF	THLGTH	DCON	DRVS	PHD	DIN
48296162	8	1	90	10	6	4,9	7,51 ~ 7,59	2174
48296171	10	1	90	10	7	5,5	9,51 ~ 9,59	2174
48296170	10	1,25	100	12	7	5,5	9,37 ~ 9,45	2174
48296182	12	1	100	12	9	7	11,52 ~ 11,60	2174
48296181	12	1,25	100	12	9	7	11,39 ~ 11,46	2174
48296180	12	1,5	100	15	9	7	11,25 ~ 11,34	2174
48296193	14	1,25	100	16	11	9	13,39 ~ 13,46	2174
48296192	14	1,5	100	16	11	9	13,25 ~ 13,34	2174
48296203	16	1,5	100	15	12	9	15,25 ~ 15,34	2174
48296216	18	1,5	110	15	14	11	17,25 ~ 17,34	2174
48296230	20	1,5	125	15	16	12	19,25 ~ 19,34	2174
48296240	22	1,5	125	15	18	14,5	21,25 ~ 21,34	2174
48296250	24	1,5	140	15	18	14,5	23,25 ~ 23,34	2174

S-XPF-GL 6GX

Threading | Forming taps | Metric Fine





- First choice in quality and performance
- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- Without oil grooves for higher rigidity, for 6G internal thread tolerance

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC
5-20

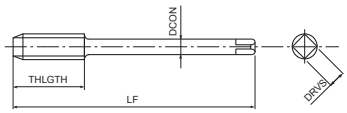
A	MF	HSS-Co	V	ISO 3 6GX	C/2,5		
	DIN 2174						

EDP	TD	TP	oversize	LF	THLGTH	DCON	DRVS	PHD	DIN
48297162	8	1	0.026	90	10	6	4,9	7,54 ~ 7,62	2174
48297171	10	1	0.026	90	10	7	5,5	9,54 ~ 9,62	2174
48297170	10	1,25	0.028	100	12	7	5,5	9,40 ~ 9,47	2174
48297182	12	1	0.026	100	12	9	7	11,55 ~ 11,63	2174
48297181	12	1,25	0.028	100	12	9	7	11,41 ~ 11,49	2174
48297180	12	1,5	0.032	100	15	9	7	11,27 ~ 11,36	2174
48297193	14	1,25	0.028	100	16	11	9	13,41 ~ 13,49	2174
48297192	14	1,5	0.032	100	16	11	9	13,27 ~ 13,36	2174
48297203	16	1,5	0.032	100	15	12	9	15,27 ~ 15,36	2174
48297216	18	1,5	0.032	110	15	14	11	17,27 ~ 17,36	2174
48297230	20	1,5	0.032	125	15	16	12	19,27 ~ 19,36	2174
48297240	22	1,5	0.032	125	15	18	14,5	21,27 ~ 21,36	2174
48297250	24	1,5	0.032	140	15	18	14,5	23,29 ~ 23,38	2174

P-OIL-CXPF

Threading | Forming taps | Metric Fine





- Carbide forming tap for blind holes
- EgiAs coating
- For general steels and hardened steels
- With centre through coolant

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	N Cu	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	15-30	20-50	20-40	m/min

H 25-35 HRC	H ~40 HRC	H ~45 HRC
5-20	5-20	5-20

MF	CARBIDE	EgiAs	ISO 2 6HX	C/2,5		
DIN 2174						

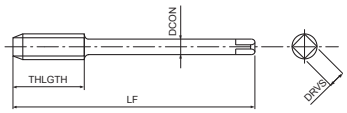
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	PHD	DIN
48362162	8	1	90	10	6	4,9	6	7,51 ~ 7,59	2174
48362171	10	1	90	12	7	5,5	9	9,51 ~ 9,59	2174
48362180	12	1,5	100	15	9	7	9	11,25 ~ 11,34	2174
48362192	14	1,5	100	15	11	9	9	13,25 ~ 13,34	2174
48362203	16	1,5	100	15	12	9	9	15,25 ~ 15,34	2174

C-OIL-XPF

INDEX

Threading | Forming taps | Metric Fine





- First choice in quality and performance
- Carbide forming tap for through & blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- Side through coolant

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC	
5-20	

A | MF | CARBIDE | V | ISO 2 6HX | C/2,5 | DIN 2174

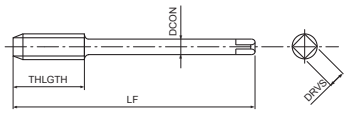
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	PHD	DIN
48226162	8	1	90	10	6	4,9	5	7,51 ~ 7,59	2174
48226171	10	1	90	12	7	5,5	8	9,51 ~ 9,59	2174
48226180	12	1,5	100	15	9	7	8	11,25 ~ 11,34	2174
48226192	14	1,5	100	15	11	9	8	13,25 ~ 13,34	2174
48226203	16	1,5	100	15	12	9	8	15,25 ~ 15,34	2174

V-NRT

INDEX

Threading | Forming taps | Metric Fine





- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
10-15	10-15	10-15	8-12	5-10	10-20	10-20	m/min

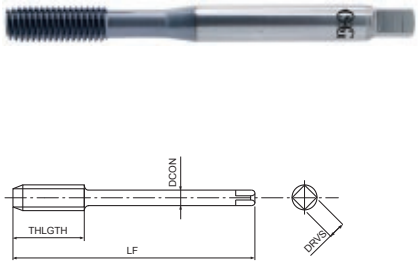
MF | HSS-Co | V | ISO 2 6HX | C/2,5 | DIN 2174

EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	PHD	DIN
69716268	8	1	90	22	6	4,9	3	7,51 ~ 7,59	2174
69717168	10	1	90	22	7	5,5	4	9,51 ~ 9,59	2174
69717068	10	1,25	100	24	7	5,5	4	9,37 ~ 9,45	2174
69718268	12	1	100	22	9	7	4	11,52 ~ 11,60	2174
69718168	12	1,25	100	22	9	7	4	11,39 ~ 11,46	2174
69718068	12	1,5	100	22	9	7	4	11,25 ~ 11,34	2174

V-NRT FORM D

INDEX

Threading | Forming taps | Metric Fine



- HSSE forming tap for through holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- Chamfer Form D

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
10-15	10-15	10-15	8-12	5-10	10-20	10-20	m/min

MF	HSS-Co	V	ISO 2 6HX	D/4		DIN 2174

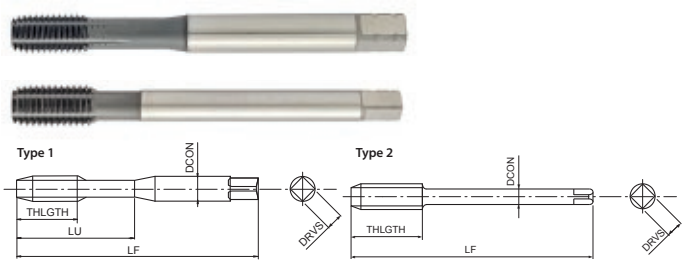
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	PHD	DIN
69816268	8	1	90	22	6	4,9	3	7,51 ~ 7,59	2174
69817168	10	1	90	22	7	5,5	4	9,51 ~ 9,59	2174
69817068	10	1,25	100	24	7	5,5	4	9,37 ~ 9,45	2174
69818268	12	1	100	22	9	7	4	11,52 ~ 11,60	2174
69818168	12	1,25	100	22	9	7	4	11,39 ~ 11,46	2174
69818068	12	1,5	100	22	9	7	4	11,25 ~ 11,34	2174

VA-XPF

INDEX

Threading | Forming taps | Metric Fine

NEW



- Powder metal forming tap for through & blind holes
- AlCrN coating
- For general steels, stainless steels and aluminium

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
20-30	20-30	15-30	10-20	6-12	10-25	15-40	m/min

S Ti
1-3

MF	PM	AlCrN	ISO 2 6HX	C/2,5		
DIN 2174	DIN 2174					

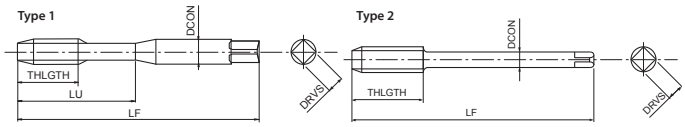
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48442145	4	0,5	63	8	21	4,5	3,4	4	3,8	1	2174
48442151	5	0,5	70	9	25	6	4,9	5	4,8	1	2174
48442157	6	0,5	80	10	30	6	4,9	5	5,8	1	2174
48442156	6	0,75	80	10	30	6	4,9	5	5,65	1	2174
48442160	7	0,75	80	10	30	7	5,5	5	6,65	1	2174
48442164	8	0,5	80	13	35	8	6,2	5	7,775	1	2174
48442163	8	0,75	80	13	35	8	6,2	5	7,65	1	2174
48442162	8	1	90	13	35	8	6,2	5	7,55	1	2174
48442171	10	1	90	12	39	10	8	5	9,55	1	2174
48442170	10	1,25	100	15	39	10	8	5	9,45	1	2174
48442182	12	1	100	15	-	9	7	5	11,55	2	2174
48442181	12	1,25	100	15	-	9	7	5	11,45	2	2174
48442180	12	1,5	100	15	-	9	7	5	11,35	2	2174
48442194	14	1	100	15	-	11	9	6	13,55	2	2174
48442193	14	1,25	100	15	-	11	9	6	13,45	2	2174
48442192	14	1,5	100	15	-	11	9	6	13,35	2	2174
48442204	16	1	100	15	-	12	9	6	15,55	2	2174
48442203	16	1,5	100	15	-	12	9	6	15,35	2	2174
48442218	18	1	110	18	-	14	11	7	17,55	2	2174
48442216	18	1,5	110	18	-	14	11	7	17,35	2	2174
48442232	20	1	125	18	-	16	12	7	19,55	2	2174
48442230	20	1,5	125	18	-	16	12	7	19,35	2	2174
48442240	22	1,5	125	18	-	18	14,5	7	21,35	2	2174
48442250	24	1,5	140	20	-	18	14,5	7	23,35	2	2174

M-NRT

INDEX

Threading | Forming taps | Metric Fine





- Powder metal forming tap for through & blind holes
- TiN coating
- For general steels, stainless steels and aluminium

P ◉ C <0,2%	P ◉ 0,25<C<0,4	P ○ C ≥ 0,45%	P ○ SCM	M ◉ INOX	N ◉ Al	N ◉ AC, ADC	
20-30	20-30	15-30	10-20	6-12	10-25	15-40	m/min

MF	PM	TiN	ISO 2 6HX	C/2,5			
DIN 2174	DIN 2174						

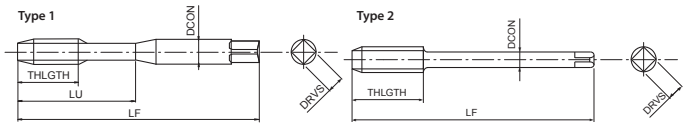
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
EP0203145	4	0,5	63	8	21	4,5	3,4	4	3,8	1	2174
EP0203151	5	0,5	70	9	25	6	4,9	5	4,8	1	2174
EP0203157	6	0,5	80	10	30	6	4,9	5	5,8	1	2174
EP0203156	6	0,75	80	14	30	6	4,9	5	5,65	1	2174
EP0203160	7	0,75	80	14	30	7	5,5	5	6,65	1	2174
EP0203164	8	0,5	80	10	35	8	6,2	5	7,775	1	2174
EP0203163	8	0,75	80	14	35	8	6,2	5	7,65	1	2174
EP0203162	8	1	90	18	35	8	6,2	5	7,55	1	2174
EP0203171	10	1	90	18	39	10	8	5	9,55	1	2174
EP0203170	10	1,25	100	20	39	10	8	5	9,45	1	2174
EP0203182	12	1	100	22	-	9	7	5	11,55	2	2174
EP0203181	12	1,25	100	22	-	9	7	5	11,45	2	2174
EP0203180	12	1,5	100	22	-	9	7	5	11,35	2	2174
EP0203194	14	1	100	22	-	11	9	6	13,55	2	2174
EP0203193	14	1,25	100	22	-	11	9	6	13,45	2	2174
EP0203192	14	1,5	100	22	-	11	9	6	13,35	2	2174
EP0203204	16	1	100	20	-	12	9	6	15,55	2	2174
EP0203203	16	1,5	100	20	-	12	9	6	15,35	2	2174
EP0203218	18	1	110	25	-	14	11	7	17,55	2	2174
EP0203216	18	1,5	110	25	-	14	11	7	17,35	2	2174
EP0203232	20	1	125	25	-	16	12	7	19,55	2	2174
EP0203230	20	1,5	125	25	-	16	12	7	19,35	2	2174
EP0203240	22	1,5	125	25	-	18	14,5	7	21,35	2	2174
EP0203250	24	1,5	140	28	-	18	14,5	7	23,35	2	2174

A-POT

INDEX

Threading | Cutting taps | UNC





- First choice in quality and performance
- Powder metal spiral-point cutting tap for through holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels

P ◉ C <0,2%	P ◉ 0,25<C<0,4	P ◉ C ≥ 0,45%	P ◉ SCM	M ◉ INOX	N ○ Al	N ○ AC, ADC	
15-60	15-60	10-60	8-30	8-20	15-35	15-35	m/min

S ○ Ti	H ○ 25-35 HRC						
5-10	8-20						

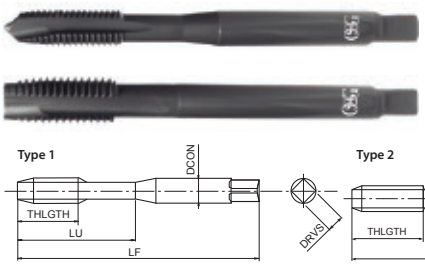
A	UNC	PM	V	ANSI 2BX	B/4		
DIN 2184-1	DIN 2184-1						

EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48145453	2	56	45	-	9	2,8	2,1	2	1	2184-1
48145455	3	48	50	-	9	2,8	2,1	2	1	2184-1
48145457	4	40	56	11	18	3,5	2,7	2	1	2184-1
48145459	5	40	56	11	18	3,5	2,7	3	1	2184-1
48145461	6	32	56	12	20	4	3	3	1	2184-1
48145464	8	32	63	13	21	4,5	3,4	3	1	2184-1
48145466	10	24	70	16	25	6	4,9	3	1	2184-1
48145468	12	24	80	17	30	6	4,9	3	1	2184-1
48145471	1/4	20	80	19	30	7	5,5	3	1	2184-1
48145474	5/16	18	90	22	35	8	6,2	3	1	2184-1
48145479	3/8	16	100	24	39	10	8	3	1	2184-1
48145484	7/16	14	100	24	-	8	6,2	3	2	2184-1
48145489	1/2	13	110	28	-	9	7	3	2	2184-1
48145494	9/16	12	110	30	-	11	9	3	2	2184-1
48145501	5/8	11	110	32	-	12	9	3	2	2184-1
48145515	3/4	10	125	34	-	14	11	3	2	2184-1
48145526	7/8	9	140	34	-	18	14,5	3	2	2184-1
48145538	1	8	160	38	-	18	14,5	3	2	2184-1

S-POT

INDEX

Threading | Cutting taps | UNC



- HSSE spiral-point cutting tap for through holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
15-24	10-15	10-15	8-13	8-16	10-15	m/min

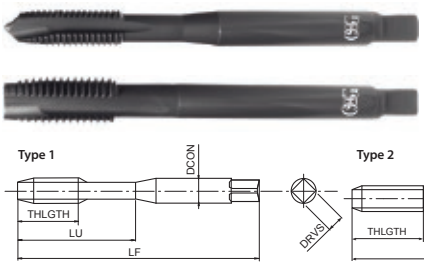
UNC | HSSE | 0X | ANSI 2B | B/4 | DIN 2184-1 | DIN 2184-1

EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48224453	2	56	45	-	9	2,8	2,1	2	1	2184-1
48224455	3	48	50	-	9	2,8	2,1	2	1	2184-1
48224457	4	40	56	11	18	3,5	2,7	2	1	2184-1
48224459	5	40	56	11	18	3,5	2,7	3	1	2184-1
48224461	6	32	56	12	20	4	3	3	1	2184-1
48224464	8	32	63	13	21	4,5	3,4	3	1	2184-1
48224466	10	24	70	16	25	6	4,9	3	1	2184-1
48224468	12	24	80	17	30	6	4,9	3	1	2184-1
48224471	1/4	20	80	19	30	7	5,5	3	1	2184-1
48224474	5/16	18	90	22	35	8	6,2	3	1	2184-1
48224479	3/8	16	100	24	39	10	8	3	1	2184-1
48224484	7/16	14	100	24	-	8	6,2	3	2	2184-1
48224489	1/2	13	110	28	-	9	7	3	2	2184-1
48224494	9/16	12	110	30	-	11	9	3	2	2184-1
48224501	5/8	11	110	32	-	12	9	3	2	2184-1
48224515	3/4	10	125	34	-	14	11	3	2	2184-1
48224526	7/8	9	140	34	-	18	14,5	3	2	2184-1
48224538	1	8	160	38	-	18	14,5	3	2	2184-1

VA-POT

INDEX

Threading | Cutting taps | UNC



- HSSE spiral-point cutting tap for through holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
15-24	10-15	10-15	8-13	8-16	10-15	m/min

UNC | HSSE | 0X | ANSI 2B | B/4 | DIN 2184-1 | DIN 2184-1

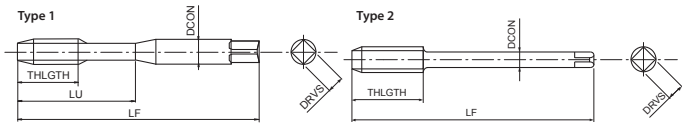
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
74845720	4	40	56	-	18	3,5	2,7	2	1	2184-1
74845920	5	40	56	-	18	3,5	2,7	3	1	2184-1
74846130	6	32	56	-	20	4	3	3	1	2184-1
74846430	8	32	63	-	21	4,5	3,4	3	1	2184-1
74846630	10	24	70	-	25	6	4,9	3	1	2184-1
74847150	1/4	20	80	-	30	7	5,5	3	1	2184-1
74847450	5/16	18	90	-	35	8	6,2	3	1	2184-1
74847950	3/8	16	90	-	35	9	7	3	1	2184-1
75148450	7/16	14	100	24	-	8	6,2	3	2	2184-1
75148950	1/2	13	110	29	-	9	7	3	2	2184-1
75149450	9/16	12	110	30	-	11	9	3	2	2184-1
75150150	5/8	11	110	32	-	12	9	3	2	2184-1
75151550	3/4	10	125	34	-	14	11	3	2	2184-1
75152660	7/8	9	140	34	-	18	14,5	3	2	2184-1
75153860	1	8	160	38	-	18	14,5	3	2	2184-1

A-SFT

INDEX

Threading | Cutting taps | UNC





- First choice in quality and performance
- Powder metal spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-60	15-60	10-60	8-30	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC
5-10	8-20

A	UNC	PM	V	45°	ANSI 2BX	C/2,5	
	DIN 2184-1	DIN 2184-1					

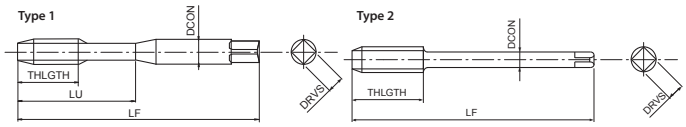
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48139453	2	56	45	3,6	11	2,8	2,1	2	1	2184-1
48139455	3	48	50	3,6	13	2,8	2,1	2	1	2184-1
48139457	4	40	56	5,1	18	3,5	2,7	2	1	2184-1
48139459	5	40	56	5,1	18	3,5	2,7	2	1	2184-1
48139461	6	32	56	6,4	20	4	3	2	1	2184-1
48139464	8	32	63	6,4	21	4,5	3,4	2	1	2184-1
48139466	10	24	70	8,5	25	6	4,9	2	1	2184-1
48139468	12	24	80	8,5	30	6	4,9	2	1	2184-1
48139471	1/4	20	80	10,2	30	7	5,5	2	1	2184-1
48139474	5/16	18	90	11,3	35	8	6,2	3	1	2184-1
48139479	3/8	16	100	12,7	39	10	8	3	1	2184-1
48139484	7/16	14	100	14,5	-	8	6,2	3	2	2184-1
48139489	1/2	13	110	15,6	-	9	7	3	2	2184-1
48139494	9/16	12	110	16,9	-	11	9	3	2	2184-1
48139501	5/8	11	110	18,5	-	12	9	3	2	2184-1
48139515	3/4	10	125	25,4	-	14	11	4	2	2184-1
48139526	7/8	9	140	28,2	-	18	14,5	4	2	2184-1
48139538	1	8	160	31,8	-	18	14,5	4	2	2184-1

S-SFT

INDEX

Threading | Cutting taps | UNC





- HSSE spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
10-15	8-14	8-14	7-11	7-12	7-14	m/min

UNC	HSSE	0X	40°	ANSI 2B	C/2,5	
DIN 2184-1	DIN 2184-1					

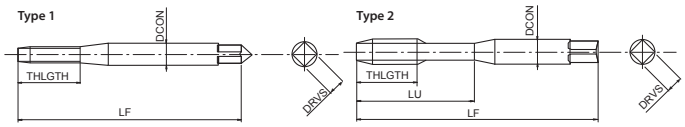
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48223453	2	56	45	3,6	11	2,8	2,1	2	1	2184-1
48223455	3	48	50	3,6	13	2,8	2,1	2	1	2184-1
48223457	4	40	56	5,1	18	3,5	2,7	2	1	2184-1
48223459	5	40	56	5,1	18	3,5	2,7	2	1	2184-1
48223461	6	32	56	6,4	20	4	3	3	1	2184-1
48223464	8	32	63	6,4	21	4,5	3,4	3	1	2184-1
48223466	10	24	70	8,5	25	6	4,9	3	1	2184-1
48223468	12	24	80	8,5	30	6	4,9	3	1	2184-1
48223471	1/4	20	80	10,2	30	7	5,5	3	1	2184-1
48223474	5/16	18	90	11,3	35	8	6,2	3	1	2184-1
48223479	3/8	16	100	12,7	39	10	8	3	1	2184-1
48223484	7/16	14	100	14,5	-	8	6,2	3	2	2184-1
48223489	1/2	13	110	15,6	-	9	7	4	2	2184-1
48223494	9/16	12	110	16,9	-	11	9	4	2	2184-1
48223501	5/8	11	110	18,5	-	12	9	4	2	2184-1
48223515	3/4	10	125	25,4	-	14	11	4	2	2184-1
48223526	7/8	9	140	28,2	-	18	14,5	4	2	2184-1
48223538	1	8	160	31,8	-	18	14,5	4	2	2184-1
48223997	1 1/8	7	180	36	-	22	18	4	2	2184-1
48223998	1 1/4	7	180	36	-	22	18	4	2	2184-1
48223999	1 1/2	6	200	42	-	28	22	4	2	2184-1

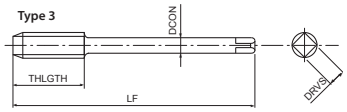
VA-SFT

INDEX

Threading | Cutting taps | UNC







- HSSE spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
10-15	8-14	8-14	7-11	7-12	7-14	m/min

UNC	HSSE	0X	40°	ANSI 2B	C/2,5		
DIN 2184-1	DIN 2184-1						

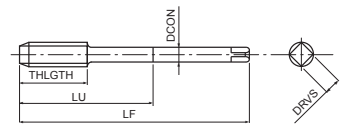
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
74945730	4	40	56	-	11	3,5	2,7	2	1	2184-1
74945930	5	40	56	-	18	3,5	2,7	3	2	2184-1
74946130	6	32	56	-	20	4	3	3	2	2184-1
74946430	8	32	63	-	21	4,5	3,4	3	2	2184-1
74946630	10	24	70	-	25	6	4,9	3	2	2184-1
74947150	1/4	20	80	-	30	7	5,5	3	2	2184-1
74947450	5/16	18	90	-	35	8	6,2	3	2	2184-1
74947950	3/8	16	100	-	35	9	7	3	2	2184-1
75248450	7/16	14	100	19	-	8	6,2	4	3	2184-1
75248950	1/2	13	110	20	-	9	7	4	3	2184-1
75249450	9/16	12	110	22	-	11	9	4	3	2184-1
75250150	5/8	11	110	24	-	12	9	4	3	2184-1
75251550	3/4	10	125	26	-	14	11	4	3	2184-1
75252660	7/8	9	140	29	-	18	14,5	4	3	2184-1
75253860	1	8	160	32	-	18	14,5	5	3	2184-1

HXL-SFT

INDEX

Threading | Cutting taps | UNC





- HSSE low spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- For steels and cast iron
- For horizontal applications in oil and heavy industry

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GG	K GGG		
8-13	7-12	7-12	6-9	5-8	7-12	7-12	m/min	

H 25-35 HRC	
3-5	

UN	UNC	HSSE	0X	15°	ANSI 2B	C/2,5

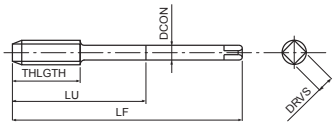
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF
48050515	3/4	10	125	20,3	61,8	14	11	4
48050526	7/8	9	140	22,6	75	18	14,5	4
48050538	1	8	160	25,4	90	18	14,5	5
48050551	1 1/8	7	180	29	100	22	18	5
48050552	1 1/8	8	180	25,4	100	22	18	5
48050564	1 1/4	7	180	29	100	22	18	5
48050565	1 1/4	8	180	25,4	100	22	18	5
48050577	1 3/8	6	200	33,9	115	28	22	5
48050578	1 3/8	8	200	25,4	115	28	22	5
48050591	1 1/2	6	200	33,9	115	32	24	5
48050592	1 1/2	8	200	25,4	115	32	24	5
48050605	1 5/8	8	200	25,4	110	32	24	6
48050618	1 3/4	8	200	25,4	110	36	29	6
48050628	1 7/8	8	225	25,4	125	36	29	6
48050639	2	8	225	25,4	125	40	32	6
48050661	2 1/2	8	275	25,4	150	50	39	6

VXL-SFT

INDEX

Threading | Cutting taps | UNC





- HSSE high spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- For general steels
- For vertical applications in oil and heavy industry

P ○	P ○	P ◉	P ◉	M ○	H ○	
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	INOX	25-35 HRC	
8-13	7-12	7-12	6-9	5-8	3-5	m/min

UN | UNC | HSSE | 0X | 45° | ANSI 2B | C/2,5

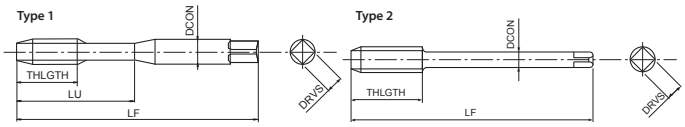
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF
48051515	3/4	10	125	20,3	61,8	14	11	4
48051526	7/8	9	140	22,6	75	18	14,5	4
48051538	1	8	160	25,4	90	18	14,5	5
48051551	1 1/8	7	180	29	100	22	18	5
48051552	1 1/8	8	180	25,4	100	22	18	5
48051564	1 1/4	7	180	29	100	22	18	5
48051565	1 1/4	8	180	25,4	100	22	18	5
48051577	1 3/8	6	200	33,9	115	28	22	5
48051578	1 3/8	8	200	25,4	115	28	22	5
48051591	1 1/2	6	200	33,9	115	32	24	5
48051592	1 1/2	8	200	25,4	115	32	24	5
48051605	1 5/8	8	200	25,4	110	32	24	6
48051618	1 3/4	8	200	25,4	110	36	29	6
48051628	1 7/8	8	225	25,4	125	36	29	6
48051639	2	8	225	25,4	125	40	32	6
48051661	2 1/2	8	275	25,4	150	50	39	6

M-SFT-DUPLEX

INDEX

Threading | Cutting taps | UNC,UN





- Powder metal spiral-fluted cutting tap for blind holes
- TiN coating
- For stainless steels, Duplex, Super Duplex

P ○	P ○	P ○	P ○	M ◉	S ◉	S ◉	
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	INOX	Inconel 625	Ti Gr.2	
				3-15	2-3	3-6	m/min
				Super Duplex	15-5 PH	17-4 PH	

PM | TiN | 50° | C/2,5 | UN | UNC | ANSI 2BX

DIN 2184-1 | DIN 2184-1

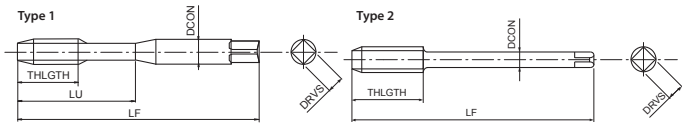
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48336453	2	56	45	3,6	11	2,8	2,1	2	1	2184-1
48336455	3	48	50	3,6	13	2,8	2,1	2	1	2184-1
48336457	4	40	56	5,1	18	3,5	2,7	2	1	2184-1
48336459	5	40	56	5,1	18	3,5	2,7	2	1	2184-1
48336461	6	32	56	6,4	20	4	3	2	1	2184-1
48336464	8	32	63	6,4	21	4,5	3,4	2	1	2184-1
48336466	10	24	70	8,5	25	6	4,9	2	1	2184-1
48336468	12	24	80	8,5	30	6	4,9	2	1	2184-1
48336471	1/4	20	80	10,2	30	7	5,5	3	1	2184-1
48336474	5/16	18	90	11,3	35	8	6,2	3	1	2184-1
48336479	3/8	16	100	12,7	39	10	8	4	1	2184-1
48336484	7/16	14	100	14,5	-	8	6,2	4	2	2184-1
48336489	1/2	13	110	15,6	-	9	7	4	2	2184-1
48336494	9/16	12	110	16,9	-	11	9	4	2	2184-1
48336501	5/8	11	110	18,5	-	12	9	4	2	2184-1
48336515	3/4	10	125	25,4	-	14	11	4	2	2184-1
48336526	7/8	9	140	28,2	-	18	14,5	4	2	2184-1
48336538	1	8	160	31,8	-	18	14,5	4	2	2184-1
48336552	1 1/8	8	180	29	-	22	18	5	2	2184-1
48336565	1 1/4	8	180	29	-	22	18	5	2	2184-1
48336578	1 3/8	8	200	33,9	-	28	22	5	2	2184-1
48336592	1 1/2	8	200	34	-	28	22	5	2	2184-1
48336605	1 5/8	8	200	33,9	-	32	24	5	2	2184-1
48336618	1 3/4	8	200	40,6	-	36	29	5	2	2184-1
48336628	1 7/8	8	225	40,6	-	36	29	5	2	2184-1
48336639	2	8	225	45,2	-	40	32	5	2	2184-1

VP-DC-MT

INDEX

Threading | Cutting taps | UNC





- Powder metal straight flute cutting tap for through and blind holes
- Multilayer TiCN coating
- For cast iron and cast aluminium
- Synchro taps at cutting speeds > 30 m/min

P	P	K	K	N	H	H	
C ≥ 0,45%	SCM	GG	GGG	AC, ADC	25-35 HRC	35-45 HRC	
10-25	10-20	15-60	15-40	25-70	8-20	8-20	m/min

UNC | PM | V | ANSI 2BX | C/2,5 | DIN 2184-1 | DIN 2184-1

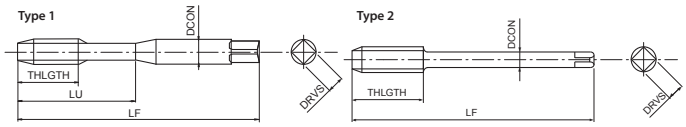
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	LH	Type	DIN
48020453	2	56	45	9	14	2,8	2,1	3	14	1	2184-1
48020455	3	48	50	9	14	2,8	2,1	3	14	1	2184-1
48020457	4	40	56	8	18	3,5	2,7	3	22	1	2184-1
48020459	5	40	56	8	18	3,5	2,7	3	22	1	2184-1
48020461	6	32	56	10	20	4	3	3	24	1	2184-1
48020464	8	32	63	10	21	4,5	3,4	3	26	1	2184-1
48020466	10	24	70	13	25	6	4,9	3	30	1	2184-1
48020468	12	24	80	13	30	6	4,9	3	36	1	2184-1
48020471	1/4	20	80	16	30	7	5,5	3	37,7	1	2184-1
48020474	5/16	18	90	17	35	8	6,2	4	43	1	2184-1
48020479	3/8	16	100	20	39	10	8	4	49	1	2184-1
48020484	7/16	14	100	22	-	8	6,2	4	40	2	2184-1
48020489	1/2	13	110	24	-	9	7	4	44	2	2184-1
48020494	9/16	12	110	26	-	11	9	4	44	2	2184-1
48020501	5/8	11	110	28	-	12	9	4	44	2	2184-1
48020515	3/4	10	125	31	-	14	11	4	50	2	2184-1
48020526	7/8	9	140	34	-	18	14,5	5	56	2	2184-1
48020538	1	8	160	38	-	18	14,5	5	64	2	2184-1

VPO-DC-MT FORM E

INDEX

Threading | Cutting taps | UNC





- Powder metal straight flute cutting tap for blind holes
- Multilayer TiCN coating
- For cast iron and cast aluminium
- Synchro taps at cutting speeds > 30 m/min, with centre through coolant, chamfer Form E

P	P	K	K	N	H	H	
C ≥ 0,45%	SCM	GG	GGG	AC, ADC	25-35 HRC	35-45 HRC	
10-25	10-20	15-60	15-40	25-70	8-20	8-20	m/min

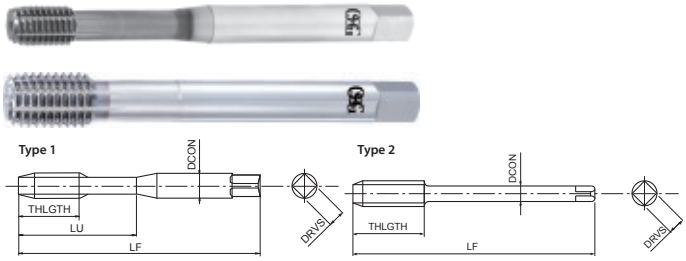
UNC | PM | V | ANSI 2BX | E/1,5 | DIN 2184-1 | DIN 2184-1

EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	LH	Type	DIN
48379471	1/4	20	80	16	30	7	5,5	3	37,7	1	2184-1
48379474	5/16	18	90	17	35	8	6,2	4	43	1	2184-1
48379479	3/8	16	100	20	39	10	8	4	49	1	2184-1
48379484	7/16	14	100	22	-	8	6,2	4	40	2	2184-1
48379489	1/2	13	110	24	-	9	7	4	44	2	2184-1
48379494	9/16	12	110	26	-	11	9	4	44	2	2184-1
48379501	5/8	11	110	28	-	12	9	4	44	2	2184-1
48379515	3/4	10	125	31	-	14	11	4	50	2	2184-1
48379526	7/8	9	140	34	-	18	14,5	5	56	2	2184-1
48379538	1	8	160	38	-	18	14,5	5	64	2	2184-1

S-XPF

INDEX

Threading | Forming taps | UNC



- First choice in quality and performance
- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC
5-20

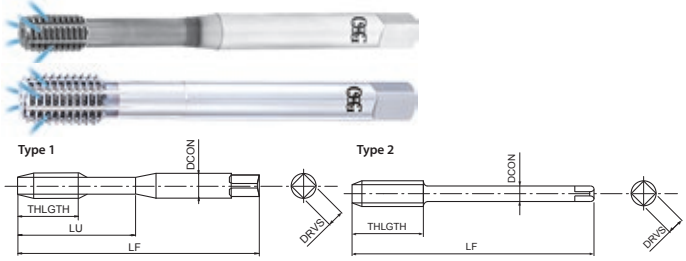
A	UNC	HSS-Co	V	ANSI 2BX	C/2,5	
	DIN 2184-1	DIN 2184-1				

EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48091459	5	40	56	-	18	3,5	2,7	4	2,86 ~ 2,93	1	2184-1
48091461	6	32	56	-	20	4	3	4	3,09 ~ 3,17	1	2184-1
48091464	8	32	63	-	21	4,5	3,4	4	3,76 ~ 3,84	1	2184-1
48091466	10	24	70	-	25	6	4,9	5	4,26 ~ 4,35	1	2184-1
48091471	1/4	20	80	-	30	7	5,5	5	5,66 ~ 5,76	1	2184-1
48091474	5/16	18	90	-	35	8	6,2	5	7,18 ~ 7,29	1	2184-1
48091479	3/8	16	100	-	35	9	7	8	8,66 ~ 8,78	1	2184-1
48091484	7/16	14	100	18,1	-	8	6,2	8	10,12 ~ 10,27	2	2184-1
48091489	1/2	13	110	19,5	-	9	7	8	11,62 ~ 11,78	2	2184-1
48091494	9/16	12	110	21,1	-	11	9	8	13,14 ~ 13,28	2	2184-1
48091501	5/8	11	110	23,1	-	12	9	8	14,61 ~ 14,76	2	2184-1
48091515	3/4	10	125	20,3	-	14	11	8	17,65 ~ 17,8	2	2184-1
48091526	7/8	9	140	22,6	-	18	14,5	8	20,66 ~ 20,84	2	2184-1
48091538	1	8	160	25,4	-	18	14,5	8	23,63 ~ 23,84	2	2184-1

S-OIL-XPF

INDEX

Threading | Forming taps | UNC



- First choice in quality and performance
- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- Side through coolant

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC
5-20

A	UNC	HSS-Co	V	ANSI 2BX	C/2,5	
		DIN 2184-1	DIN 2184-1			

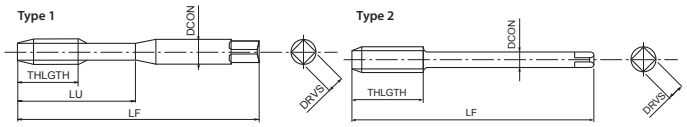
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48042471	1/4	20	80	13	30	7	5,5	5	5,66 ~ 5,76	1	2184-1
48042474	5/16	18	90	14	35	8	6,2	5	7,18 ~ 7,29	1	2184-1
48042479	3/8	16	100	11	39	10	8	8	8,66 ~ 8,78	1	2184-1
48042484	7/16	14	100	14	-	8	6,2	8	10,12 ~ 10,27	2	2184-1
48042489	1/2	13	110	20	-	9	7	8	11,62 ~ 11,78	2	2184-1
48042494	9/16	12	110	22	-	11	9	8	13,14 ~ 13,28	2	2184-1
48042501	5/8	11	110	14	-	12	9	8	14,61 ~ 14,76	2	2184-1
48042515	3/4	10	125	25,4	-	14	11	8	17,65 ~ 17,8	2	2184-1
48042526	7/8	9	140	24	-	18	14,5	8	20,66 ~ 20,84	2	2184-1
48042538	1	8	160	31,8	-	18	14,5	8	23,63 ~ 23,84	2	2184-1

A-POT

INDEX

Threading | Cutting taps | UNF





- First choice in quality and performance
- Powder metal spiral-point cutting tap for through holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-60	15-60	10-60	8-30	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC
5-10	8-20

A	UNF	PM	V	ANSI 2BX	B/4		
DIN 2184-1	DIN 2184-1						

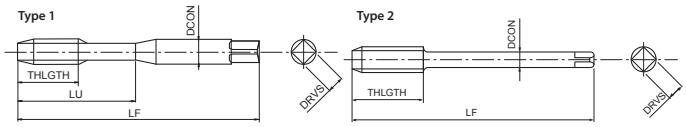
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48145454	2	64	45	-	9	2,8	2,1	2	1	2184-1
48145456	3	56	50	-	9	2,8	2,1	2	1	2184-1
48145458	4	48	56	11	18	3,5	2,7	2	1	2184-1
48145460	5	44	56	11	18	3,5	2,7	3	1	2184-1
48145462	6	40	56	12	20	4	3	3	1	2184-1
48145465	8	36	63	13	21	4,5	3,4	3	1	2184-1
48145467	10	32	70	16	25	6	4,9	3	1	2184-1
48145469	12	28	80	17	30	6	4,9	3	1	2184-1
48145472	1/4	28	80	19	30	7	5,5	3	1	2184-1
48145476	5/16	24	90	22	35	8	6,2	3	1	2184-1
48145481	3/8	24	90	20	35	10	8	3	1	2184-1
48145486	7/16	20	100	24	-	8	6,2	3	2	2184-1
48145491	1/2	20	100	22	-	9	7	3	2	2184-1
48145496	9/16	18	100	22	-	11	9	3	2	2184-1
48145504	5/8	18	100	22	-	12	9	3	2	2184-1
48145517	3/4	16	110	25	-	14	11	3	2	2184-1
48145528	7/8	14	125	25	-	18	14,5	3	2	2184-1
48145539	1	12	140	28	-	18	14,5	3	2	2184-1

S-POT

INDEX

Threading | Cutting taps | UNF





- HSSE spiral-point cutting tap for through holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
15-24	10-15	10-15	8-13	8-16	10-15	m/min

UNF	HSSE	OX	ANSI 2B	B/4		DIN 2184-1
DIN 2184-1						

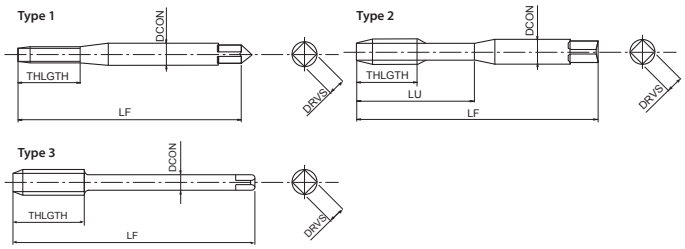
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48224454	2	64	45	-	9	2,8	2,1	2	1	2184-1
48224456	3	56	50	-	9	2,8	2,1	2	1	2184-1
48224458	4	48	56	11	18	3,5	2,7	2	1	2184-1
48224460	5	44	56	11	18	3,5	2,7	3	1	2184-1
48224462	6	40	56	12	20	4	3	3	1	2184-1
48224465	8	36	63	13	21	4,5	3,4	3	1	2184-1
48224467	10	32	70	16	25	6	4,9	3	1	2184-1
48224469	12	28	80	17	30	6	4,9	3	1	2184-1
48224472	1/4	28	80	19	30	7	5,5	3	1	2184-1
48224476	5/16	24	90	22	35	8	6,2	3	1	2184-1
48224481	3/8	24	90	20	35	10	8	3	1	2184-1
48224486	7/16	20	100	24	-	8	6,2	3	2	2184-1
48224491	1/2	20	100	22	-	9	7	3	2	2184-1
48224496	9/16	18	100	22	-	11	9	3	2	2184-1
48224504	5/8	18	100	22	-	12	9	3	2	2184-1
48224517	3/4	16	110	25	-	14	11	3	2	2184-1
48224528	7/8	14	125	25	-	18	14,5	3	2	2184-1
48224539	1	12	140	28	-	18	14,5	3	2	2184-1

VA-POT

INDEX

Threading | Cutting taps | UNF





- HSSE spiral-point cutting tap for through holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
15-24	10-15	10-15	8-13	8-16	10-15	m/min

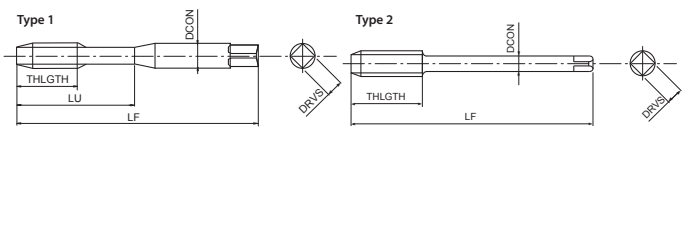
UNF | HSSE | 0X | ANSI 2B | B/4 | DIN 2184-1 | DIN 2184-1

A-SFT

INDEX

Threading | Cutting taps | UNF





- First choice in quality and performance
- Powder metal spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-60	15-60	10-60	8-30	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC
5-10	8-20

A | UNF | PM | V | 45° | ANSI 2BX | C/2,5 | DIN 2184-1 | DIN 2184-1

EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
75146220	6	40	56	-	13	4	3	3	1	2184-1
75146730	10	32	70	-	25	6	4,9	3	2	2184-1
75147240	1/4	28	80	-	30	7	5,5	3	2	2184-1
75147640	5/16	24	90	-	35	8	6,2	3	2	2184-1
75148140	3/8	24	90	-	35	9	7	3	2	2184-1
75148650	7/16	20	100	20	-	8	6,2	3	3	2184-1
75149150	1/2	20	100	22	-	9	7	3	3	2184-1
75149650	9/16	18	100	22	-	11	9	3	3	2184-1
75150450	5/8	18	100	22	-	12	9	3	3	2184-1
75151750	3/4	16	110	25	-	14	11	3	3	2184-1
75152860	7/8	14	125	25	-	18	14,5	3	3	2184-1
75153960	1	12	125	25	-	18	14,5	3	3	2184-1

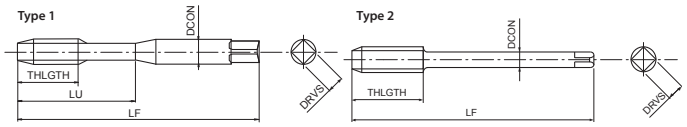
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48139454	2	64	45	3,6	11	2,8	2,1	2	1	2184-1
48139456	3	56	50	3,6	13	2,8	2,1	2	1	2184-1
48139458	4	48	56	5,1	18	3,5	2,7	2	1	2184-1
48139460	5	44	56	5,1	18	3,5	2,7	2	1	2184-1
48139462	6	40	56	6,4	20	4	3	2	1	2184-1
48139465	8	36	63	6,4	21	4,5	3,4	2	1	2184-1
48139467	10	32	70	8,5	25	6	4,9	2	1	2184-1
48139469	12	28	80	8,5	30	6	4,9	2	1	2184-1
48139472	1/4	28	80	10,2	30	7	5,5	2	1	2184-1
48139476	5/16	24	90	11,3	35	8	6,2	3	1	2184-1
48139481	3/8	24	90	12,7	35	10	8	3	1	2184-1
48139486	7/16	20	100	14,5	-	8	6,2	3	2	2184-1
48139491	1/2	20	100	15,6	-	9	7	3	2	2184-1
48139496	9/16	18	100	16,9	-	11	9	3	2	2184-1
48139504	5/8	18	100	18,5	-	12	9	3	2	2184-1
48139517	3/4	16	110	25,4	-	14	11	4	2	2184-1
48139528	7/8	14	125	28,2	-	18	14,5	4	2	2184-1
48139539	1	12	140	31,8	-	18	14,5	4	2	2184-1

S-SFT

INDEX

Threading | Cutting taps | UNF





- HSSE spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
10-15	8-14	8-14	7-11	7-12	7-14	m/min

UNF | HSSE | 0X | 40° | ANSI 2B | C/2,5 | DIN 2184-1 | DIN 2184-1

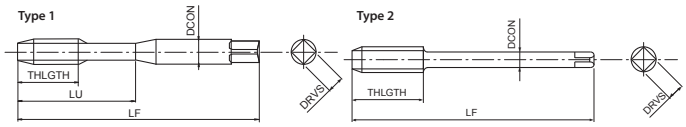
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48223454	2	64	45	3,6	11	2,8	2,1	2	1	2184-1
48223456	3	56	50	3,6	13	2,8	2,1	2	1	2184-1
48223458	4	48	56	5,1	18	3,5	2,7	2	1	2184-1
48223460	5	44	56	5,1	18	3,5	2,7	2	1	2184-1
48223462	6	40	56	6,4	20	4	3	3	1	2184-1
48223465	8	36	63	6,4	21	4,5	3,4	3	1	2184-1
48223467	10	32	70	8,5	25	6	4,9	3	1	2184-1
48223469	12	28	80	8,5	30	6	4,9	3	1	2184-1
48223472	1/4	28	80	10,2	30	7	5,5	3	1	2184-1
48223476	5/16	24	90	11,3	35	8	6,2	3	1	2184-1
48223481	3/8	24	90	12,7	35	10	8	3	1	2184-1
48223486	7/16	20	100	14,5	-	8	6,2	3	2	2184-1
48223491	1/2	20	100	15,6	-	9	7	4	2	2184-1
48223496	9/16	18	100	16,9	-	11	9	4	2	2184-1
48223504	5/8	18	100	18,5	-	12	9	4	2	2184-1
48223517	3/4	16	110	25,4	-	14	11	4	2	2184-1
48223528	7/8	14	125	28,2	-	18	14,5	4	2	2184-1
48223539	1	12	140	31,8	-	18	14,5	4	2	2184-1

VA-SFT

INDEX

Threading | Cutting taps | UNF





- HSSE spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
10-15	8-14	8-14	7-11	7-12	7-14	m/min

UNF | HSSE | 0X | 40° | ANSI 2B | C/2,5 | DIN 2184-1 | DIN 2184-1

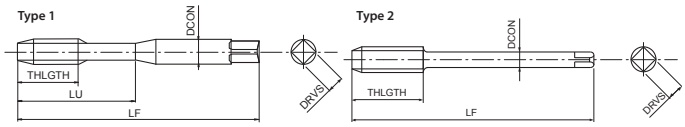
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
75246220	6	40	56	-	20	4	3	3	1	2184-1
75246730	10	32	70	-	25	6	4,9	3	1	2184-1
75247240	1/4	28	80	-	30	7	5,5	3	1	2184-1
75247640	5/16	24	90	-	35	8	6,2	3	1	2184-1
75248140	3/8	24	90	-	35	9	7	3	1	2184-1
75248650	7/16	20	100	15	-	8	6,2	4	2	2184-1
75249150	1/2	20	100	16	-	9	7	4	2	2184-1
75249650	9/16	18	100	17	-	11	9	4	2	2184-1
75250450	5/8	18	100	18	-	12	9	4	2	2184-1
75251750	3/4	16	110	21	-	14	11	4	2	2184-1
75252860	7/8	14	125	23	-	18	14,5	4	2	2184-1
75253960	1	12	125	25	-	18	14,5	5	2	2184-1

M-SFT-DUPLEX

INDEX

Threading | Cutting taps | UNF





- Powder metal spiral-fluted cutting tap for blind holes
- TiN coating
- For stainless steels, Duplex, Super Duplex

P	P	P	P	M	S	S	
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	INOX	Inconel 625	Ti Gr.2	
				3-15	2-3	3-6	m/min
				Super Duplex	15-5 PH	17-4 PH	

UNF	PM	TiN	50°	C/2,5		ANSI 2BX	
DIN 2184-1	DIN 2184-1						

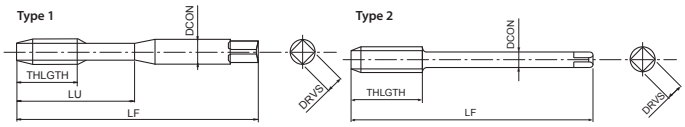
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48336454	2	64	45	3,6	11	2,8	2,1	2	1	2184-1
48336456	3	56	50	3,6	13	2,8	2,1	2	1	2184-1
48336458	4	48	56	5,1	18	3,5	2,7	2	1	2184-1
48336460	5	44	56	5,1	18	3,5	2,7	2	1	2184-1
48336462	6	40	56	6,4	20	4	3	2	1	2184-1
48336465	8	36	63	6,4	21	4,5	3,4	2	1	2184-1
48336467	10	32	70	8,5	25	6	4,9	2	1	2184-1
48336469	12	28	80	8,5	30	6	4,9	2	1	2184-1
48336472	1/4	28	80	10,2	30	7	5,5	3	1	2184-1
48336476	5/16	24	90	11,3	35	8	6,2	3	1	2184-1
48336481	3/8	24	90	12,7	35	10	8	4	1	2184-1
48336486	7/16	20	100	14,5	-	8	6,2	4	2	2184-1
48336491	1/2	20	100	15,6	-	9	7	4	2	2184-1
48336496	9/16	18	100	16,9	-	11	9	4	2	2184-1
48336504	5/8	18	100	18,5	-	12	9	4	2	2184-1
48336517	3/4	16	110	25,4	-	14	11	4	2	2184-1
48336528	7/8	14	125	28,2	-	18	14,5	4	2	2184-1
48336539	1	12	140	31,8	-	18	14,5	4	2	2184-1

VP-DC-MT

INDEX

Threading | Cutting taps | UNF





- Powder metal straight flute cutting tap for through and blind holes
- Multilayer TiCN coating
- For cast iron and cast aluminium
- Synchro taps at cutting speeds > 30 m/min

P	P	K	K	N	H	H	
C ≥ 0,45%	SCM	GG	GGG	AC, ADC	25-35 HRC	35-45 HRC	
10-25	10-20	15-60	15-40	25-70	8-20	8-20	m/min

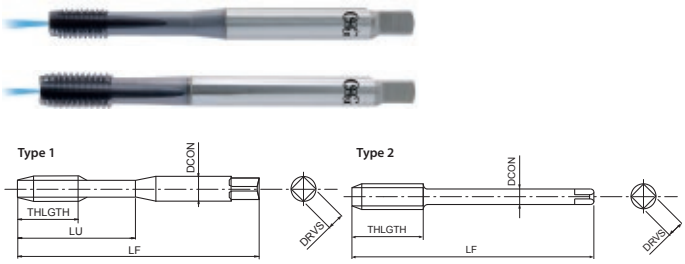
UNF	PM	V	ANSI 2BX	C/2,5		
DIN 2184-1	DIN 2184-1					

EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	LH	Type	DIN
48020454	2	64	45	9	14	2,8	2,1	3	14	1	2184-1
48020456	3	56	50	9	14	2,8	2,1	3	14	1	2184-1
48020458	4	48	56	8	18	3,5	2,7	3	22	1	2184-1
48020460	5	44	56	8	18	3,5	2,7	3	22	1	2184-1
48020462	6	40	56	10	20	4	3	3	24	1	2184-1
48020465	8	36	63	10	21	4,5	3,4	3	26	1	2184-1
48020467	10	32	70	13	25	6	4,9	3	30	1	2184-1
48020469	12	28	80	13	30	6	4,9	3	36	1	2184-1
48020472	1/4	28	80	16	30	7	5,5	3	37,7	1	2184-1
48020476	5/16	24	90	17	35	8	6,2	4	43	1	2184-1
48020481	3/8	24	90	20	35	10	8	4	39	1	2184-1
48020486	7/16	20	100	22	-	8	6,2	4	40	2	2184-1
48020491	1/2	20	100	22	-	9	7	4	40	2	2184-1
48020496	9/16	18	100	22	-	11	9	4	40	2	2184-1
48020504	5/8	18	100	22	-	12	9	4	40	2	2184-1
48020517	3/4	16	110	25	-	14	11	4	44	2	2184-1
48020528	7/8	14	125	25	-	18	14,5	5	50	2	2184-1
48020539	1	12	140	28	-	18	14,5	5	50	2	2184-1

VPO-DC-MT FORM E

INDEX

Threading | Cutting taps | UNF



- Powder metal straight flute cutting tap for blind holes
- Multilayer TiCN coating
- For cast iron and cast aluminium
- Synchro taps at cutting speeds > 30 m/min, with centre through coolant, chamfer Form E

P C ≥ 0,45%	P SCM	K GG	K GGG	N AC, ADC	H 25-35 HRC	H 35-45 HRC	
10-25	10-20	15-60	15-40	25-70	8-20	8-20	m/min

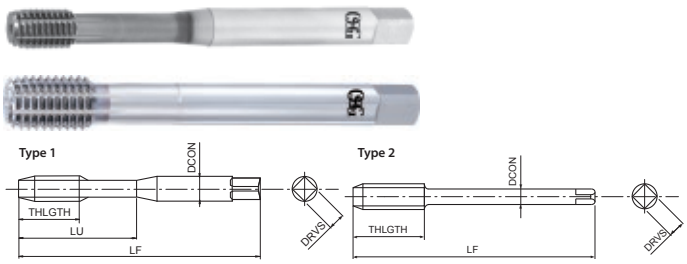
UNF | PM | V | ANSI 2BX | E/1,5 | DIN 2184-1 | DIN 2184-1

EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	LH	Type	DIN
48379472	1/4	28	80	16	30	7	5,5	3	37,7	1	2184-1
48379476	5/16	24	90	17	35	8	6,2	4	43	1	2184-1
48379481	3/8	24	90	20	35	10	8	4	39	1	2184-1
48379486	7/16	20	100	22	-	8	6,2	4	40	2	2184-1
48379491	1/2	20	100	22	-	9	7	4	40	2	2184-1
48379496	9/16	18	100	22	-	11	9	4	40	2	2184-1
48379504	5/8	18	100	22	-	12	9	4	40	2	2184-1
48379517	3/4	16	110	25	-	14	11	4	44	2	2184-1
48379528	7/8	14	125	25	-	18	14,5	5	50	2	2184-1
48379539	1	12	140	28	-	18	14,5	5	50	2	2184-1

S-XPF

INDEX

Threading | Forming taps | UNF



- First choice in quality and performance
- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC: 5-20

A | UNF | HSS-Co | V | ANSI 2BX | C/2,5 | DIN 2184-1 | DIN 2184-1

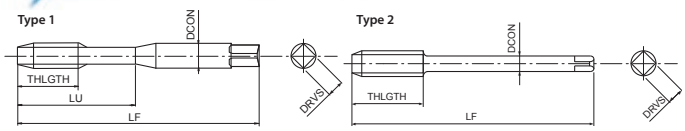
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48091462	6	40	56	-	20	4	3	4	3,19 ~ 3,26	1	2184-1
48091467	10	32	70	-	25	6	4,9	5	4,41 ~ 4,47	1	2184-1
48091472	1/4	28	80	-	30	7	5,5	5	5,87 ~ 5,94	1	2184-1
48091476	5/16	24	90	-	35	8	6,2	5	7,39 ~ 7,47	1	2184-1
48091481	3/8	24	90	-	35	9	7	8	8,98 ~ 9,06	1	2184-1
48091486	7/16	20	100	12,7	-	8	6,2	8	10,45 ~ 10,55	2	2184-1
48091491	1/2	20	100	12,7	-	9	7	8	12,04 ~ 12,14	2	2184-1
48091496	9/16	18	100	14,1	-	11	9	8	13,56 ~ 13,64	2	2184-1
48091504	5/8	18	100	14,1	-	12	9	8	15,15 ~ 15,23	2	2184-1
48091517	3/4	16	110	12,7	-	14	11	8	18,22 ~ 18,3	2	2184-1
48091528	7/8	14	125	14,5	-	18	14,5	8	21,27 ~ 21,38	2	2184-1
48091539	1	12	140	16,9	-	18	14,5	8	24,26 ~ 24,37	2	2184-1

S-OIL-XPF

INDEX

Threading | Forming taps | UNF





- First choice in quality and performance
- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- Side through coolant

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC
5-20

A	UNF	HSS-Co	V	ANSI 2BX	C/2,5	
		DIN 2184-1	DIN 2184-1			

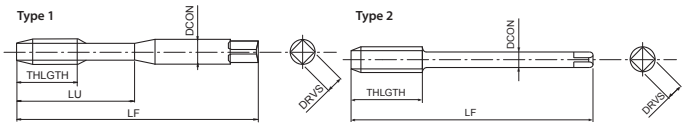
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48042472	1/4	28	80	9,1	30	7	5,5	5	5,87 ~ 5,94	1	2184-1
48042476	5/16	24	90	10,6	35	8	6,2	5	7,39 ~ 7,47	1	2184-1
48042481	3/8	24	90	10,6	35	10	8	8	8,98 ~ 9,06	1	2184-1
48042486	7/16	20	100	12,7	-	8	6,2	8	10,45 ~ 10,55	2	2184-1
48042491	1/2	20	100	12,7	-	9	7	8	12,04 ~ 12,14	2	2184-1
48042496	9/16	18	100	14,1	-	11	9	8	13,56 ~ 13,64	2	2184-1
48042504	5/8	18	100	14,1	-	12	9	8	15,15 ~ 15,23	2	2184-1
48042517	3/4	16	110	12,7	-	14	11	8	18,22 ~ 18,3	2	2184-1
48042528	7/8	14	125	14,5	-	18	14,5	8	21,27 ~ 21,38	2	2184-1
48042539	1	12	140	16,9	-	18	14,5	8	24,26 ~ 24,37	2	2184-1

CC-NEO-SFT

INDEX

Threading | Cutting taps | MJ





- HSSE spiral-fluted cutting tap for blind holes
- TiN coating
- For general steels, stainless steels and aluminium
- Variable helix for better chip evacuation

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	
15-25	15-25	10-25	10-25	6-10	15-35	m/min

MJ	HSSE	TiN	45°	ISO 1 4H	C/2,5	≥2D
DIN 371	DIN 376					

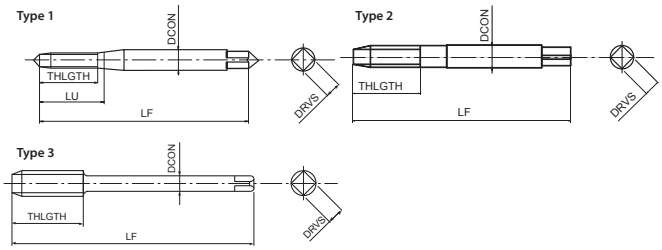
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48242125	2	0,4	45	-	8	2,8	2,1	2	1	371
48242138	3	0,5	56	-	18	3,5	2,7	2	2	371
48242144	4	0,7	63	-	21	4,5	3,4	2	2	371
48242149	5	0,8	70	-	25	6	4,9	2	2	371
48242155	6	1	80	-	30	6	4,9	2	2	371
48242161	8	1,25	90	-	35	8	6,2	3	2	371
48242169	10	1,5	100	-	39	10	8	3	2	371
48242179	12	1,75	110	13	-	9	7	3	3	376

V-TI-SFT

INDEX

Threading | Cutting taps | MJ





- Powder metal low spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- For Titanium alloys



3-5

m/min

MJ | PM | V | 10° | ISO 1 4H | C/2,5 | DIN 371 | DIN 376

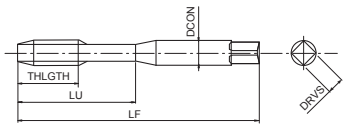
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48241125	2	0,4	45	-	8	2,8	2,1	2	1	371
48241138	3	0,5	56	-	11	3,5	2,7	3	2	371
48241144	4	0,7	63	-	14	4,5	3,4	3	2	371
48241149	5	0,8	70	-	17	6	4,9	3	2	371
48241155	6	1	80	-	21	6	4,9	3	2	371
48241161	8	1,25	90	-	28	8	6,2	3	2	371
48241169	10	1,5	100	-	35	10	8	3	2	371
48241179	12	1,75	110	18	-	10	8	3	3	376

VA-POT

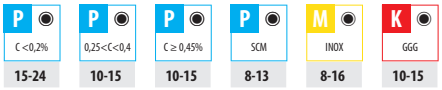
INDEX

Threading | Cutting taps | UNJC





- HSSE spiral-point cutting tap for through holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels



15-24 | 10-15 | 10-15 | 8-13 | 8-16 | 10-15

m/min

UNJC | HSSE | 0X | ANSI 3B | B/4 | DIN 2184-1

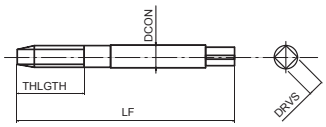
EDP	TD	TP	LF	LU	DCON	DRVS	NOF	DIN
48002457	4	40	56	18	3,5	2,7	2	2184-1
48002461	6	32	56	20	4	3	3	2184-1
48002464	8	32	63	21	4,5	3,4	3	2184-1

V-TI-POT

INDEX

Threading | Cutting taps | UNJC





- Powder metal spiral-point cutting tap for through holes
- Multilayer TiCN coating
- For Titanium alloys

S Ti 4-6

m/min

UNJC | PM | V | ANSI 3B | B/5 | DIN 2184-1

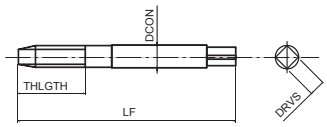
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
48014457	4	40	56	12	3,5	2,7	3	2184-1
48014461	6	32	56	14	4	3	3	2184-1
48014464	8	32	63	16	4,5	3,4	3	2184-1

E-POT

INDEX

Threading | Cutting taps | UNJC





- Powder metal spiral-point cutting tap for through holes
- Bright finish
- For Nickel-based alloys including Inconel 718

S Ni 2-4

m/min

UNJC | PM | ANSI 3B | B/5 | DIN 2184-1 | DIN 2184-1

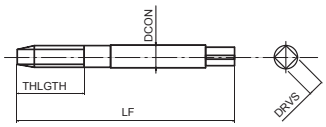
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
89345730	4	40	56	12	3,5	2,7	3	2184-1
89346130	6	32	56	14	4	3	3	2184-1
89346430	8	32	63	16	4,5	3,4	3	2184-1
89346630	10	24	70	20	6	4,9	3	2184-1
89347130	1/4	20	80	25	7	5,5	3	2184-1
89347430	5/16	18	90	31	8	6,2	3	2184-1
89347930	3/8	16	100	35	10	8	3	2184-1
89348430	7/16	14	100	24	8	6,2	3	2184-1
89348930	1/2	13	110	28	9	7	3	2184-1
89350130	5/8	11	110	32	12	9	3	2184-1
89351530	3/4	10	125	34	14	11	4	2184-1
89352630	7/8	9	140	34	18	14,5	4	2184-1
89353830	1	8	160	38	18	14,5	4	2184-1

WHR-NI-POT

INDEX

Threading | Cutting taps | UNJC





- Powder metal spiral-point cutting tap for through holes
- HR coating
- For Nickel-based alloys including Inconel 718

S Ni 2-4 — m/min

UNJC | PM | HR | ANSI 3BX | B/5 | DIN 2184-1 | DIN 2184-1

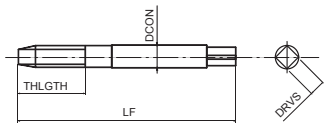
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48079457	4	40	56	12	3,5	2,7	3	2184-1
48079461	6	32	56	14	4	3	3	2184-1
48079464	8	32	63	16	4,5	3,4	3	2184-1
48079466	10	24	70	20	6	4,9	3	2184-1
48079471	1/4	20	80	25	7	5,5	3	2184-1
48079474	5/16	18	90	31	8	6,2	3	2184-1
48079479	3/8	16	100	35	10	8	3	2184-1
48079484	7/16	14	100	24	8	6,2	3	2184-1
48079489	1/2	13	110	28	9	7	3	2184-1
48079501	5/8	11	110	32	12	9	3	2184-1
48079515	3/4	10	125	34	14	11	4	2184-1
48079526	7/8	9	140	34	18	14,5	4	2184-1
48079538	1	8	160	38	18	14,5	4	2184-1

H-POT

INDEX

Threading | Cutting taps | UNJC





- Powder metal spiral-point cutting tap for through holes
- Steam oxide treatment
- For hardened steels up to 45 HRC

P C ≥ 0,45% 8-13 | K GGG 10-15 | S Ti 4-6 | S Ni 2-4 | H 25-35 HRC 6-10 | H 35-45 HRC 6-10 — m/min

UNJC | PM | OX | ANSI 3B | B/5 | DIN 2184-1

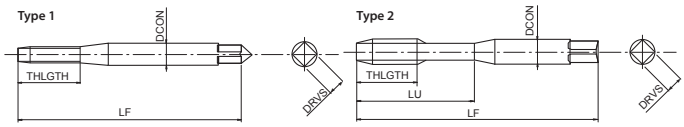
EDP	TD	TP	LF	LU	DCON	DRVS	NOF	DIN
48010457	4	40	56	18	3,5	2,7	2	2184-1
48010461	6	32	56	20	4	3	3	2184-1
48010464	8	32	63	21	4,5	3,4	3	2184-1

VA-SFT

INDEX

Threading | Cutting taps | UNJC





- HSSE spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
10-15	8-14	8-14	7-11	7-12	7-14	m/min

UNJC | HSSE | 0X | 40° | ANSI 3B | C/2,5 | DIN 2184-1

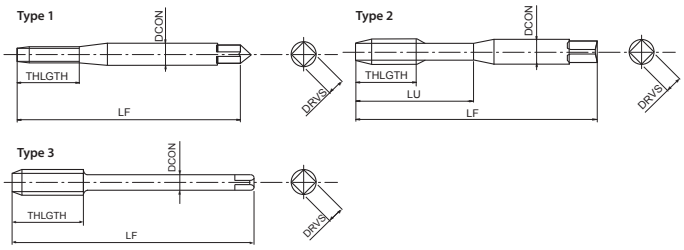
EDP	TD	TP	LF	LU	DCON	DRVS	NOF	Type	DIN
48001457	4	40	56	11	3,5	2,7	2	1	2184-1
48001461	6	32	56	20	4	3	3	2	2184-1
48001464	8	32	63	21	4,5	3,4	3	2	2184-1

CC-SFT

INDEX

Threading | Cutting taps | UNJC





- HSSE spiral-fluted cutting tap for blind holes
- CrN coating
- For general steels, stainless steels and aluminium
- Developed for rigid tapping on CNC machines

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	
15-25	15-25	10-25	10-25	6-10	15-35	m/min

UNJC | HSSE | CrN | 45° | ANSI 3B | C/2,5 | ≥2D | DIN 2184-1 | DIN 2184-1

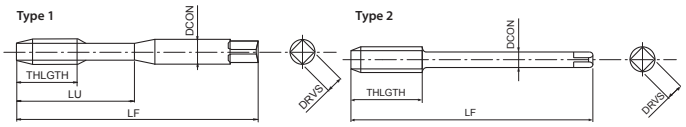
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48032457	4	40	56	-	11,4	3,5	2,7	2	1	2184-1
48032461	6	32	56	-	14	4	3	3	1	2184-1
48032464	8	32	63	-	16,7	4,5	3,4	3	1	2184-1
48032466	10	24	70	-	19,3	6	4,9	3	1	2184-1
48032471	1/4	20	80	-	25,4	7	5,5	3	1	2184-1
48032474	5/16	18	90	-	13	8	6,2	3	2	2184-1
48032479	3/8	16	100	-	15	9	7	3	2	2184-1
48032484	7/16	14	100	17	-	8	6,2	4	3	2184-1
48032489	1/2	13	110	18	-	9	7	4	3	2184-1
48032494	9/16	12	110	19	-	11	9	4	3	2184-1
48032501	5/8	11	110	21	-	12	9	4	3	2184-1
48032515	3/4	10	125	23	-	14	11	4	3	2184-1
48032526	7/8	9	140	26	-	18	14,5	4	3	2184-1
48032538	1	8	160	29	-	18	14,5	4	3	2184-1

M-SFT-DUPLEX

INDEX

Threading | Cutting taps | UNJC





- Powder metal spiral-fluted cutting tap for blind holes
- TiN coating
- For stainless steels, Duplex, Super Duplex

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	S Inconel 625	S Ti Gr.2	
				3-15 Super Duplex	2-3 15-5 PH	3-6 17-4 PH	m/min

UNJC	PM	TiN	50°	ANSI 3BX	C/2,5		
DIN 2184-1	DIN 2184-1						

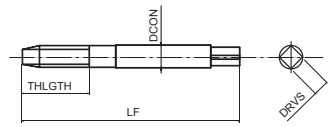
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48373457	4	40	56	5,1	18	3,5	2,7	2	1	2184-1
48373461	6	32	56	6,4	20	4	3	2	1	2184-1
48373464	8	32	63	6,4	21	4,5	3,4	2	1	2184-1
48373466	10	24	70	8,5	25	6	4,9	2	1	2184-1
48373468	12	24	80	8,5	30	6	4,9	2	1	2184-1
48373471	1/4	20	80	10,2	30	7	5,5	3	1	2184-1
48373474	5/16	18	90	11,3	35	8	6,2	3	1	2184-1
48373479	3/8	16	100	12,7	39	10	8	4	1	2184-1
48373484	7/16	14	100	14,5	-	8	6,2	4	2	2184-1
48373489	1/2	13	110	15,6	-	9	7	4	2	2184-1
48373494	9/16	12	110	16,9	-	11	9	4	2	2184-1
48373501	5/8	11	110	18,5	-	12	9	4	2	2184-1
48373515	3/4	10	125	25,4	-	14	11	4	2	2184-1
48373526	7/8	9	140	28,2	-	18	14,5	4	2	2184-1
48373538	1	8	160	31,8	-	18	14,5	4	2	2184-1

V-TI-SFT

INDEX

Threading | Cutting taps | UNJC





- Powder metal low spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- For Titanium alloys

S Ti	
3-5	m/min

UNJC	PM	V	10°	ANSI 3B	C/2,5		
DIN 2184-1							

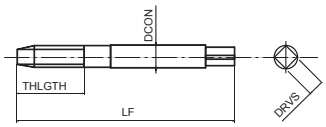
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
48013457	4	40	56	10	3,5	2,7	3	2184-1
48013461	6	32	56	13	4	3	3	2184-1
48013464	8	32	63	15	4,5	3,4	3	2184-1

E-SFT

INDEX

Threading | Cutting taps | UNJC





- Powder metal low spiral-fluted cutting tap for blind holes
- Bright finish
- For Nickel-based alloys including Inconel 718

S Ni 1-3

m/min

UNJC | PM | 10° | ANSI 3B | C/2,5 | DIN 2184-1 | DIN 2184-1

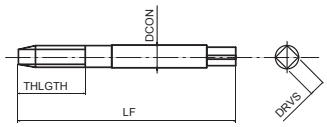
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
89545730	4	40	56	10	3,5	2,7	3	2184-1
89546130	6	32	56	13	4	3	3	2184-1
89546430	8	32	63	15	4,5	3,4	3	2184-1
89546630	10	24	70	18	6	4,9	3	2184-1
89547130	1/4	20	80	23	7	5,5	3	2184-1
89547430	5/16	18	90	28	8	6,2	3	2184-1
89547930	3/8	16	100	33	10	8	3	2184-1
89548430	7/16	14	100	19	8	6,2	3	2184-1
89548930	1/2	13	110	20	9	7	3	2184-1
89550130	5/8	11	110	24	12	9	4	2184-1
89551530	3/4	10	125	26	14	11	4	2184-1
89552630	7/8	9	140	29	18	14,5	4	2184-1
89553830	1	8	160	32	18	14,5	4	2184-1

WHR-NI-SFT

INDEX

Threading | Cutting taps | UNJC





- Powder metal low spiral-fluted cutting tap for blind holes
- HR coating
- For Nickel-based alloys including Inconel 718

S Ni 1-3

m/min

UNJC | PM | HR | 11° | ANSI 3BX | C/2,5 | DIN 2184-1 | DIN 2184-1

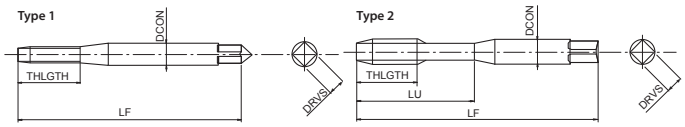
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48078457	4	40	56	12	3,5	2,7	3	2184-1
48078461	6	32	56	14	4	3	3	2184-1
48078464	8	32	63	16	4,5	3,4	3	2184-1
48078466	10	24	70	18	6	4,9	3	2184-1
48078471	1/4	20	80	23	7	5,5	3	2184-1
48078474	5/16	18	90	15	8	6,2	3	2184-1
48078479	3/8	16	100	16	10	8	3	2184-1
48078484	7/16	14	100	19	8	6,2	3	2184-1
48078489	1/2	13	110	20	9	7	3	2184-1
48078501	5/8	11	110	24	12	9	4	2184-1
48078515	3/4	10	125	26	14	11	4	2184-1
48078526	7/8	9	140	29	18	14,5	4	2184-1
48078538	1	8	160	32	18	14,5	4	2184-1

H-SFT

INDEX

Threading | Cutting taps | UNJC





- Powder metal low spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- For hardened steels up to 45 HRC

P	P	K	S	S	H	H	
C ≥ 0,45%	SCM	GGG	Ti	Ni	25-35 HRC	35-45 HRC	
7-12	7-12	7-12	3-5	1-3	4-8	4-8	m/min

UNJC | PM | 0X | 15° | ANSI 3B | C/2,5 | DIN 2184-1

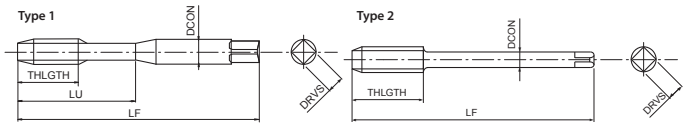
EDP	TD	TP	LF	LU	DCON	DRVS	NOF	Type	DIN
48009457	4	40	56	11	3,5	2,7	2	1	2184-1
48009461	6	32	56	18	4	3	2	2	2184-1
48009464	8	32	63	21	4,5	3,4	3	2	2184-1

VA-POT

INDEX

Threading | Cutting taps | UNJF





- HSSE spiral-point cutting tap for through holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels

P	P	P	P	M	K	
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	INOX	GGG	
15-24	10-15	10-15	8-13	8-16	10-15	m/min

UNJF | HSSE | 0X | ANSI 3B | B/4 | DIN 2184-1 | DIN 2184-1

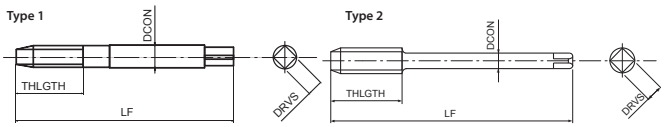
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48002467	10	32	70	-	25	6	4,9	3	1	2184-1
48002472	1/4	28	80	-	30	7	5,5	3	1	2184-1
48002476	5/16	24	90	-	35	8	6,2	3	1	2184-1
48002481	3/8	24	90	-	35	9	7	3	1	2184-1
48002486	7/16	20	100	20	-	8	6,2	3	2	2184-1
48002491	1/2	20	100	22	-	9	7	3	2	2184-1

V-TI-POT

INDEX

Threading | Cutting taps | UNJF





- Powder metal spiral-point cutting tap for through holes
- Multilayer TiCN coating
- For Titanium alloys

S Ti

4-6

m/min

UNJF | PM | V | ANSI 3B | B/5 | DIN 2184-1 | DIN 2184-1

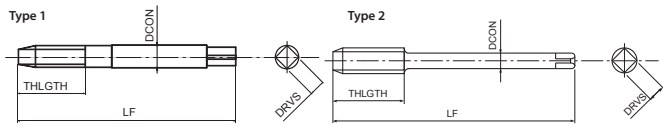
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	Type	DIN
48014467	10	32	70	25	6	4,9	3	1	2184-1
48014472	1/4	28	80	30	7	5,5	3	1	2184-1
48014476	5/16	24	90	31	8	6,2	3	1	2184-1
48014481	3/8	24	90	35	10	8	3	1	2184-1
48014486	7/16	20	100	20	9	7	3	2	2184-1
48014491	1/2	20	100	22	10	8	3	2	2184-1

E-POT

INDEX

Threading | Cutting taps | UNJF





- Powder metal spiral-point cutting tap for through holes
- Bright finish
- For Nickel-based alloys including Inconel 718

S Ni

2-4

m/min

UNJF | PM | ANSI 3B | B/5 | DIN 2184-1 | DIN 2184-1

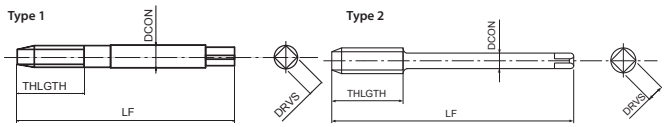
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
89346730	10	32	70	-	20	6	4,9	3	1	2184-1
89347230	1/4	28	80	-	25	7	5,5	3	1	2184-1
89347630	5/16	24	90	-	31	8	6,2	3	1	2184-1
89348130	3/8	24	90	-	35	10	8	3	1	2184-1
89448630	7/16	20	100	20	-	9	7	3	2	2184-1
89449130	1/2	20	100	22	-	10	8	3	2	2184-1
89349630	9/16	18	100	22	-	11	9	3	2	2184-1
89350430	5/8	18	100	22	-	12	9	3	2	2184-1
89351730	3/4	16	110	25	-	14	11	4	2	2184-1
89352830	7/8	14	125	25	-	18	14,5	4	2	2184-1

WHR-NI-POT

INDEX

Threading | Cutting taps | UNJF





- Powder metal spiral-point cutting tap for through holes
- HR coating
- For Nickel-based alloys including Inconel 718

S Ni 2-4 — m/min

UNJF | PM | HR | ANSI 3BX | B/5 | DIN 2184-1 | DIN 2184-1

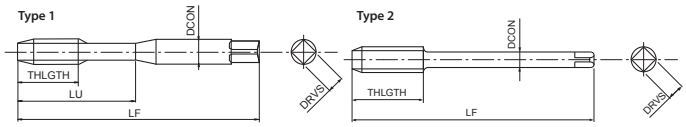
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	Type	DIN
48079467	10	32	70	20	6	4,9	3	1	2184-1
48079472	1/4	28	80	25	7	5,5	3	1	2184-1
48079476	5/16	24	90	31	8	6,2	3	1	2184-1
48079481	3/8	24	90	35	10	8	3	1	2184-1
48079486	7/16	20	100	20	9	7	3	2	2184-1
48079491	1/2	20	100	22	10	8	3	2	2184-1
48079496	9/16	18	100	22	11	9	3	2	2184-1
48079504	5/8	18	100	22	12	9	3	2	2184-1
48079517	3/4	16	110	25	14	11	4	2	2184-1
48079528	7/8	14	125	25	18	14,5	4	2	2184-1

H-POT

INDEX

Threading | Cutting taps | UNJF





- Powder metal spiral-point cutting tap for through holes
- Steam oxide treatment
- For hardened steels up to 45 HRC

P C ≥ 0,45% 8-13 | K GGG 10-15 | S Ti 4-6 | S Ni 2-4 | H 25-35 HRC 6-10 | H 35-45 HRC 6-10 — m/min

UNJF | PM | 0X | ANSI 3B | B/5 | DIN 2184-1 | DIN 2184-1

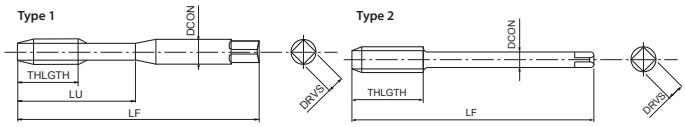
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
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48010472	1/4	28	80	-	30	7	5,5	3	1	2184-1
48010476	5/16	24	90	-	35	8	6,2	3	1	2184-1
48010481	3/8	24	90	-	35	9	7	3	1	2184-1
48010486	7/16	20	100	20	-	8	6,2	3	2	2184-1
48010491	1/2	20	100	22	-	9	7	3	2	2184-1

VA-SFT

INDEX

Threading | Cutting taps | UNJF





- HSSE spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels

P	P	P	P	M	K	
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	INOX	GGG	
10-15	8-14	8-14	7-11	7-12	7-14	m/min

UNJF	HSSE	0X	40°	ANSI 3B	C/2,5	
DIN 2184-1	DIN 2184-1					

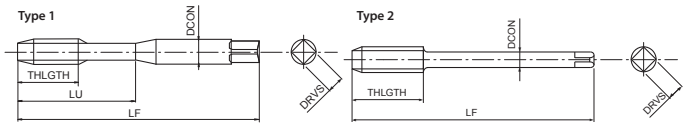
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48001472	1/4	28	80	-	30	7	5,5	3	1	2184-1
48001476	5/16	24	90	-	35	8	6,2	3	1	2184-1
48001481	3/8	24	90	-	35	9	7	3	1	2184-1
48001486	7/16	20	100	15	-	8	6,2	4	2	2184-1
48001491	1/2	20	100	16	-	9	7	4	2	2184-1

M-SFT-DUPLEX

INDEX

Threading | Cutting taps | UNJF





- Powder metal spiral-fluted cutting tap for blind holes
- TiN coating
- For stainless steels, Duplex, Super Duplex

P	P	P	P	M	S	S	
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	INOX	Inconel 625	Ti Gr.2	
				3-15	2-3	3-6	m/min
				Super Duplex	15-5 PH	17-4 PH	

UNJF	PM	TiN	50°	ANSI 3BX	C/2,5	
DIN 2184-1	DIN 2184-1					

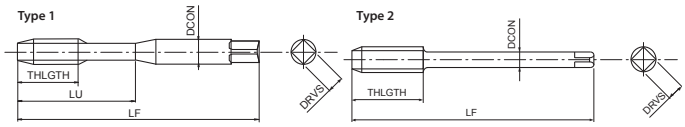
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
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48373462	6	40	56	6,4	20	4	3	2	1	2184-1
48373465	8	36	63	6,4	21	4,5	3,4	2	1	2184-1
48373467	10	32	70	8,5	25	6	4,9	2	1	2184-1
48373469	12	28	80	8,5	30	6	4,9	2	1	2184-1
48373472	1/4	28	80	10,2	30	7	5,5	3	1	2184-1
48373476	5/16	24	90	11,3	35	8	6,2	3	1	2184-1
48373481	3/8	24	90	12,7	35	10	8	4	1	2184-1
48373486	7/16	20	100	14,5	-	8	6,2	4	2	2184-1
48373491	1/2	20	100	15,6	-	9	7	4	2	2184-1
48373496	9/16	18	100	16,9	-	11	9	4	2	2184-1
48373504	5/8	18	100	18,5	-	12	9	4	2	2184-1
48373517	3/4	16	110	25,4	-	14	11	4	2	2184-1
48373528	7/8	14	125	28,2	-	18	14,5	4	2	2184-1
48373539	1	12	140	31,8	-	18	14,5	4	2	2184-1

CC-SFT

INDEX

Threading | Cutting taps | UNJF





- HSSE spiral-fluted cutting tap for blind holes
- CrN coating
- For general steels, stainless steels and aluminium
- Developed for rigid tapping on CNC machines

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	m/min
15-25	15-25	10-25	10-25	6-10	15-35	

UNJF | HSSE | CrN | 45° | ANSI 3B | C/2,5 | ≥2D | DIN 2184-1 | DIN 2184-1

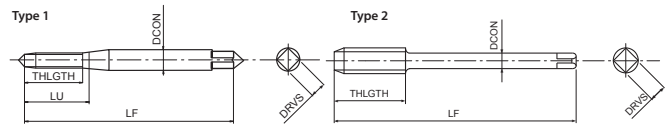
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48032467	10	32	70	-	19,3	6	4,9	3	1	2184-1
48032472	1/4	28	80	-	25,4	7	5,5	3	1	2184-1
48032476	5/16	24	90	-	11	8	6,2	3	1	2184-1
48032481	3/8	24	90	-	12	9	7	3	1	2184-1
48032486	7/16	20	100	14	-	8	6,2	4	2	2184-1
48032491	1/2	20	100	15	-	9	7	4	2	2184-1
48032496	9/16	18	100	15	-	11	9	4	2	2184-1
48032504	5/8	18	100	17	-	12	9	4	2	2184-1
48032517	3/4	16	110	19	-	14	11	4	2	2184-1
48032528	7/8	14	125	21	-	18	14,5	4	2	2184-1
48032539	1	12	125	24	-	18	14,5	4	2	2184-1

V-TI-SFT

INDEX

Threading | Cutting taps | UNJF





- Powder metal low spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- For Titanium alloys

S Ti	m/min
3-5	

UNJF | PM | V | 10° | ANSI 3B | C/2,5 | DIN 2184-1 | DIN 2184-1

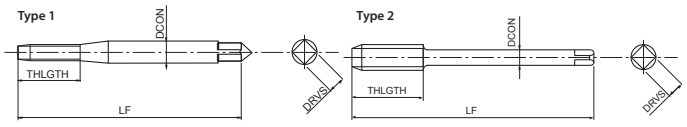
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	Type	DIN
48013467	10	32	70	25	6	4,9	3	1	2184-1
48013472	1/4	28	80	30	7	5,5	3	1	2184-1
48013476	5/16	24	90	35	8	6,2	3	1	2184-1
48013481	3/8	24	90	35	10	8	3	1	2184-1
48013486	7/16	20	100	15	8	6,2	3	2	2184-1
48013491	1/2	20	100	16	9	7	3	2	2184-1

E-SFT

INDEX

Threading | Cutting taps | UNJF





- Powder metal low spiral-fluted cutting tap for blind holes
- Bright finish
- For Nickel-based alloys including Inconel 718

S Ni 1-3

m/min

UNJF | PM | 10° | ANSI 3B | C/2,5 | DIN 2184-1 | DIN 2184-1

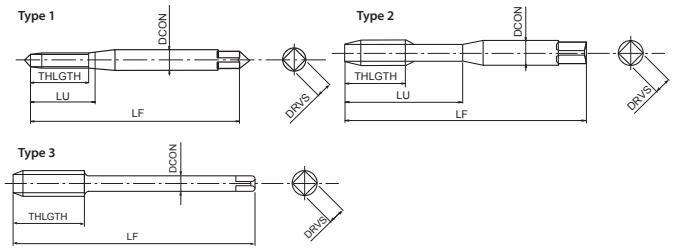
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	Type	DIN
89546730	10	32	70	18	6	4,9	3	1	2184-1
89547230	1/4	28	80	23	7	5,5	3	1	2184-1
89547630	5/16	24	90	28	8	6,2	3	1	2184-1
89548130	3/8	24	90	33	10	8	3	1	2184-1
89648630	7/16	20	100	15	8	6,2	3	2	2184-1
89649130	1/2	20	100	16	9	7	3	2	2184-1
89549630	9/16	18	100	17	11	9	4	2	2184-1
89550430	5/8	18	100	19	12	9	4	2	2184-1
89551730	3/4	16	110	21	14	11	4	2	2184-1
89552830	7/8	14	125	23	18	14,5	4	2	2184-1

WHR-NI-SFT

INDEX

Threading | Cutting taps | UNJF





- Powder metal low spiral-fluted cutting tap for blind holes
- HR coating
- For Nickel-based alloys including Inconel 718

S Ni 1-3

m/min

UNJF | PM | HR | 11° | ANSI 3BX | C/2,5 | DIN 2184-1 | DIN 2184-1

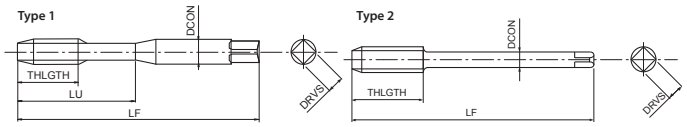
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48078467	10	32	70	18	21	6	4,9	3	1	2184-1
48078472	1/4	28	80	21	23	7	5,5	3	1	2184-1
48078476	5/16	24	90	-	35	8	6,2	3	2	2184-1
48078481	3/8	24	90	-	35	10	8	3	2	2184-1
48078486	7/16	20	100	15	-	8	6,2	3	3	2184-1
48078491	1/2	20	100	16	-	9	7	3	3	2184-1
48078496	9/16	18	100	17	-	11	9	3	3	2184-1
48078504	5/8	18	100	19	-	12	9	4	3	2184-1
48078517	3/4	16	110	21	-	14	11	4	3	2184-1
48078528	7/8	14	125	23	-	18	14,5	4	3	2184-1

H-SFT

INDEX

Threading | Cutting taps | UNJF





- Powder metal low spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- For hardened steels up to 45 HRC

P C ≥ 0,45%	P SCM	K GGG	S Ti	S Ni	H 25-35 HRC	H 35-45 HRC	
7-12	7-12	7-12	3-5	1-3	4-8	4-8	m/min

UNJF | PM | 0X | 15° | ANSI 3B | C/2,5 | DIN 2184-1 | DIN 2184-1

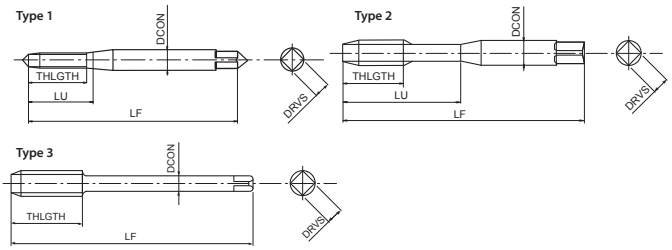
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	Type	DIN
48009467	10	32	70	-	25	6	4,9	3	1	2184-1
48009472	1/4	28	80	-	30	7	5,5	3	1	2184-1
48009476	5/16	24	90	-	35	8	6,2	3	1	2184-1
48009481	3/8	24	90	-	35	9	7	3	1	2184-1
48009486	7/16	20	100	15	-	8	6,2	3	2	2184-1
48009491	1/2	20	100	16	-	9	7	3	2	2184-1

CC-HL-SFT

INDEX

Threading | Cutting taps | Helicoil EG-M





- HSSE spiral-fluted cutting tap for blind holes
- CrN coating
- For general steels, stainless steels and aluminium
- Developed for rigid tapping on CNC machines, for thread insert

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	
15-25	15-25	10-25	10-25	6-10	15-35	m/min

EG M | HSSE | CrN | 45° | ISO 2 6H | C/2,5 | DIN 371 | DIN 376

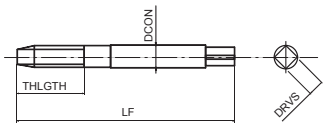
EDP	TD	TP	Cutter dia. EG	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48044138	3	0,5	3,65	56	4,5	15	4	3	3	3,2	1	371
48044144	4	0,7	4,909	70	6,6	20	6	4,9	3	4,2	1	371
48044149	5	0,8	6,039	80	7,2	25	6	4,9	3	5,2	1	371
48044155	6	1	7,299	90	9	35	8	6,2	3	6,3	2	371
48044161	8	1,25	9,624	100	12	39	10	8	3	8,4	2	371
48044169	10	1,5	11,949	110	14	46	12	9	4	10,4	2	371
48044179	12	1,75	14,273	110	16	-	11	9	4	12,5	3	376
48044202	16	2	18,598	125	20	-	14	11	4	16,6	3	376
48044228	20	2,5	23,248	160	25	-	18	14,5	4	20,7	3	-

E-HL-POT

INDEX

Threading | Cutting taps | Helicoil EG-MJ





- Powder metal spiral-point cutting tap for through holes
- Bright finish
- For Nickel-based alloys including Inconel 718
- For thread insert

S Ni	m/min
2-4	

EG MJ | PM | ISO 1 4H | B/5 | DIN 371

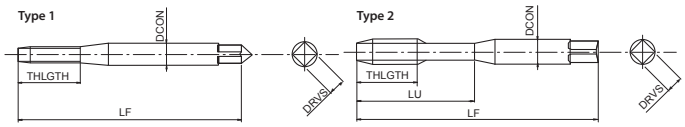
EDP	TD	TP	Cutter dia. EG	LF	THLGTH	DCON	DRVS	NOF	PHD	DIN
48008125	2	0,4	2,52	50	9	2,8	2,1	2	2,1	371
48008133	2,5	0,45	3,085	56	11	3,5	2,7	3	2,6	371
48008138	3	0,5	3,65	56	13	4	3	3	3,2	371
48008144	4	0,7	4,9090	70	17	6	4,9	3	4,2	371
48008149	5	0,8	6,039	80	21	6	4,9	3	5,2	371
48008155	6	1	7,299	90	25	8	6,2	3	6,3	371
48008161	8	1,25	9,624	100	33	10	8	3	8,4	371
48008169	10	1,5	11,949	110	41	12	9	3	10,4	371

H-HL-POT

INDEX

Threading | Cutting taps | Helicoil EG-MJ





- Powder metal spiral-point cutting tap for through holes
- Steam oxide treatment
- For hardened steels up to 45 HRC
- For thread insert

P C ≥ 0,45%	K GGG	S Ti	S Ni	H 25-35 HRC	H 35-45 HRC	m/min
8-13	10-15	4-6	2-4	6-10	6-10	

EG MJ | PM | 0X | ISO 1 4H | B/5 | DIN 371

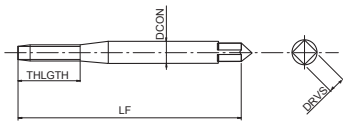
EDP	TD	TP	Cutter dia. EG	LF	LU	DCON	DRVS	NOF	PHD	Type	DIN
48006125	2	0,4	2,52	50	9	2,8	2,1	2	2,1	1	371
48006133	2,5	0,45	3,085	56	18	3,5	2,7	3	2,6	2	371
48006138	3	0,5	3,65	56	20	4	3	3	3,2	2	371
48006144	4	0,7	4,9090	70	25	6	4,9	3	4,2	2	371
48006149	5	0,8	6,039	80	30	6	4,9	3	5,2	2	371
48006155	6	1	7,299	90	35	8	6,2	3	6,3	2	371
48006161	8	1,25	9,624	100	39	10	8	3	8,4	2	371
48006169	10	1,5	11,949	110	46	12	9	3	10,4	2	371

E-HL-SFT

INDEX

Threading | Cutting taps | Helicoil EG-MJ





- Powder metal low spiral-fluted cutting tap for blind holes
- Bright finish
- For Nickel-based alloys including Inconel 718
- For thread insert

S Ni 1-3 | m/min

EG MJ | PM | 10° | ISO 1 4H | C/2,5 | DIN 371

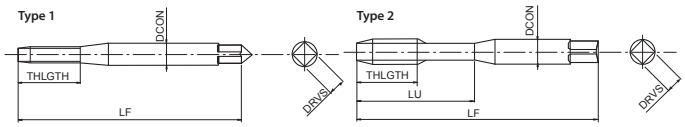
EDP	TD	TP	Cutter dia. EG	LF	THLGTH	DCON	DRVS	NOF	PHD	DIN
48007125	2	0,4	2,52	5	9	2,8	2,1	2	2,1	371
48007133	2,5	0,45	3,085	56	11	3,5	2,7	3	2,6	371
48007138	3	0,5	3,65	56	13	4	3	3	3,2	371
48007144	4	0,7	4,9090	70	17	6	4,9	3	4,2	371
48007149	5	0,8	6,039	80	21	6	4,9	3	5,2	371
48007155	6	1	7,299	90	25	8	6,2	3	6,3	371
48007161	8	1,25	9,624	100	33	10	8	3	8,4	371
48007169	10	1,5	11,949	110	41	12	9	3	10,4	371

H-HL-SFT

INDEX

Threading | Cutting taps | Helicoil EG-MJ





- Powder metal low spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- For hardened steels up to 45 HRC
- For thread insert

P C ≥ 0,45% 7-12 | P SCM 7-12 | K GGG 7-12 | S Ti 3-5 | S Ni 1-3 | H 25-35 HRC 4-8 | H 35-45 HRC 4-8 | m/min

EG MJ | PM | 0X | 15° | ISO 1 4H | C/3 | DIN 371

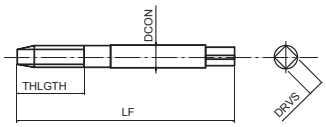
EDP	TD	TP	Cutter dia. EG	LF	LU	DCON	DRVS	NOF	PHD	Type	DIN
48005125	2	0,4	2,52	50	9	2,8	2,1	2	2,1	1	371
48005133	2,5	0,45	3,085	56	18	3,5	2,7	3	2,6	2	371
48005138	3	0,5	3,65	56	20	4	3	3	3,2	2	371
48005144	4	0,7	4,9090	70	25	6	4,9	3	4,2	2	371
48005149	5	0,8	6,039	80	30	6	4,9	3	5,2	2	371
48005155	6	1	7,299	90	35	8	6,2	3	6,3	2	371
48005161	8	1,25	9,624	100	39	10	8	3	8,4	2	371
48005169	10	1,5	11,949	110	46	12	9	3	10,4	2	371

E-HL-POT

INDEX

Threading | Cutting taps | Helicoil EG-UNJC





- Powder metal spiral-point cutting tap for through holes
- Bright finish
- For Nickel-based alloys including Inconel 718
- For thread insert



2-4

m/min

EG UNJC | PM | ANSI 3B | B/5 | DIN 371

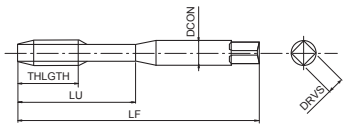
EDP	TD	TP	Cutter dia. EG	LF	THLGTH	DCON	DRVS	NOF	PHD	DIN
48016457	4	40	3,67	56	14	4	3	3	3	2184-1
48016461	6	32	4,536	63	18	4,5	3,4	3	3,7	2184-1
48016464	8	32	5,197	70	20	6	4,9	3	4,4	2184-1

H-HL-POT

INDEX

Threading | Cutting taps | Helicoil EG-UNJC





- Powder metal spiral-point cutting tap for through holes
- Steam oxide treatment
- For hardened steels up to 45 HRC
- For thread insert



8-13 | 10-15 | 4-6 | 2-4 | 6-10 | 6-10

m/min

EG UNJC | PM | 0X | ANSI 3B | B/5 | DIN 2184-1

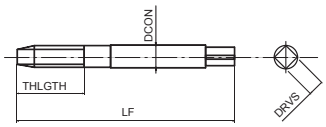
EDP	TD	TP	Cutter dia. EG	LF	LU	DCON	DRVS	NOF	PHD	DIN
48018457	4	40	3,67	56	20	4	3	3	3	2184-1
48018461	6	32	4,536	63	21	4,5	3,4	3	3,7	2184-1
48018464	8	32	5,197	70	25	6	4,9	3	4,4	2184-1

E-HL-SFT

INDEX

Threading | Cutting taps | Helicoil EG-UNJC





- Powder metal low spiral-fluted cutting tap for blind holes
- Bright finish
- For Nickel-based alloys including Inconel 718
- For thread insert

S Ni	m/min
1-3	

EG UNJC | PM | 10° | ANSI 3B | C/2,5 | DIN 2184-1

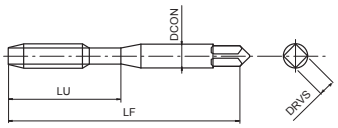
EDP	TD	TP	Cutter dia. EG	LF	THLGTH	DCON	DRVS	NOF	PHD	DIN
48015457	4	40	3,67	56	13	4	3	3	3	2184-1
48015461	6	32	4,536	63	18	4,5	3,4	3	3,7	2184-1
48015464	8	32	5,197	70	20	6	4,9	3	4,4	2184-1

H-HL-SFT

INDEX

Threading | Cutting taps | Helicoil EG-UNJC





- Powder metal low spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- For hardened steels up to 45 HRC
- For thread insert

P C ≥ 0,45%	P SCM	K GGG	S Ti	S Ni	H 25-35 HRC	H 35-45 HRC	m/min
7-12	7-12	7-12	3-5	1-3	4-8	4-8	

EG UNJC | PM | 0X | 15° | ANSI 3B | C/3 | DIN 2184-1

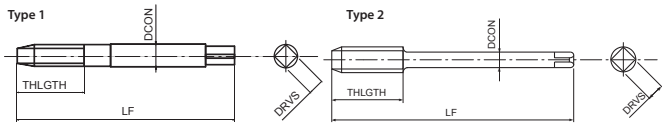
EDP	TD	TP	Cutter dia. EG	LF	THLGTH	DCON	DRVS	NOF	PHD	DIN
48017457	4	40	3,67	56	20	4	3	3	3	2184-1
48017461	6	32	4,536	63	21	4,5	3,4	3	3,7	2184-1
48017464	8	32	5,197	70	25	6	4,9	3	4,4	2184-1

E-HL-POT

INDEX

Threading | Cutting taps | Helicoil EG-UNJF





- Powder metal spiral-point cutting tap for through holes
- Bright finish
- For Nickel-based alloys including Inconel 718
- For thread insert

S Ni 2-4

m/min

EG UNJF | PM | ANSI 3B | B/5 | DIN 2184-1

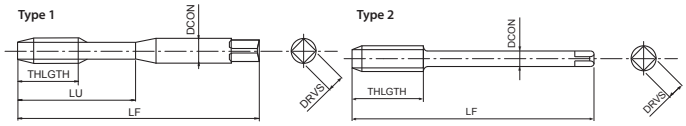
EDP	TD	TP	Cutter dia. EG	LF	THLGTH	DCON	DRVS	NOF	PHD	Type	DIN
48016467	10	32	5,857	80	23	7	5,5	3	5,1	1	2184-1
48016472	1/4	28	7,528	90	29	8	6,2	3	6,6	1	2184-1
48016476	5/16	24	9,312	90	35	10	8	3	8,3	1	2184-1
48016481	3/8	24	10,9	100	41	12	9	3	9,8	1	2184-1
48016486	7/16	20	12,762	100	22	10	8	3	11,5	2	2184-1
48016491	1/2	20	14,35	100	22	12	9	3	13,1	2	2184-1

H-HL-POT

INDEX

Threading | Cutting taps | Helicoil EG-UNJF





- Powder metal spiral-point cutting tap for through holes
- Steam oxide treatment
- For hardened steels up to 45 HRC
- For thread insert

P C ≥ 0,45% 8-13 | K GGG 10-15 | S Ti 4-6 | S Ni 2-4 | H 25-35 HRC 6-10 | H 35-45 HRC 6-10

m/min

EG UNJF | PM | OX | ANSI 3B | B/5 | DIN 2184-1

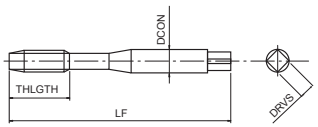
EDP	TD	TP	Cutter dia. EG	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48018467	10	32	5,857	80	-	30	7	5,5	3	5,1	1	2184-1
48018472	1/4	28	7,528	90	-	35	8	6,2	3	6,6	1	2184-1
48018476	5/16	24	9,312	90	-	35	9	7	3	8,3	1	2184-1
48018481	3/8	24	10,9	100	-	39	11	9	3	9,8	1	2184-1
48018486	7/16	20	12,762	100	22	-	9	7	3	11,5	2	2184-1
48018491	1/2	20	14,35	100	22	-	11	9	3	13,1	2	2184-1

CC-HL-SFT

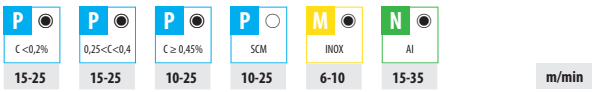
INDEX

Threading | Cutting taps | Helicoil EG-UNJF





- HSSE spiral-fluted cutting tap for blind holes
- CrN coating
- For general steels, stainless steels and aluminium
- Developed for rigid tapping on CNC machines, for thread insert



m/min

EG UNJF | HSSE | CrN | 45° | ANSI 3B | C/2,5 | DIN 2184-1

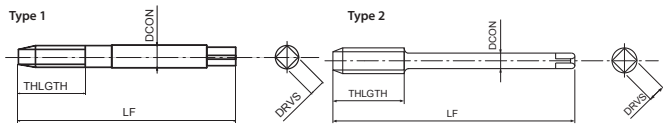
EDP	TD	TP	Cutter dia. EG	LF	THLGTH	DCON	DRVS	NOF	PHD	DIN
48033467	10	32	5,857	80	25,4	7	5,5	3	5,1	2184-1
48033472	1/4	28	7,528	90	11	8	6,2	3	6,6	2184-1
48033476	5/16	24	9,312	90	12	9	7	3	8,3	2184-1
48033481	3/8	24	10,9	100	14	11	9	3	9,8	2184-1

E-HL-SFT

INDEX

Threading | Cutting taps | Helicoil EG-UNJF





- Powder metal low spiral-fluted cutting tap for blind holes
- Bright finish
- For Nickel-based alloys including Inconel 718
- For thread insert



m/min

EG UNJF | PM | 10° | ANSI 3B | C/2,5 | DIN 2184-1

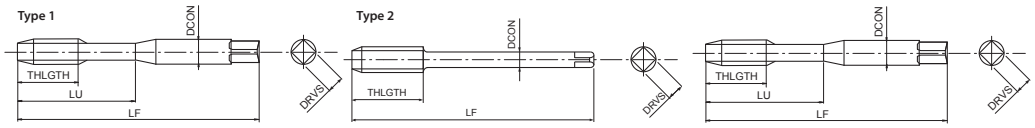
EDP	TD	TP	Cutter dia. EG	LF	THLGTH	DCON	DRVS	NOF	PHD	Type	DIN
48015467	10	32	5,857	80	21	7	5,5	3	5,1	1	2184-1
48015472	1/4	28	7,528	90	27	8	6,2	3	6,6	1	2184-1
48015476	5/16	24	9,312	90	33	10	8	3	8,3	1	2184-1
48015481	3/8	24	10,9	100	38	12	9	3	9,8	1	2184-1
48015486	7/16	20	12,762	100	15	10	8	3	11,5	2	2284-1
48015491	1/2	20	14,35	100	16	12	9	3	13,1	2	2284-1

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INDEX

Threading | Cutting taps | Helicoil EG-UNJF





- Powder metal low spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- For hardened steels up to 45 HRC
- For thread insert

P C ≥ 0,45%	P SCM	K GGG	S Ti	S Ni	H 25-35 HRC	H 35-45 HRC	
7-12	7-12	7-12	3-5	1-3	4-8	4-8	m/min

EG UNJF | PM | 0X | 15° | ANSI 3B | C/2,5 | DIN 2184-1

EDP	TD	TP	Cutter dia. EG	LF	THLGTH	LU	DCON	DRVS	NOF	PHD	Type	DIN
48017467	10	32	5,857	80	-	30	7	5,5	3	5,1	1	2184-1
48017472	1/4	28	7,528	90	-	35	8	6,2	3	6,6	1	2184-1
48017476	5/16	24	9,312	90	-	35	9	7	3	8,3	1	2184-1
48017481	3/8	24	10,9	100	-	39	11	9	3	9,8	1	2184-1
48017486	7/16	20	12,762	100	15	-	9	7	3	11,5	2	2184-1
48017491	1/2	20	14,35	100	16	-	11	9	3	13,1	2	2184-1

A-POT

INDEX

Threading | Cutting taps | BSW



- First choice in quality and performance
- Powder metal spiral-point cutting tap for through holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-60	15-60	10-60	8-30	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC
5-10	8-20

A | BSW | PM | V | MED | B/4 | DIN 2184-1

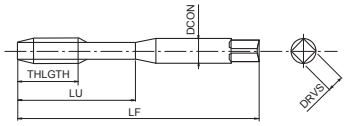
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	DIN
48205702	1/8	40	56	11	18	3,5	2,7	3	2184-1
48205704	3/16	24	70	16	25	6	4,9	3	2184-1
48205706	1/4	20	80	19	30	7	5,5	3	2184-1
48205707	5/16	18	90	22	35	8	6,2	3	2184-1
48205708	3/8	16	100	24	39	10	8	3	2184-1
48205709	7/16	14	100	24	-	8	6,2	3	2184-1
48205710	1/2	12	110	28	-	9	7	3	2184-1
48205712	5/8	11	110	32	-	12	9	3	2184-1
48205713	3/4	10	125	34	-	14	11	3	2184-1
48205714	7/8	9	140	34	-	18	14,5	3	2184-1
48205715	1	8	160	38	-	18	14,5	3	2184-1

S-POT

INDEX

Threading | Cutting taps | BSW





- HSSE spiral-point cutting tap for through holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels





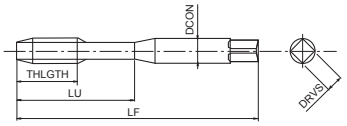
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	DIN
48272702	1/8	40	56	11	18	3,5	2,7	3	2184-1
48272704	3/16	24	70	16	25	6	4,9	3	2184-1
48272706	1/4	20	80	19	30	7	5,5	3	2184-1
48272707	5/16	18	90	22	35	8	6,2	3	2184-1
48272708	3/8	16	100	24	39	10	8	3	2184-1
48272709	7/16	14	100	24	-	8	6,2	3	2184-1
48272710	1/2	12	110	28	-	9	7	3	2184-1
48272712	5/8	11	110	32	-	12	9	3	2184-1
48272713	3/4	10	125	34	-	14	11	3	2184-1
48272714	7/8	9	140	34	-	18	14,5	3	2184-1
48272715	1	8	160	38	-	18	14,5	3	2184-1

A-SFT

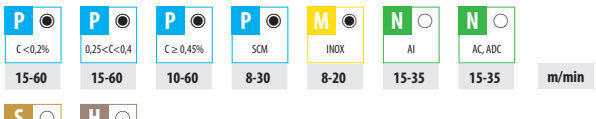
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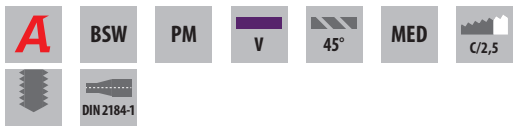
Threading | Cutting taps | BSW





- First choice in quality and performance
- Powder metal spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels





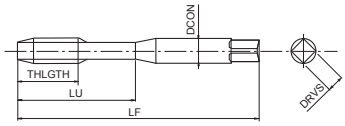
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	DIN
48139702	1/8	40	56	7	18	3,5	2,7	3	2184-1
48139704	3/16	24	70	10	25	6	4,9	3	2184-1
48139706	1/4	20	80	13	30	7	5,5	3	2184-1
48139707	5/16	18	90	14	35	8	6,2	3	2184-1
48139708	3/8	16	100	16	39	10	8	3	2184-1
48139709	7/16	14	100	22	-	8	6,2	3	2184-1
48139710	1/2	12	110	25	-	9	7	3	2184-1
48139712	5/8	11	110	27	-	12	9	3	2184-1
48139713	3/4	10	125	30	-	14	11	3	2184-1
48139714	7/8	9	140	32	-	18	14,5	3	2184-1
48139715	1	8	160	36	-	18	14,5	3	2184-1

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Threading | Cutting taps | BSW





- HSSE spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
10-15	8-14	8-14	7-11	7-12	7-14	m/min

BSW | HSSE | 0X | 40° | MED | C/2,5 | DIN 2184-1

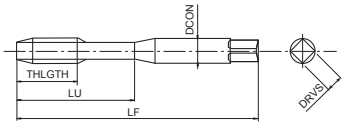
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	DIN
48223702	1/8	40	56	7	18	3,5	2,7	3	2184-1
48223704	3/16	24	70	10	25	6	4,9	3	2184-1
48223706	1/4	20	80	13	30	7	5,5	3	2184-1
48223707	5/16	18	90	14	35	8	6,2	3	2184-1
48223708	3/8	16	100	16	39	10	8	3	2184-1
48223709	7/16	14	100	22	-	8	6,2	3	2184-1
48223710	1/2	12	110	25	-	9	7	4	2184-1
48223712	5/8	11	110	27	-	12	9	4	2184-1
48223713	3/4	10	125	30	-	14	11	4	2184-1
48223714	7/8	9	140	32	-	18	14,5	4	2184-1
48223715	1	8	160	36	-	18	14,5	4	2184-1

A-POT

INDEX

Threading | Cutting taps | BSF





- First choice in quality and performance
- Powder metal spiral-point cutting tap for through holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-60	15-60	10-60	8-30	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC
5-10	8-20

A | BSF | PM | V | MED | B/4 | DIN 2184-1

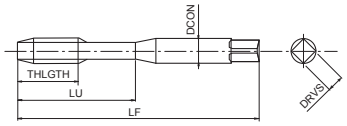
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	DIN
48205731	1/4	26	80	19	30	7	5,5	3	2184-1
48205732	5/16	22	90	22	35	8	6,2	3	2184-1
48205733	3/8	20	100	24	39	10	8	3	2184-1
48205734	7/16	18	100	24	-	8	6,2	3	2184-1
48205735	1/2	16	100	22	-	9	7	3	2184-1
48205737	5/8	14	110	32	-	12	9	3	2184-1
48205739	3/4	12	125	34	-	14	11	3	2184-1
48205742	1	10	160	38	-	18	14,5	3	2184-1

S-POT

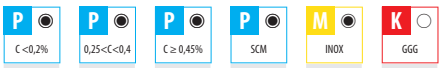
INDEX

Threading | Cutting taps | BSF





- HSSE spiral-point cutting tap for through holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels





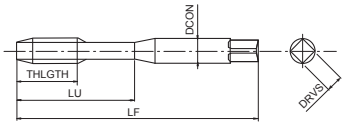
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	DIN
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48272732	5/16	22	90	22	35	8	6,2	3	2184-1
48272733	3/8	20	100	24	39	10	8	3	2184-1
48272734	7/16	18	100	24	-	8	6,2	3	2184-1
48272735	1/2	16	100	22	-	9	7	3	2184-1
48272737	5/8	14	110	32	-	12	9	3	2184-1
48272739	3/4	12	125	34	-	14	11	3	2184-1
48272742	1	10	160	38	-	18	14,5	3	2184-1

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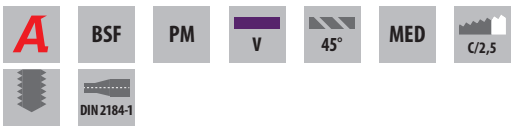
Threading | Cutting taps | BSF





- First choice in quality and performance
- Powder metal spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels





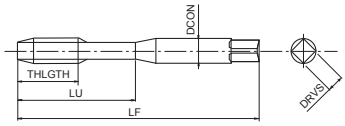
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	DIN
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48139732	5/16	22	90	17	35	8	6,2	3	2184-1
48139733	3/8	20	100	18	39	10	8	3	2184-1
48139734	7/16	18	100	22	-	8	6,2	3	2184-1
48139735	1/2	16	100	22	-	9	7	3	2184-1
48139737	5/8	14	110	27	-	12	9	3	2184-1
48139739	3/4	12	125	27	-	14	11	4	2184-1
48139742	1	10	160	36	-	18	14,5	4	2184-1

S-SFT

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Threading | Cutting taps | BSF





- HSSE spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
10-15	8-14	8-14	7-11	7-12	7-14	m/min

BSF | HSSE | 0X | 40° | MED | C/2,5 | DIN 2184-1

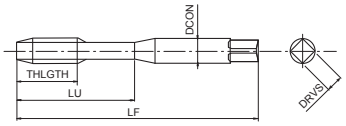
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	DIN
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48223732	5/16	22	90	17	35	8	6,2	3	2184-1
48223733	3/8	20	100	18	39	10	8	3	2184-1
48223734	7/16	18	100	22	-	8	6,2	3	2184-1
48223735	1/2	16	100	22	-	9	7	4	2184-1
48223737	5/8	14	110	27	-	12	9	4	2184-1
48223739	3/4	12	125	27	-	14	11	4	2184-1
48223742	1	10	160	36	-	18	14,5	4	2184-1

A-POT

INDEX

Threading | Cutting taps | BA





- First choice in quality and performance
- Powder metal spiral-point cutting tap for through holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-60	15-60	10-60	8-30	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC	
5-10	8-20	

A | BA (BS93) | PM | V | B/4

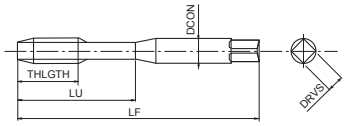
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF
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48205911	1	0,9	62	17	26	5,6	4,5	3
48205912	2	0,81	58	16	25	5	4	3
48205913	3	0,73	53	13	21	4,5	3,55	3
48205914	4	0,66	50	13	20	3,55	2,8	3
48205915	5	0,59	48	11	18	3,15	2,5	3
48205916	6	0,53	44,5	9,5	-	2,8	2,24	2
48205917	7	0,48	44,5	9,5	-	2,8	2,24	2
48205918	8	0,43	44,5	9,5	-	2,8	2,24	2
48205919	9	0,39	41	8	-	2,5	2	2
48205920	10	0,35	41	8	-	2,5	2	2
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S-POT

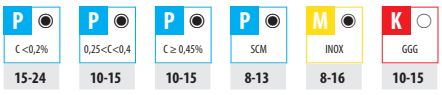
INDEX

Threading | Cutting taps | BA





- HSSE spiral-point cutting tap for through holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels





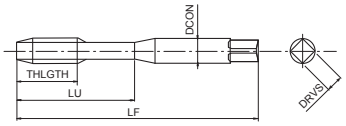
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF
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48272911	1	0,9	62	17	26	5,6	4,5	3
48272912	2	0,81	58	16	25	5	4	3
48272913	3	0,73	53	13	21	4,5	3,55	3
48272914	4	0,66	50	13	20	3,55	2,8	3
48272915	5	0,59	48	11	18	3,15	2,5	3
48272916	6	0,53	44,5	9,5	-	2,8	2,24	2
48272917	7	0,48	44,5	9,5	-	2,8	2,24	2
48272918	8	0,43	44,5	9,5	-	2,8	2,24	2
48272919	9	0,39	41	8	-	2,5	2	2
48272920	10	0,35	41	8	-	2,5	2	2
48272921	11	0,31	41	8	-	2,5	2	2
48272922	12	0,28	40	7	-	2,5	2	2

A-SFT

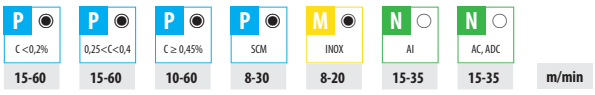
INDEX

Threading | Cutting taps | BA





- First choice in quality and performance
- Powder metal spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels





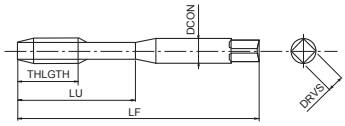
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF
48139910	0	1	66	19	30	6,3	5	3
48139911	1	0,9	62	17	26	5,6	4,5	3
48139912	2	0,81	58	16	25	5	4	3
48139913	3	0,73	53	13	21	4,5	3,55	2
48139914	4	0,66	50	13	20	3,55	2,8	2
48139915	5	0,59	48	11	18	3,15	2,5	2
48139916	6	0,53	44,5	9,5	-	2,8	2,24	2
48139917	7	0,48	44,5	9,5	-	2,8	2,24	2
48139918	8	0,43	44,5	9,5	-	2,8	2,24	2
48139919	9	0,39	41	8	-	2,5	2	2
48139920	10	0,35	41	8	-	2,5	2	2
48139921	11	0,31	41	8	-	2,5	2	2
48139922	12	0,28	40	7	-	2,5	2	2

S-SFT

INDEX

Threading | Cutting taps | BA





- HSSE spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
10-15	8-14	8-14	7-11	7-12	7-14	m/min

BA (BS93)	HSSE	OX	40°	C/2,5	

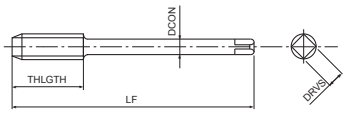
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF
48223910	0	1	66	19	30	6,3	5	3
48223911	1	0,9	62	17	26	5,6	4,5	3
48223912	2	0,81	58	16	25	5	4	3
48223913	3	0,73	53	13	21	4,5	3,55	3
48223914	4	0,66	50	13	20	3,55	2,8	3
48223915	5	0,59	48	11	18	3,15	2,5	3
48223916	6	0,53	44,5	9,5	-	2,8	2,24	2
48223917	7	0,48	44,5	9,5	-	2,8	2,24	2
48223918	8	0,43	44,5	9,5	-	2,8	2,24	2
48223919	9	0,39	41	8	-	2,5	2	2
48223920	10	0,35	41	8	-	2,5	2	2
48223921	11	0,31	41	8	-	2,5	2	2
48223922	12	0,28	40	7	-	2,5	2	2

A-POT

INDEX

Threading | Cutting taps | G (BSP)





- First choice in quality and performance
- Powder metal spiral-point cutting tap for through holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-60	15-60	10-60	8-30	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC					
5-10	8-20					

A	G	PM	V	B/4		DIN 5156

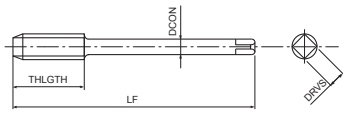
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
48145900	1/8	28	90	20	7	5,5	3	5156
48145000	1/4	19	100	22	11	9	3	5156
48145100	3/8	19	100	22	12	9	3	5156
48145200	1/2	14	125	25	16	12	3	5156
48145300	5/8	14	125	25	18	14,5	4	5156
48145400	3/4	14	140	28	20	16	4	5156
48145500	7/8	14	150	28	22	18	4	5156
48145600	1	11	160	30	25	20	4	5156

S-POT

INDEX

Threading | Cutting taps | G (BSP)





- HSSE spiral-point cutting tap for through holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
15-24	10-15	10-15	8-13	8-16	10-15	m/min

G | HSSE | OX | B/4 | DIN 5156

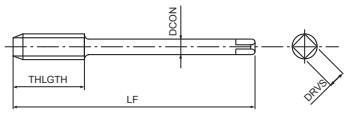
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
48224900	1/8	28	90	20	7	5,5	3	5156
48224000	1/4	19	100	22	11	9	3	5156
48224100	3/8	19	100	22	12	9	3	5156
48224200	1/2	14	125	25	16	12	3	5156
48224300	5/8	14	125	25	18	14,5	3	5156
48224400	3/4	14	140	28	20	16	4	5156
48224500	7/8	14	150	28	22	18	4	5156
48224600	1	11	160	30	25	20	4	5156

POT

INDEX

Threading | Cutting taps | G (BSP)





- HSSE spiral-point cutting tap for through holes
- Bright finish
- For general purpose applications

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	K GGG	N AI	N AC, ADC	
12-20	8-12	8-12	8-12	8-12	15-25	15-20	m/min

G | HSSE | B/4 | DIN 5156

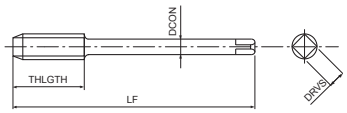
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
63581900	1/8	28	90	16	7	5,5	3	5156
63582000	1/4	19	100	20	11	9	3	5156
63582100	3/8	19	100	22	12	9	4	5156
63582200	1/2	14	125	25	16	12	4	5156
63582300	5/8	14	125	25	18	14,5	4	5156
63582400	3/4	14	140	28	20	16	4	5156
63582500	7/8	14	150	28	22	18	4	5156
63582600	1	11	160	30	25	20	4	5156

A-SFT

INDEX

Threading | Cutting taps | G (BSP)





- First choice in quality and performance
- Powder metal spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-60	15-60	10-60	8-30	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC
5-10	8-20

A	G	PM	V	45°	C/2,5		
DIN 5156							

EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
48139700	1/16	28	90	22	6	4,9	3	5156
48139900	1/8	28	90	20	7	5,5	3	5156
48139000	1/4	19	100	22	11	9	3	5156
48139100	3/8	19	100	22	12	9	4	5156
48139200	1/2	14	125	25	16	12	4	5156
48139300	5/8	14	125	25	18	14,5	4	5156
48139400	3/4	14	140	28	20	16	4	5156
48139500	7/8	14	150	28	22	18	4	5156
48139600	1	11	160	30	25	20	4	5156

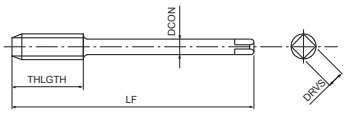
A-SFT-INOX

INDEX

Threading | Cutting taps | G (BSP)

NEW





- First choice in quality and performance
- Powder metal spiral-fluted cutting tap for blind holes
- Multilayer VI coating
- Eliminates chip entanglement issues in stainless steel

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N AC, ADC	
5-20	5-50	5-50	5-30	5-15	5-50	m/min

A	G	PM	VI	45°	C/2,5	
DIN 5156						

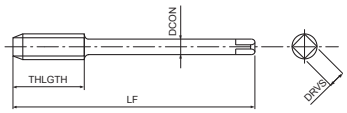
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
48455700	1/16	28	90	22	6	4,9	3	5156
48455900	1/8	28	90	20	7	5,5	3	5156
48455000	1/4	19	100	22	11	9	3	5156
48455100	3/8	19	100	22	12	9	4	5156
48455200	1/2	14	125	25	16	12	4	5156
48455300	5/8	14	125	25	18	14,5	4	5156
48455400	3/4	14	140	28	20	16	4	5156
48455500	7/8	14	150	28	22	18	4	5156
48455600	1	11	160	30	25	20	4	5156

S-SFT

INDEX

Threading | Cutting taps | G (BSP)





- HSSE spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
10-15	8-14	8-14	7-11	7-12	7-14	m/min

G	HSSE	OX	40°	C/2,5		DIN 5156

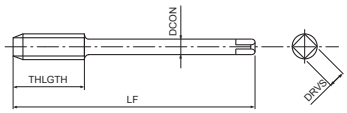
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
48223900	1/8	28	90	20	7	5,5	3	5156
48223000	1/4	19	100	22	11	9	4	5156
48223100	3/8	19	100	22	12	9	4	5156
48223200	1/2	14	125	25	16	12	4	5156
48223300	5/8	14	125	25	18	14,5	4	5156
48223400	3/4	14	140	28	20	16	4	5156
48223500	7/8	14	150	28	22	18	4	5156
48223600	1	11	160	30	25	20	4	5156

VA-SFT

INDEX

Threading | Cutting taps | G (BSP)





- HSSE spiral-fluted cutting tap for blind holes
- Steam oxide treatment
- General purpose tapping in steels and stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GGG	
10-15	8-14	8-14	7-11	7-12	7-14	m/min

G	HSSE	OX	40°	C/2,5		DIN 5156

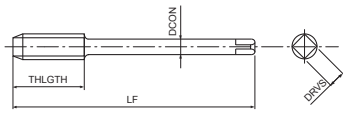
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
65881909	1/8	28	90	11	7	5,5	4	5156
65882009	1/4	19	100	16	11	9	4	5156
65882109	3/8	19	100	16	12	9	5	5156
65882209	1/2	14	125	22	16	12	5	5156
65882309	5/8	14	125	22	18	14,5	5	5156
65882409	3/4	14	140	22	20	16	5	5156
65882509	7/8	14	150	22	22	18	5	5156
65882609	1	11	160	28	25	20	5	5156

SFT

INDEX

Threading | Cutting taps | G (BSP)





- HSSE spiral-fluted cutting tap for blind holes
- Bright finish
- For general purpose applications

P	P	P	P	K	N	N	
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	GGG	Al	AC, ADC	
8-13	7-12	7-12	6-9	6-8	10-20	10-15	m/min

G | HSSE | 40° | C/2,5 | DIN 5156

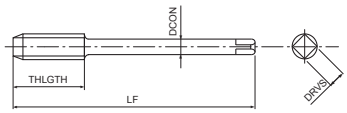
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
63681900	1/8	28	90	16	7	5,5	3	5156
63682000	1/4	19	100	20	11	9	3	5156
63682100	3/8	19	100	22	12	9	3	5156
63682200	1/2	14	125	25	16	12	4	5156
63682300	5/8	14	125	25	18	14,5	4	5156
63682400	3/4	14	140	28	20	16	4	5156
63682500	7/8	14	150	28	22	18	4	5156
63682600	1	11	160	30	25	20	4	5156

SH-SFT

INDEX

Threading | Cutting taps | G (BSP)





- HSSE low spiral-fluted cutting tap for blind holes
- Bright finish
- For alloyed steels ≥ 1100N/mm^2
- Short chip creation

P	P	P	K	K	N	
0,25<C<0,4	C ≥ 0,45%	SCM	GG	GGG	AC, ADC	
7-12	7-12	6-9	7-12	6-8	10-15	m/min

G | HSSE | 15° | C/3 | DIN 5156

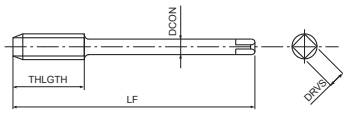
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
72281900	1/8	28	90	16	7	5,5	3	5156
72282000	1/4	19	100	20	11	9	4	5156
72282100	3/8	19	100	22	12	9	4	5156
72282200	1/2	14	125	25	16	12	4	5156

M-SFT-DUPLEX

INDEX

Threading | Cutting taps | G (BSP)





- Powder metal spiral-fluted cutting tap for blind holes
- TiN coating
- For stainless steels, Duplex, Super Duplex

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	S Inconel 625	S Ti Gr.2	
10-25	10-25	10-25	8-20	3-15 Super Duplex	3-6 15-5 PH	2-3 17-4 PH	m/min

G	PM	TiN	50°	C/2,5		DIN 5156

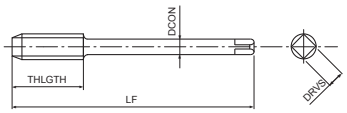
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
48336900	1/8	28	90	20	7	5,5	4	5156
48336000	1/4	19	100	22	11	9	4	5156
48336100	3/8	19	100	22	12	9	4	5156
48336200	1/2	14	125	25	16	12	4	5156
48336300	5/8	14	125	25	18	14,5	4	5156
48336400	3/4	14	140	28	20	16	4	5156
48336500	7/8	14	150	28	22	18	4	5156
48336600	1	11	160	30	25	20	4	5156

CC-SFT

INDEX

Threading | Cutting taps | G (BSP)





- HSSE spiral-fluted cutting tap for blind holes
- CrN coating
- For general steels, stainless steels and aluminium
- Developed for rigid tapping on CNC machines

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	
15-25	15-25	10-25	10-25	6-10	15-35	m/min

G	HSSE	CrN	45°	C/2,5	≥2D	DIN 5156

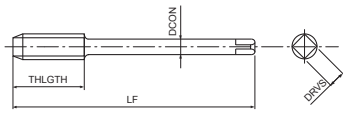
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
48034838	1/8	28	90	10	7	5,5	3	5156
48034839	1/4	19	100	15	11	9	4	5156
48034840	3/8	19	100	15	12	9	4	5156
48034841	1/2	14	125	20	16	12	4	5156

VP-DC-MT

INDEX

Threading | Cutting taps | G (BSP)





- Powder metal straight flute cutting tap for through and blind holes
- Multilayer TiCN coating
- For cast iron and cast aluminium
- Synchro taps at cutting speeds > 30 m/min

P	P	K	K	N	H	H	
C ≥ 0,45%	SCM	GG	GGG	AC, ADC	25-35 HRC	35-45 HRC	
10-25	10-20	15-60	15-40	25-70	8-20	8-20	m/min

G	PM	V	C/2,5			DIN 5156

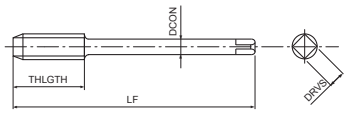
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	LH	DIN
48020837	1/16	28	90	11	6	4,9	4	32	5156
48020838	1/8	28	90	11	7	5,5	4	32	5156
48020839	1/4	19	100	16	11	9	4	35	5156
48020840	3/8	19	100	16	12	9	4	35	5156
48020841	1/2	14	125	22	16	12	5	44	5156
48020842	5/8	14	125	22	18	14,5	5	44	5156
48020843	3/4	14	140	22	20	16	5	49	5156
48020844	7/8	14	150	22	22	18	5	53	5156
48020845	1	11	160	28	25	20	6	56	5156
48020846	1 1/8	11	170	28	28	22	6	60	5156
48020847	1 1/4	11	170	28	32	24	6	60	5156
48020849	1 1/2	11	190	28	36	29	6	67	5156
48020850	1 3/4	11	190	28	40	32	6	67	5156
48020851	2	11	220	28	45	35	6	77	5156

GG-MT

INDEX

Threading | Cutting taps | G (BSP)





- HSSE straight flute cutting tap for blind and through holes
- NiOx coating
- For cast iron

K	K						
GG	GGG						
10-15	7-12						m/min

G	HSSE	NI-OX	C/2,5			DIN 5156

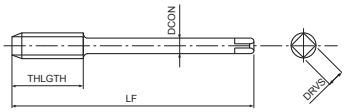
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
67681900	1/8	28	90	16	7	5,5	4	5156
67682000	1/4	19	100	20	11	9	4	5156
67682100	3/8	19	100	22	12	9	4	5156
67682200	1/2	14	125	25	16	12	4	5156

VX-OT

INDEX

Threading | Cutting taps | G (BSP)





- Carbide straight flute cutting tap for blind and through holes
- Multilayer TiCN coating
- For hardened steels up to 62 HRC





EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
48080838	1/8	28	90	11	7	5,5	5	5156
48080839	1/4	19	100	16	11	9	5	5156
48080840	3/8	19	100	16	12	9	6	5156
48080841	1/2	14	125	22	16	12	6	5156

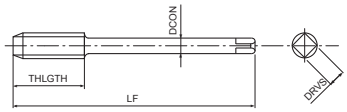
A-XPF

INDEX

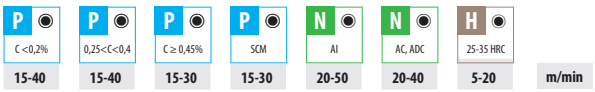
Threading | Forming taps | G (BSP)

NEW





- First choice in quality and performance
- Powder metal forming tap for through & blind holes
- Multilayer VI coating
- High speed tapping in general steels and aluminium





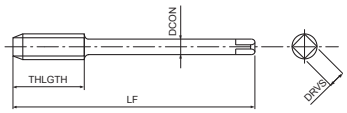
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	PHD	DIN
48433838	1/8	28	90	9	7	5,5	8	9,24 ~ 9,35	2189
48433839	1/4	19	100	13	11	9	9	12,41 ~ 12,62	2189
48433840	3/8	19	100	13	12	9	9	15,92 ~ 16,12	2189
48433841	1/2	14	125	18	16	12	9	19,93 ~ 20,15	2189

A-OIL-XPF

INDEX

Threading | Forming taps | G (BSP) **NEW**





- First choice in quality and performance
- Powder metal forming tap for through & blind holes
- Multilayer VI coating
- High speed tapping in general steels and aluminium
- Side through coolant

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	N Al	N AC, ADC	H 25-35 HRC	
15-40	15-40	15-30	15-30	20-50	20-40	5-20	m/min

A | G | PM | VI | C/2,5 | DIN 2189

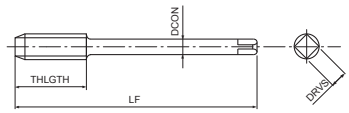
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	PHD	DIN
48225838	1/8	28	90	9	7	5,5	8	9,24 ~ 9,35	2189
48225839	1/4	19	100	13	11	9	9	12,41 ~ 12,62	2189
48225840	3/8	19	100	13	12	9	9	15,92 ~ 16,12	2189
48225841	1/2	14	125	18	16	12	9	19,93 ~ 20,15	2189

A-XPF FORM E

INDEX

Threading | Forming taps | G (BSP) **NEW**





- First choice in quality and performance
- Powder metal forming tap for through & blind holes
- Multilayer VI coating
- High speed tapping in general steels and aluminium
- Form E chamfer

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	N Al	N AC, ADC	H 25-35 HRC	
15-40	15-40	15-30	15-30	20-50	20-40	5-20	m/min

A | G | PM | VI | E/1,5 | DIN 2189

EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	PHD	DIN
48436900	1/8	28	90	9	7	5,5	8	9,24 ~ 9,35	2189
48436000	1/4	19	100	13	11	9	9	12,41 ~ 12,62	2189
48436100	3/8	19	100	13	12	9	9	15,92 ~ 16,12	2189
48436200	1/2	14	125	18	16	12	9	19,93 ~ 20,15	2189

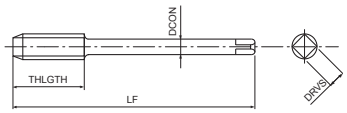
A-OIL-XPF FORM E

INDEX

Threading | Forming taps | G (BSP)

NEW





- First choice in quality and performance
- Powder metal forming tap for blind holes
- Multilayer VI coating
- High speed tapping in general steels and aluminium
- Centre through coolant, Form E chamfer

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	N Al	N AC, ADC	H 25-35 HRC	
15-40	15-40	15-30	15-30	20-50	20-40	5-20	m/min

A	G	PM	VI	E/1,5			
DIN 2189							

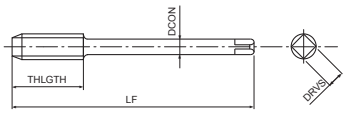
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	PHD	DIN
48437900	1/8	28	90	9	7	5,5	8	9,24 ~ 9,35	2189
48437000	1/4	19	100	13	11	9	9	12,41 ~ 12,62	2189
48437100	3/8	19	100	13	12	9	9	15,92 ~ 16,12	2189
48437200	1/2	14	125	18	16	12	9	19,93 ~ 20,15	2189

S-XPF

INDEX

Threading | Forming taps | G (BSP)





- First choice in quality and performance
- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC
5-20

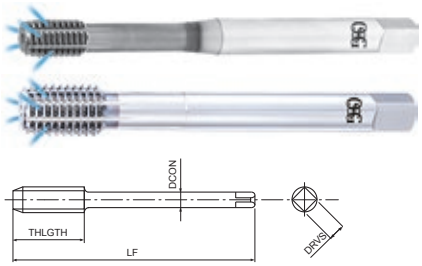
A	G	HSS-Co	V	C/2,5			
DIN 2189							

EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	PHD	DIN
48064838	1/8	28	90	9	7	5,5	8	9,24 ~ 9,35	2189
48064839	1/4	19	100	13	11	9	8	12,41 ~ 12,62	2189
48064840	3/8	19	100	13	12	9	8	15,92 ~ 16,12	2189
48064841	1/2	14	125	18	16	12	8	19,93 ~ 20,15	2189
48064842	5/8	14	125	18	18	14,5	8	21,89 ~ 22,11	2189
48064843	3/4	14	140	18	20	16	8	25,42 ~ 25,64	2189
48064844	7/8	14	150	18	22	18	8	29,18 ~ 29,40	2189
48064845	1	11	160	23	25	20	8	31,92 ~ 32,20	2189

S-OIL-XPF

INDEX

Threading | Forming taps | G (BSP)



- First choice in quality and performance
- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- For general steels, stainless steels, aluminium
- Side through coolant

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC
5-20

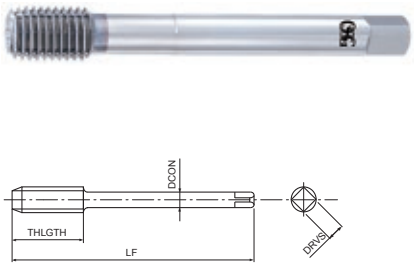
A	G	HSS-Co	V	C/2,5			
	DIN 2189						

EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	PHD	DIN
48042839	1/4	19	100	13	11	9	8	12,41 ~ 12,62	2189
48042840	3/8	19	100	13	12	9	8	15,92 ~ 16,12	2189
48042841	1/2	14	125	18	16	12	8	19,93 ~ 20,15	2189
48042842	5/8	14	125	18	18	14,5	8	21,89 ~ 22,11	2189
48042843	3/4	14	140	18	20	16	8	25,42 ~ 25,64	2189
48042844	7/8	14	150	18	22	18	8	29,18 ~ 29,40	2189
48042845	1	11	160	23	25	20	8	31,92 ~ 32,20	2189

S-XPF-GL

INDEX

Threading | Forming taps | G (BSP)



- First choice in quality and performance
- HSSE forming tap for through and blind holes
- Multilayer TiCN coating
- Without oil grooves for higher rigidity

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-40	15-40	15-30	15-30	8-20	20-50	20-40	m/min

H 25-35 HRC
5-20

A	G	HSS-Co	V	C/2,5			
	DIN 2189						

EDP	TD	TP	LF	THLGTH	DCON	DRVS	PHD	DIN
48296838	1/8	28	90	9	7	5,5	9,24 ~ 9,35	2189
48296839	1/4	19	100	13	11	9	12,41 ~ 12,62	2189
48296840	3/8	19	100	13	12	9	15,92 ~ 16,12	2189
48296841	1/2	14	125	18	16	12	19,93 ~ 20,15	2189
48296842	5/8	14	125	18	18	14,5	21,89 ~ 22,11	2189
48296843	3/4	14	140	18	20	16	25,42 ~ 25,64	2189
48296844	7/8	14	150	18	22	18	29,18 ~ 29,40	2189
48296845	1	11	160	23	25	20	31,92 ~ 32,20	2189

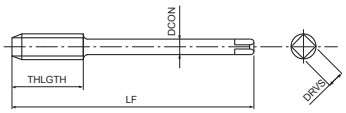
VA-XPF

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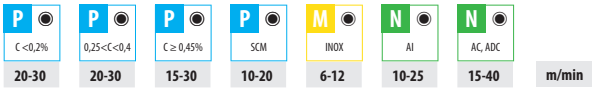
NEW

Threading | Forming taps | G (BSP)





- Powder metal forming tap for through & blind holes
- AlCrN coating
- For general steels, stainless steels and aluminium





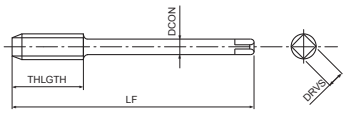
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	PHD	DIN
48443838	1/8	28	90	12	7	5,5	5	9,25	2189
48443839	1/4	19	100	15	11	9	6	12,5	2189
48443840	3/8	19	100	15	12	9	6	16	2189
48443841	1/2	14	125	18	16	12	7	20	2189
48443842	5/8	14	125	25	18	14,5	7	22	2189
48443843	3/4	14	140	28	20	16	8	25,5	2189
48443844	7/8	14	150	22	22	18	8	29,18 ~ 29,40	2189
48443845	1	11	160	30	25	20	8	31,92 ~ 32,20	2189

M-NRT

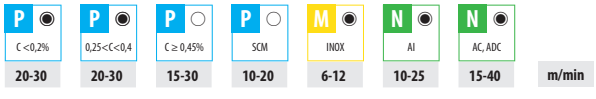
INDEX

Threading | Forming taps | G (BSP)





- Powder metal forming tap for through & blind holes
- TiN coating
- For general steels, stainless steels and aluminium





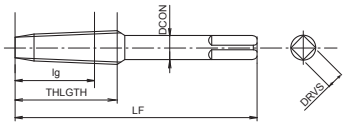
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	PHD	DIN
EP0203838	1/8	28	90	18	7	5,5	5	9,25	2189
EP0203839	1/4	19	100	22	11	9	6	12,5	2189
EP0203840	3/8	19	100	22	12	9	6	16	2189
EP0203841	1/2	14	125	25	16	12	7	20	2189
EP0203842	5/8	14	125	25	18	14,5	7	22	2189
EP0203843	3/4	14	140	28	20	16	8	25,5	2189

A-SFT RC

INDEX

Threading | Cutting taps | RC (BSPT)





- First choice in quality and performance
- Powder metal spiral flute cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in general steels and aluminium
- Rc (BSPT) tapered 1:16

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	N Al	N AC, ADC	
15-60	15-60	10-60	8-30	15-35	15-35	m/min

A | Rc (BSPT) | PM | V | 45° | C/2,5 | DIN 5156

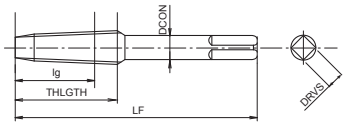
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	DIN
48302374	1/16	28	90	10,1	14	6	4,9	3	5156
48302384	1/8	28	90	10,1	15	7	5,5	3	5156
48302394	1/4	19	100	15	19	11	9	3	5156
48302404	3/8	19	100	15,4	21	12	9	4	5156
48302414	1/2	14	125	20,5	26	16	12	4	5156
48302434	3/4	14	140	21,8	28	20	16	4	5156
48302454	1	11	160	26	33	25	23	4	5156

A-TPT

INDEX

Threading | Cutting taps | RC (BSPT)





- First choice in quality and performance
- Powder metal straight flute cutting tap for through and blind holes
- Multilayer TiCN coating
- High speed tapping in general steels and aluminium
- RC (BSPT) tapered 1:16

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	N Al	N AC, ADC	
5-10	5-10	5-10	5-10	5-10	10-15	m/min

A | Rc (PT) | PM | V | C/2,5 | DIN 5156

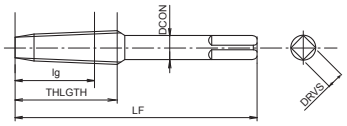
EDP	TD	TP	LF	LU	DCON	DRVS	NOF	DIN
48212384	1/8	28	90	15	7	5,5	4	5156
48212394	1/4	19	100	19	11	9	4	5156
48212404	3/8	19	110	21	12	9	4	5156
48212414	1/2	14	125	26	16	12	4	5156
48212434	3/4	14	140	28	20	16	4	5156
48212454	1	11	160	33	25	20	4	5156

S-TPT

INDEX

Threading | Cutting taps | RC (BSPT)





- HSSE straight flute cutting tap for through & blind holes
- Steam oxide treatment
- For general steels and aluminium
- RC (BSPT) tapered 1:16

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	N Al	N AC, ADC	
5-10	5-10	5-10	5-10	5-10	10-15	m/min

Rc (PT)	HSSE	OX	C/2,5			DIN 5156

EDP	TD	TP	LF	LU	DCON	DRVS	NOF	DIN
48281384	1/8	28	90	15	7	5,5	4	5156
48281394	1/4	19	100	19	11	9	4	5156
48281404	3/8	19	110	21	12	9	4	5156
48281414	1/2	14	125	26	16	12	4	5156
48281434	3/4	14	140	28	20	16	4	5156
48281454	1	11	160	33	25	20	4	5156

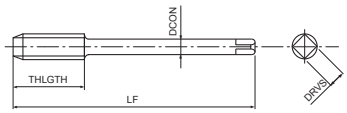
A-SFT FORM E

INDEX

Threading | Cutting taps | Rp

NEW





- First choice in quality and performance
- Powder metal spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-60	15-60	10-60	8-30	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC
5-10	8-20

A	Rp	PM	V	45°	E/1,5		DIN 5156

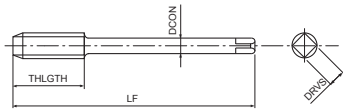
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
48203799	1/16	28	90	22	6	4,9	3	5156
48203999	1/8	28	90	20	7	5,5	3	5156
48203099	1/4	19	100	22	11	9	3	5156
48203199	3/8	19	100	22	12	9	4	5156
48203299	1/2	14	125	25	16	12	4	5156
48203499	3/4	14	140	28	20	16	4	5156
48203699	1	11	160	30	25	20	4	5156

A-SFT FORM E

INDEX

Threading | Cutting taps | NPSF





- First choice in quality and performance
- Powder metal spiral-fluted cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in general steels, aluminium, stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	N Al	N AC, ADC	
15-60	15-60	10-60	8-30	8-20	15-35	15-35	m/min

S Ti	H 25-35 HRC
5-10	8-20

A	NPSF	PM	V	45°	E/1,5		DIN 5156

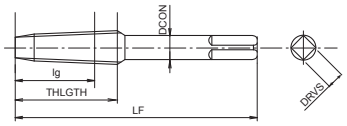
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
48203885	1/16	27	90	14	6	4,9	3	5156
48203886	1/8	27	90	20	7	5,5	3	5156
48203887	1/4	18	100	22	11	9	3	5156
48203888	3/8	18	100	22	12	9	4	5156
48203889	1/2	14	125	25	16	12	4	5156
48203890	3/4	14	140	28	20	16	4	5156
48203891	1	11,5	160	30	25	20	4	5156

A-SFT NPT

INDEX

Threading | Cutting taps | NPT





- First choice in quality and performance
- Powder metal spiral flute cutting tap for blind holes
- Multilayer TiCN coating
- High speed tapping in general steels and aluminium
- NPT tapered 1:16

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	N Al	N AC, ADC	
5-10	5-10	5-10	5-10	5-10	10-15	m/min

A	NPT	PM	V	45°	C/2,5		DIN 5156

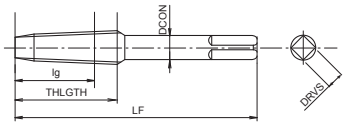
EDP	TD	TP	LF	THLGTH	LU	DCON	DRVS	NOF	DIN
48331500	1/16	27	90	12	18	6	4,9	3	5156
48331600	1/8	27	90	12,05	19	7	5,5	3	5156
48331700	1/4	18	100	17,45	28	11	9	3	5156
48331800	3/8	18	110	17,65	28	12	9	4	5156
48331900	1/2	14	125	22,85	35	16	12	4	5156
48331000	3/4	14	140	22,95	35	20	16	4	5156
48331100	1	11,5	160	27,4	45	25	20	4	5156

NPT

INDEX

Threading | Cutting taps | NPT





- HSSE straight flute cutting tap for through & blind holes
- For general steels, aluminium and cast iron
- Tapered 1:16

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	K GG	K GGG	N Al	
3-6	3-6	2-5	2-5	2-5	4-8	5-10	m/min

N AC, ADC
10-15

NPT	HSSE	C/2,5			DIN 2181

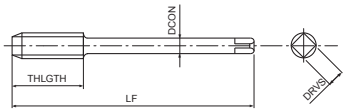
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
60087500	1/16	27	56	14	6	4,9	4	2181
60087600	1/8	27	63	15	7	5,5	4	2181
60087700	1/4	18	63	21	11	9	4	2181
60087800	3/8	18	70	21	12	9	4	2181
60087900	1/2	14	80	27	16	12	4	2181
60088000	3/4	14	100	27	20	16	5	2181
60088100	1	11,5	110	32	25	20	5	2181

PG

INDEX

Threading | Cutting taps | PG





- HSSE straight flute cutting tap for through & blind holes
- Bright finish
- For general steels, aluminium and cast iron
- For PG thread

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	K GGG	N Al	N AC, ADC	
8-13	7-12	6-9	7-12	10-20	10-15	m/min

Pg	HSSE	C/2,5			DIN 374

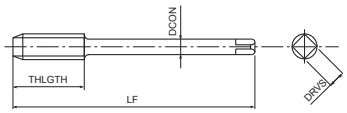
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
1089700110	7	20	100	22	9	7	4	374
1089700060	9	18	100	22	12	9	4	374
1089700020	11	18	110	25	14	11	4	374
1089700120	13,5	18	125	25	16	12	4	374
1089700220	16	18	125	25	18	14,5	4	374
1089700030	21	16	150	30	22	18	4	374
1089700130	29	16	170	33	28	22	6	374
1089700140	36	16	190	36	36	29	6	374
1089700150	42	16	220	36	40	32	6	374
1089700160	48	16	250	36	45	35	6	374

HT

INDEX

Threading | Cutting taps | Metric





- HSS straight flute cutting tap for through & blind holes
- Bright finish
- For general steels, aluminium and cast iron
- Progressive thread , set of 3 taps with short shank
- 5, 3,5 & 2 pitch chamfer lead

P	P	K	N	N	
0,25<C<0,4	C ≥ 0,45%	GGG	AI	AC, ADC	
7-12	6-9	7-12	10-20	10-15	m/min

M	HSS	ISO 2 6H			DIN 352

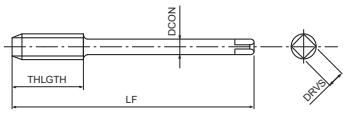
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
10212566	2	0,4	36	8	2,8	2,1	3	352
10213866	3	0,5	40	11	3,5	2,7	3	352
10214066	3,5	0,6	45	12	4	3	3	352
10214466	4	0,7	45	13	4,5	3,4	3	352
10214966	5	0,8	50	16	6	4,9	3	352
10215566	6	1	56	19	6	4,9	3	352
10216166	8	1,25	63	22	6	4,9	4	352
10216966	10	1,5	70	24	7	5,5	4	352
10217966	12	1,75	75	28	9	7	4	352
10219166	14	2	80	30	11	9	4	352
10220266	16	2	80	32	12	9	4	352
10221466	18	2,5	95	34	14	11	4	352
10222866	20	2,5	95	34	16	12	4	352

HT-VA-OX

INDEX

Threading | Cutting taps | Metric





- HSS straight flute cutting tap for through & blind holes
- Steam oxide treatment
- For general steels, aluminium and cast iron
- Progressive thread , set of 3 taps with short shank
- 5, 3,5 & 2 pitch chamfer lead

P	P	K	N	N	
0,25<C<0,4	C ≥ 0,45%	GGG	AI	AC, ADC	
7-12	6-9	7-12	10-20	10-15	m/min

M	HSS	OX	ISO 2 6H			DIN 352

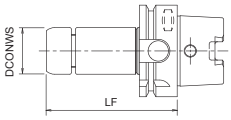
EDP	TD	TP	LF	THLGTH	DCON	DRVS	NOF	DIN
60112596	2	0,4	36	8	2,8	2,1	3	352
60113896	3	0,5	40	11	3,5	2,7	3	352
60114496	4	0,7	45	13	4,5	3,4	3	352
60114996	5	0,8	50	24	6	4,9	3	352
60115596	6	1	56	27	6	4,9	3	352
60116196	8	1,25	63	22	6	4,9	4	352
60116996	10	1,5	70	24	7	5,5	4	352
60117996	12	1,75	75	28	9	7	4	352
60119196	14	2	80	30	11	9	4	352
60120296	16	2	80	32	12	9	4	352
60121496	18	2,5	95	34	14	11	4	352
60122896	20	2,5	95	34	16	12	4	352

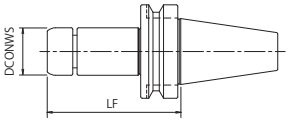
SYNCHROMASTER INDEX

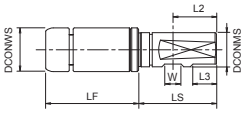
Threading | Holder | SynchroMaster

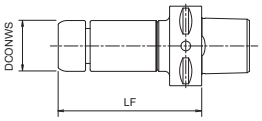












- Tap holder synchronized
- Improve the tool life
- For tapping sizes from M3 to M24
- HSK & BT type for ER16, ST & Polygon Taper Shank Type for ER16 & ER32 collet

EDP	Designation	LF	LS	DCONWS	DCONMS	L2	L3
79912	HSK40A-SMH16-85	85	-	32	-	-	-
79913	HSK63A-SMH16-90	90	-	32	-	-	-
79910	BT30-SMH16-90	90	-	32	-	-	-
79911	BT40-SMH16-90	90	-	32	-	-	-
79924	ST20D-SMH16-68	68	51	32	20	25	-
79925	ST25D-SMH16-68	68	57	32	25	32	17
48329004	ST20D-SMH32-87	87	51	50	20	25	-
48329002	ST25D-SMH32-87	87	57	50	25	32	17
79994	C4-SMH16-90A	90	-	32	-	-	-
79995	C5-SMH16-90A	90	-	32	-	-	-
79996	C6-SMH16-90A	90	-	32	-	-	-
79997	C5-SMH32-120A	120	-	50	-	-	-
79998	C6-SMH32-120A	120	-	50	-	-	-

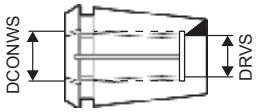
Accessories and spare parts

Applicable	EDP	Designation	Specification
SMH16	79923	FKT-32L	Wrench
SMH16	79922	ERP-16T	Cap Nut
SMH32	79993	FKT-50L	Wrench
SMH32	79992	ERP-32T	Cap Nut

SYNCHROMASTER Collet

Threading | Holder | SynchroMaster





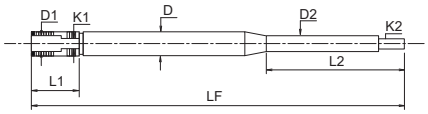
EDP	Designation	DCONWS	DRVS	DIN 371	DIN 376
79949	ER16GH3,52,7	3,5	2,7	M3	M5
79951	ER16GH4,53,4	4,5	3,4	M4	M6
79953	ER16GH64,9	6	4,9	M5 M6	M8
79919	ER16GH75,5	7	5,5	M7	M10
79955	ER16GH86,3	8	6,3	M8	M11
79956	ER16GH97,1	9	7,1	M9	M12
79970	ER32GH-7x5,5	7	5,5	M7	M10
48329007	ER32GH-8x6,3	8	6,3	M8	M11
48329008	ER32GH-9x7,1	9	7,1	M9	M12
79973	ER32GH-10x8	10	8	M10	-
79975	ER32GH-11x9	11	9	-	M14
79976	ER32GH-12x9	12	9	-	M16
79978	ER32GH-14x11,2	14	11,2	-	M18
79980	ER32GH-16x12	16	12	-	M20
48329014	ER32GH-18x14,5	18	14,5	-	M22 M24

TAP EXTENSION SHANK

Threading | Tap Extension **NEW**

INDEX





- Short tap extensions
- Without internal coolant supply
- For machining deeper threads with standard threading tools

DIN 371 DIN 376

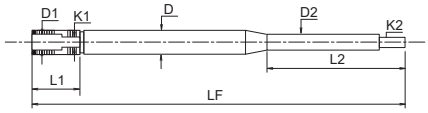
EDP	Tap size	DIN	D1	K1	L1	D2	K2	D	L2	LF
20137113006	M4,5-6	DIN371	6	4,9	25	6	4,9	11	40	130
20137113007	M7	DIN371	7	5,5	25	7	5,5	12	40	130
20137113008	M8	DIN371	8	6,2	25	8	6,2	13	50	130
20137113010	M10	DIN371	10	8	27	10	8	15	50	130
20137613012	M12	DIN376	9	7	27	9	7	15	50	130
20137613014	M14	DIN376	11	9	27	11	9	17	60	130
20137613016	M16	DIN376	12	9	27	12	9	18	60	130
20137620018	M18	DIN376	14	11	27	14	11	20	60	200
20137620020	M20	DIN376	16	12	27	16	12	22	70	200
20137620024	M22-24	DIN376	18	14,5	30	18	14,5	24	70	200
20137620027	M27	DIN376	20	16	37	20	16	26	70	200
20137620030	M30	DIN376	22	18	40	22	18	28	80	200
20137620033	M33	DIN376	25	20	40	25	20	32	80	200

TAP EXTENSION SHANK

Threading | Tap Extension **NEW**

INDEX





- Long tap extensions
- Without internal coolant supply
- For machining deeper threads with standard threading tools

DIN 371 DIN 376

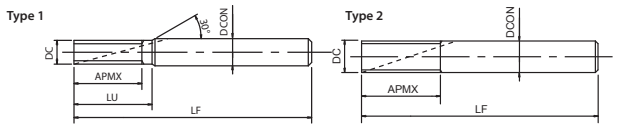
EDP	Tap size	DIN	D1	K1	L1	D2	K2	D	L2	LF
20137123006	M4,5-6	DIN371	6	4,9	25	6	4,9	11	40	230
20137123007	M7	DIN371	7	5,5	25	7	5,5	12	40	230
20137123008	M8	DIN371	8	6,2	25	8	6,2	13	50	230
20137123010	M10	DIN371	10	8	27	10	8	15	50	230
20137623012	M12	DIN376	9	7	27	9	7	15	50	230
20137623014	M14	DIN376	11	9	27	11	9	17	60	230
20137623016	M16	DIN376	12	9	27	12	9	18	60	230
20137633018	M18	DIN376	14	11	27	14	11	20	60	330
20137633020	M20	DIN376	16	12	27	16	12	22	70	330
20137633024	M22-24	DIN376	18	14,5	30	18	14,5	24	70	330
20137633027	M27	DIN376	20	16	37	20	16	26	70	330
20137633030	M30	DIN376	22	18	40	22	18	28	80	330
20137633033	M33	DIN376	25	20	40	25	20	32	80	330

AT-1

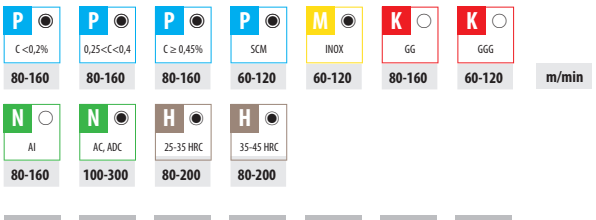
INDEX

Threading | Thread milling | Metric & Metric Fine





- First choice in quality and performance
- One pass thread mill
- EgiAs coating
- For all materials and hardened steels up to 45 HRC
- "ThreadPro" NC code generator software available



A.271

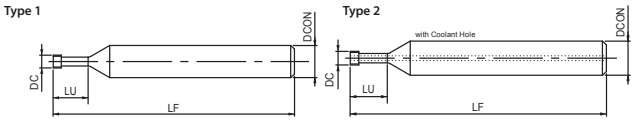
EDP	Min cutting bore diameter	TP	DC	LF	APMX	LU	DCON	NOF	Type
8331000	M6	0,75	4,5	75	13,5	15	6	4	1
8331001	M6	1	4,5	75	14	16	6	4	1
8331002	M8	0,5	5,7	75	17	-	6	4	2
8331003	M8	1	5,7	75	18	-	6	4	2
8331004	M8	1,25	5,7	75	18,75	-	6	4	2
8331005	M10	1	7,7	85	22	-	8	4	2
8331006	M10	1,25	7,7	85	22,5	-	8	4	2
8331007	M10	1,5	7,7	85	24	-	8	4	2
8331008	M12	1	9,7	100	26	-	10	5	2
8331009	M12	1,25	9,7	100	27,5	-	10	5	2
8331010	M12	1,5	9,7	100	27	-	10	5	2
8331011	M12	1,75	9,7	100	28	-	10	5	2
8331016	M14	2	9,7	100	32	-	10	5	2
8331012	M14	0,5	11,7	120	29	-	12	5	2
8331013	M14	0,75	11,7	120	30	-	12	5	2
8331014	M14	1	11,7	120	30	-	12	5	2
8331015	M14	1,5	10,7	120	31,5	34,5	12	5	1
8331019	M16	2	11,7	120	36	-	12	5	2
8331017	M16	1	13,7	135	34	36	16	5	1
8331018	M16	1,5	13,7	135	36	39	16	5	1
8331020	M18	2,5	11,7	120	42,5	-	12	5	2
8331021	M20	1,5	15,7	135	43,5	-	16	5	2
8331022	M20	2,5	13,7	135	45	50	16	5	1
8331023	M24	1,5	19,7	150	51	-	20	6	2
8331024	M24	2	19,7	150	52	-	20	6	2
8331025	M24	3	19,7	150	54	-	20	6	2

AT-2

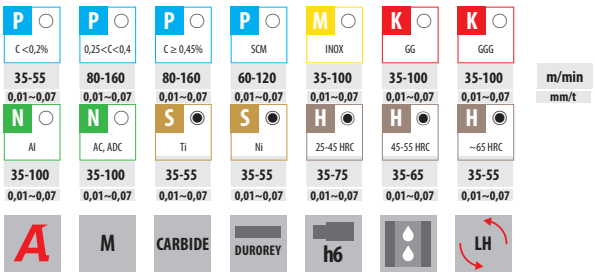
INDEX

Threading | Thread milling | Metric





- First choice in quality and performance
- Thread milling without pre-drilled hole
- DUROREY coating
- For hardened steels up to 65 HRC and stainless steels
- "ThreadPro" NC code generator software available



A.272

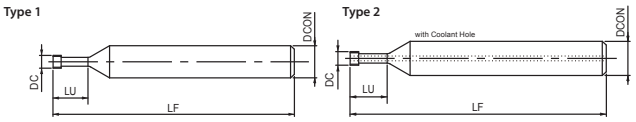
EDP	Min cutting bore diameter	Max cutting bore diameter	TP	DC	LF	LU	DCON	NOF	Type
8331200	M3	4,2	0,5	2,4	50	7,2	6	4	1
8331207	M3	4,2	0,7	2,4	50	9,7	6	4	1
8331201	M4	5,3	0,8	3,1	50	12	6	4	1
8331208	M4	5,3	1	3,1	50	14,5	6	4	1
8331202	M5	7	1,25	4	70	19,1	10	4	1
8331209	M5	7	1,5	4	70	23,7	10	4	1
8331203	M6	8	1,75	4,6	80	28,3	10	4	1
8331210	M6	8	0,5	4,6	50	8,7	6	4	1
8331204	M8	10,9	0,7	6,2	50	11,7	6	4	1
8331211	M8	10,9	0,8	6,2	50	14,5	6	4	1
8331205	M10	13,2	1	7,5	50	17,5	6	4	2
8331212	M10	13,2	1,25	7,5	70	23,1	10	4	2
8331206	M12	15,9	1,5	9	70	28,7	10	4	2
8331213	M12	15,9	1,75	9	80	34,3	10	4	2
8331240	M16	21,1	2	11,7	100	37	12	4	2
8331243	M16	21,1	2,5	11,7	135	42,2	16	4	2
8331241	M18	25,1	2,5	14	135	46,2	16	4	2
8331244	M18	25,1	2	14	100	45	12	4	2
8331242	M20	28,5	2,5	15,7	135	51,2	16	4	2
8331245	M20	28,5	2,5	15,7	135	56,2	16	4	2

AT-2 R-SPEC

INDEX

Threading | Thread milling | Metric





- First choice in quality and performance
- Thread milling without pre-drilled hole
- DLC-IGUSS coating
- For non-ferrous materials
- "ThreadPro" NC code generator software available

N Al	N AC, ADC	N Cu	
100-300	100-300	100-300	m/min

A | M | CARBIDE | DLC-IGUSS | h6 | | LH

A.275

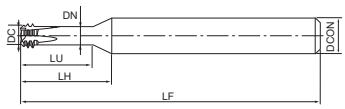
EDP	Min cutting bore diameter	TP	DC	LF	LU	DCON	NOF	Type
8331220	M3	0,5	2,4	50	7,75	6	2	1
8331227	M3	0,5	2,4	50	9,25	6	2	1
8331221	M4	0,7	3,1	50	10,45	6	2	1
8331228	M4	0,7	3,1	50	12,45	6	2	1
8331222	M5	0,8	4	50	12,8	6	2	1
8331229	M5	0,8	4	50	15,3	6	2	1
8331223	M6	1	4,6	50	15,5	6	2	2
8331230	M6	1	4,6	50	18,5	6	2	2
8331224	M8	1,25	6,2	70	20,38	8	2	2
8331231	M8	1,25	6,2	70	24,38	8	2	2
8331225	M10	1,5	7,5	80	25,25	10	2	2
8331232	M10	1,5	7,5	80	30,25	10	2	2
8331226	M12	1,75	9	80	30,13	10	2	2
8331233	M12	1,75	9	80	36,13	10	2	2

WH-EM-PNC

INDEX

Threading | Thread milling | Metric | Metric Fine





- Thread milling without pre-drilled hole
- WXS coating
- For hardened steels up to 62 HRC and stainless steels

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GG	K GGG	
35-55	80-160	80-100	60-120	35-100	35-100	35-100	m/min
0,01~0,03	0,01~0,03	0,01~0,03	0,01~0,03	0,01~0,03	0,01~0,1	0,01~0,05	mm/t

S Ti	S Ni	H 25-45 HRC	H 45-55 HRC	H ~65 HRC
35-55	35-55	35-75	35-55	35-55
0,01~0,03	0,01~0,03	0,01~0,03	0,01~0,03	0,01~0,03

M | MF | CARBIDE | WXS | h6 | LH

A.272

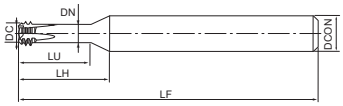
EDP	Min cutting bore diameter	TP	DC	LF	LU	LH	DN	DCON	NOF
48347003	M3	0,5	2,4	50	7,5	12,3	1,70	6	4
48347004	M4	0,7	3,1	50	9,9	14,2	2,18	6	4
48347005	M5	0,8	4	50	12	15,5	2,97	6	4
48347006	M6	1	4,6	50	14,5	17,5	3,36	6	4
48347008	M8	1,25	6,2	70	19,2	24,1	4,66	10	4
48347010	M10	1,5	7,5	70	23,7	27,7	5,78	10	4
48347012	M12	1,75	9	80	28,4	31,4	6,92	10	4

WHO-EM-PNC

INDEX

Threading | Thread milling | Metric





- Thread milling without pre-drilled hole
- WXS coating
- For hardened steels up to 62 HRC and stainless steels
- Centre through coolant

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GG	K GGG	
35-55	80-160	80-160	60-120	35-100	35-100	35-100	m/min
0,01~0,03	0,01~0,03	0,01~0,03	0,01~0,03	0,01~0,03	0,01~0,1	0,01~0,05	mm/t
S Ti	S Ni	H 25-45 HRC	H 45-55 HRC	H ~65 HRC			
35-55	35-55	35-75	35-65	35-55			
0,01~0,03	0,01~0,03	0,01~0,03	0,01~0,03	0,01~0,03			

M | CARBIDE | WXS | h6 | | LH | A.272

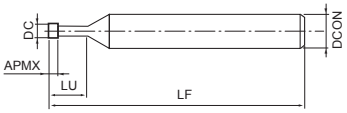
EDP	Min cutting bore diameter	TP	DC	LF	LU	LH	DN	DCON	NOF
48348003	M3	0,5	2,4	50	7,5	12,3	1,7	6	4
48348004	M4	0,7	3,1	50	9,9	14,2	2,18	6	4
48348005	M5	0,8	4	50	12	15,5	2,97	6	4
48348006	M6	1	4,6	50	14,5	17,5	3,36	6	4
48348008	M8	1,25	6,2	70	19,2	24,1	4,66	10	4
48348009	M10	1	7,5	70	23,7	27,7	5,78	10	4
48348010	M10	1,5	7,5	70	23,7	27,7	5,78	10	4
48348012	M12	1,75	9	80	28,4	31,4	6,92	10	4
48348014	M14	2	9	90	33	37,9	6,62	12	4
48348016	M16	2	11,7	90	37	39,5	9,36	12	4

WX-ST-PNC-3P

INDEX

Threading | Thread milling | Metric & Metric Fine





- Carbide thread milling cutter with 3 crest thread length
- WXS coating
- For all materials and hardened steels up to 50 HRC
- "ThreadPro" NC code generator software available

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GG	K GGG	
60-90	60-90	60-90	30-60	60-90	50-100	50-70	m/min
N Al	N AC, ADC	S Ti	S Ni	H 25-35 HRC	H 35-45 HRC		
50-100	50-100	20-60	20-60	30-60	30-60		

M | MF | MJ | CARBIDE | SC | WXS | 11° | h6 | A.271

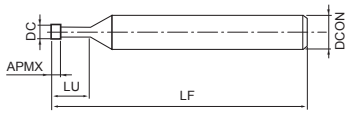
EDP	Min cutting bore diameter	TP	DC	LF	APMX	LU	DCON	NOF
48216000	M1,8	0,35	1,3	40	1,05	5,4	3	3
48216001	M2	0,4	1,5	40	1,2	6	3	3
48216002	M2,5	0,45	1,9	40	1,35	7,5	6	3
48216003	M3	0,5	2,4	60	1,5	9,5	6	3
48216004	M4	0,7	3,1	60	2,1	12,7	6	3
48216005	M5	0,8	4	60	2,4	15,8	6	3
48216006	M6	1	4,5	60	3	20	6	4
48216007	M8	1,25	6	60	3,75	24	6	4
48216008	M10	1,5	7,5	80	4,5	33	8	4
48216011	M12	1,5	9,5	100	4,5	50	12	5
48216009	M16	1,5	12	100	4,5	50	16	5
48216012	M16	2	12	100	6	50	12	5
48216010	M20	1,75	16	80	5,25	38	10	5
48216013	M20	2	16	100	6	50	16	5
48216014	M20	2,5	16	100	7,5	50	16	5

WH-VM-PNC

INDEX

Threading | Thread milling | Metric & Metric Fine





- Carbide thread milling cutter for small sizes
- WXS coating1,5 ≤ D, SC coating Dc ≤ 1,3
- For all materials and hardened steels up to 50 HRC
- "ThreadPro" NC code generator software available

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GG	K GGG	
60-90	60-90	60-90	30-60	60-90	50-100	50-70	m/min

N Al	N AC, ADC	S Ti	S Ni	H 25-35 HRC	H 35-45 HRC
50-100	50-100	20-60	20-60	30-60	30-60

M | MF | MJ | CARBIDE | SC | WXS | 11° | h6

A.271

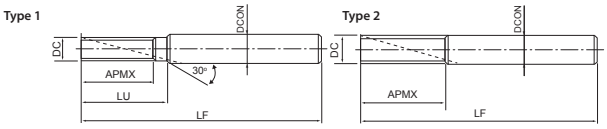
EDP	Min cutting bore diameter	Thread per flute	TP	DC	LF	APMX	LU	DCON	NOF
3900495	M1	1	0,25	0,72	40	0,25	2,75	3	3
3900496	M1,2	1	0,25	0,92	40	0,25	3,25	3	3
3900497	M1,4	1	0,3	1,05	40	0,3	3,8	3	3
3900498	M1,6	1	0,35	1,2	40	0,35	4,35	3	3
3900499	M1,7M1,8	1	0,35	1,3	40	0,35	4,85	3	3
3900500	M2	3	0,4	1,5	40	1,2	4,4	6	3
3900501	M2,5M2,6	3	0,45	1,9	40	1,4	5,6	6	3
3900502	M3	3	0,5	2,4	40	1,5	6,5	6	3
3900503	M4	3	0,7	3,1	40	2,1	8,7	6	3
3900504	M5	3	0,8	4	40	2,4	10,8	6	3

WX-PNC

INDEX

Threading | Thread milling | Metric & Metric Fine





- Carbide thread milling cutter
- WX coating
- For all materials
- "ThreadPro" NC code generator software available

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GG	K GGG	
50-75	50-75	40-70	15-30	20-40	50-100	50-65	m/min

N Al	N AC, ADC	S Ti	S Ni	H 25-35 HRC	H 35-45 HRC
50-70	65-130	20-60	20-60	15-30	15-30

M | MF | MJ | CARBIDE | WX | 30° | h6

A.276

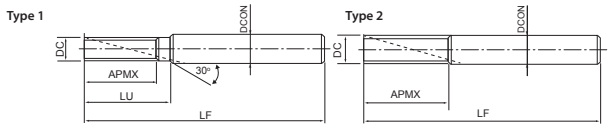
EDP	Min cutting bore diameter	TP	DC	LF	APMX	LU	DCON	NOF	Type
3900001	M6	1	4,5	60	13	15	6	3	1
3900011	M8	1	6	65	17	-	6	3	2
3900012	M8	1,25	6	65	17,5	-	6	3	2
3900021	M10	1	7,5	70	21	26	8	3	1
1004470640	M10	1,25	7,5	70	21,3	26	8	3	1
3900023	M10	1,5	7,5	70	22,5	26	8	3	1
3900032	M12	1,25	9,5	85	26,3	28	10	4	1
3900033	M12	1,5	9,5	85	25,5	28	10	4	1
3900034	M12	1,75	9,5	85	26,3	28	10	4	1
3900042	M14	1	10	85	29	-	10	4	2
3900043	M14	1,5	10	85	30	-	10	4	2
3900044	M14	2	10	85	30	-	10	4	2
3900052	M16	1	12	95	33	-	12	4	2
3900053	M16	1,5	12	95	34,5	-	12	4	2
3900054	M16	2	12	95	34	-	12	4	2
3900073	M20	1,5	16	105	42	-	16	4	2
3900075	M20	2,5	16	105	42,5	-	16	4	2
3900083	M27	1,5	20	120	49,5	-	20	5	2
3900084	M27	2	20	120	50	-	20	5	2
3900086	M27	3	20	120	51	-	20	5	2

WXO-ST-PNC

INDEX

Threading | Thread milling | Metric & Metric Fine





- Carbide thread milling cutter with Centre through coolant
- WX coating
- For all materials and hardened steels up to 45 HRC
- "ThreadPro" NC code generator software available

P ○ C <0,2%	P ◉ 0,25<C<0,4	P ◉ C ≥ 0,45%	P ◉ SCM	M ○ INOX	K ○ GG	K ○ GGG	
80-120	80-120	80-120	80-120	40-80	50-100	50-65	m/min

N ○ Al	N ○ AC, ADC	H ◉ 25-35 HRC	H ◉ 35-45 HRC
50-70	65-130	60-100	60-100

M | MF | MJ | CARBIDE | WX | 11° | h6

A.276

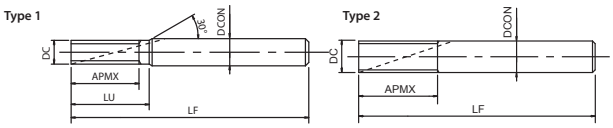
EDP	Min cutting bore diameter	TP	DC	LF	APMX	LU	DCON	NOF	Type
8304700	M6	0,75	4,5	60	12,8	15	6	4	1
8304701	M6	1	4,5	60	13	15	6	4	1
8304710	M8	0,5	6	65	16,5	-	6	4	2
8304711	M8	1	6	65	17	-	6	4	2
8304712	M8	1,25	6	65	17,5	-	6	4	2
8304721	M10	1	7,5	70	21	26	8	4	1
8304723	M10	1,5	7,5	70	22,5	26	8	4	1
8304732	M12	1,25	9,5	85	26,3	28	10	5	1
8304733	M12	1,5	9,5	85	25,5	28	10	5	1
8304734	M12	1,75	9,5	85	26,3	28	10	5	1
8304740	M14	0,5	10	85	28,5	-	10	5	2
8304741	M14	0,75	10	85	29,3	-	10	5	2
8304742	M14	1	10	85	29	-	10	5	2
8304743	M14	1,5	10	85	30	-	10	5	2
8304744	M14	2	10	85	30	-	10	5	2
8304752	M16	1	12	95	33	-	12	5	2
8304753	M16	1,5	12	95	34,5	-	12	5	2
8304754	M16	2	12	95	34	-	12	5	2
8304773	M20	1,5	16	105	42	-	16	5	2
8304775	M20	2,5	16	105	42,5	-	16	5	2
8304783	M27	1,5	20	120	49,5	-	20	6	2
8304784	M27	2	20	120	50	-	20	6	2
8304786	M27	3	20	120	51	-	20	6	2

AT-1

INDEX

Threading | Thread milling | UNC UNJC UNF UNJF





- First choice in quality and performance
- One pass thread mill
- EgiAs coating
- For all materials and hardened steels up to 45 HRC
- "ThreadPro" NC code generator software available

P ◉ C <0,2%	P ◉ 0,25<C<0,4	P ◉ C ≥ 0,45%	P ◉ SCM	M ◉ INOX	K ○ GG	K ○ GGG	
80-160	80-160	80-160	60-120	60-120	80-160	60-120	m/min

N ○ Al	N ◉ AC, ADC	H ◉ 25-35 HRC	H ◉ 35-45 HRC
80-160	100-300	80-200	80-200

A | UNC | UNJC | UNF | UNJF | CARBIDE | EgiAs

9°~13° | h6

A.271

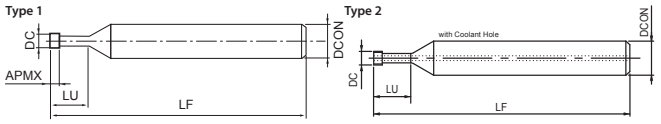
EDP	Min cutting bore diameter	TP	DC	LF	APMX	LU	DCON	NOF	Type
8331026	UN1/4	20	4,55	75	15,24	17,78	6	4	1
8331027	UN1/4	28	4,55	75	15,42	17,23	6	4	1
8331028	UN5/16	18	5,7	75	19,75	-	6	4	2
8331029	UN5/16	24	5,7	75	19,04	-	6	4	2
8331030	UN5/16	32	5,7	75	17,47	-	6	4	2
8331031	UN3/8	16	6,7	85	22,23	25,41	8	4	1
8331032	UN3/8	24	6,7	85	22,22	24,33	8	4	1
8331033	UN3/8	32	6,7	85	20,64	22,23	8	4	1
8331034	UN7/16	14	7,7	85	27,21	-	8	4	2
8331035	UN7/16	20	7,7	85	25,4	-	8	4	2
8331036	UN1/2	13	8,7	100	29,31	33,22	10	5	1
8331037	UN1/2	20	8,7	100	27,94	30,48	10	5	1
8331038	UN1/2	28	8,7	100	28,12	29,93	10	5	1
8331039	UN9/16	12	9,7	100	33,87	-	10	5	2
8331040	UN9/16	18	9,7	100	32,45	-	10	5	2
8331044	UN3/4	10	11,7	120	43,18	-	12	5	2
8331045	UN3/4	16	11,7	120	41,29	-	12	5	2
8331041	UN5/8	11	10,7	120	36,94	41,6	12	5	1
8331042	UN5/8	18	10,7	120	35,28	38,1	12	5	1
8331043	UN5/8	24	10,7	120	34,91	37,03	12	5	1
8331046	UN7/8	9	13,7	135	50,8	56,44	16	5	1
8331047	UN7/8	14	13,7	135	48,98	52,61	16	5	1
8331048	UN1	8	18,7	150	57,15	63,5	20	6	1
8331049	UN1	20	18,7	150	53,34	55,88	20	6	1

AT-2

INDEX

Threading | Thread milling | UNC UNF





- First choice in quality and performance
- Thread milling without pre-drilled hole
- DUROREY coating
- For hardened steels up to 65 HRC and stainless steels
- "ThreadPro" NC code generator software available

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GG	K GGG	
35-55	80-160	80-160	60-120	35-100	35-100	35-100	m/min
0,01~0,07	0,01~0,07	0,01~0,07	0,01~0,07	0,01~0,07	0,01~0,07	0,01~0,07	mm/t
N Al	N AC, ADC	S Ti	S Ni	H 25-45 HRC	H 45-55 HRC	H ~65 HRC	
35-100	35-100	35-55	35-55	35-75	35-65	35-55	
0,01~0,07	0,01~0,07	0,01~0,07	0,01~0,07	0,01~0,07	0,01~0,07	0,01~0,07	

A | UNC | UNJC | UNF | UNJF | CARBIDE | DUROREY

h6 | LH | A.272

EDP	Min cutting bore diameter	Max cutting bore diameter	TP	DC	LF	LU	DCON	NOF	Type
8331246	No 8	5,2	32	3,1	50	10,3	6	4	1
8331254	No 8	5,2	32	3,1	50	12,4	6	4	1
8331248	UN1/4	7,6	20	4,55	70	15,8	6	4	1
8331256	UN1/4	7,6	20	4,55	70	19	6	4	1
8331249	UN1/4	8	28	4,55	70	14,9	6	4	1
8331257	UN1/4	8	28	4,55	70	18,1	6	4	1
8331247	No 10	6,1	24	3,7	70	12,2	6	4	1
8331255	No 10	6,1	24	3,7	70	14,7	6	4	1
8331253	UN1/2	16,2	13	9,2	80	30,2	10	4	2
8331261	UN1/2	16,2	13	9,2	80	36,6	10	4	2
8331251	UN3/8	11,6	16	6,7	80	23	10	4	1
8331259	UN3/8	11,6	16	6,7	80	27,7	10	4	1
8331250	UN5/16	9,7	18	5,7	80	19,4	10	4	1
8331258	UN5/16	9,7	18	5,7	80	23,3	10	4	1
8331252	UN7/16	13,3	14	7,7	80	26,7	10	4	2
8331260	UN7/16	13,3	14	7,7	80	32,3	10	4	2

WH-VM-PNC

INDEX

Threading | Thread milling | UNC UNJC UNF UNJF





- Carbide thread milling cutter for small sizes
- WXS coating
- For all materials and hardened steels up to 50 HRC
- "ThreadPro" NC code generator software available

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GG	K GGG	
60-90	60-90	60-90	30-60	60-90	50-100	50-70	m/min
N Al	N AC, ADC	S Ti	S Ni	H 25-35 HRC	H 35-45 HRC		
50-100	50-100	20-60	20-60	30-60	30-60		

UNC | UNJC | UNF | UNJF | CARBIDE | WXS | 11°

h6 | A.272

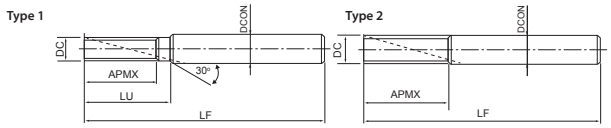
EDP	Min cutting bore diameter	Thread per flute	TP	DC	LF	APMX	LU	DCON	NOF
3900513	N8	3	32	3,2	40	2,4	9,1	6	3

WX-PNC

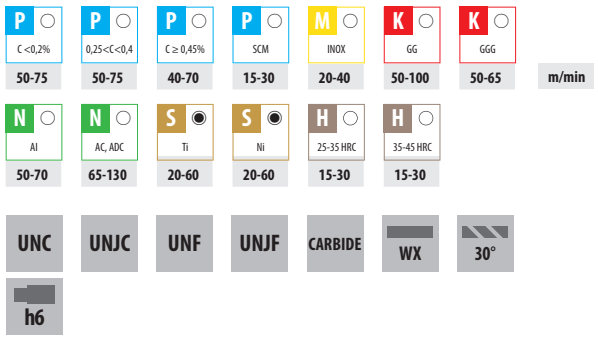
INDEX

Threading | Thread milling | UNC UNJC UNF UNJF





- Carbide thread milling cutter
- WX coating
- For all materials
- "ThreadPro" NC code generator software available



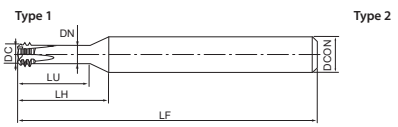
EDP	Min cutting bore diameter	TP	DC	LF	APMX	LU	DCON	NOF	Type
3900350	UN1/4	20	4,55	60	10,2	11,4	6	3	1
3900351	UN1/4	28	4,55	60	10	10,9	6	3	1
3900360	UN3/8	16	7,6	65	14,3	-	8	3	2
3900355	UN5/16	18	6,2	65	12,7	14,1	8	3	1
3900356	UN5/16	24	6,2	65	12,7	14,1	8	3	1
3900361	UN3/8	24	7,6	65	14,8	-	8	3	2
3900370	UN1/2	13	9,4	75	19,5	21,5	10	4	1
3900365	UN7/16	14	8,8	75	18,1	19,9	10	3	1
3900366	UN7/16	20	8,8	75	17,8	19,1	10	3	1
3900371	UN1/2	20	9,4	75	19,1	20,4	10	4	1
3900375	UN9/16	12	10,9	85	23,3	25,4	12	4	1
3900380	UN9/16	18	11,4	85	22,6	24	12	4	1
3900390	UN7/8	12	18,9	110	33,9	36	20	4	1

WHO-EM-PNC

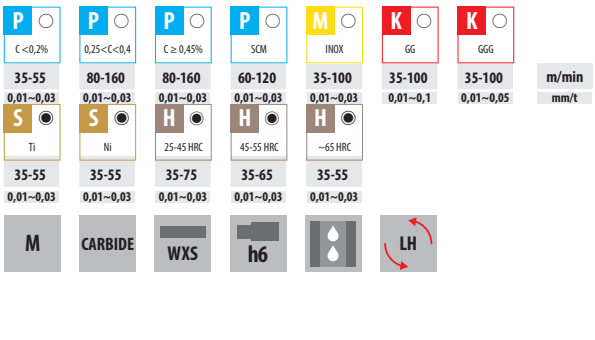
INDEX

Threading | Thread milling | G (BSP)





- Thread milling without pre-drilled hole
- WXS coating
- For hardened steels up to 62 HRC and stainless steels
- Centre through coolant



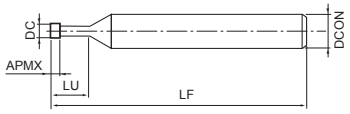
EDP	Min cutting bore diameter	TP	DC	LF	LU	LH	DN	DCON	NOF
48348104	G1/16	28	5,8	57	18	19,2	4,40	6	4
48348100	G1/8	28	7,3	72	22	24,4	5,90	10	4
48348101	G1/4	19	9,8	72	30	31,5	7,70	10	4
48348105	G3/8	19	11,8	83	37	38,5	9,80	12	4
48348102	G1/2	14	15,7	100	47	48,8	12,90	16	4

WX-ST-PNC-3P

INDEX

Threading | Thread milling | G (BSP)





- Carbide thread milling cutter with 3 crest thread length
- WXS coating
- For all materials and hardened steels up to 50 HRC
- "ThreadPro" NC code generator software available

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GG	K GGG	
60-90	60-90	60-90	30-60	60-90	50-100	50-70	m/min

N Al	N AC, ADC	S Ti	S Ni	H 25-35 HRC	H 35-45 HRC
50-100	50-100	20-60	20-60	30-60	30-60

G	CARBIDE	WXS	11°	h6

A.271

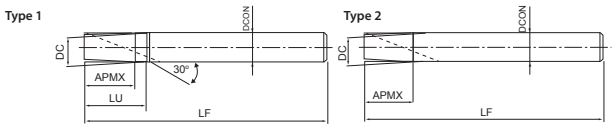
EDP	Min cutting bore diameter	TP	DC	LF	APMX	LU	DCON	NOF
48216100	G1/8G1/16	28	5,9	64	2,72	19,5	8	4
48216101	G1/4G3/8	19	10	80	4	30	10	5
48216102	G1/2G7/8	14	12	100	5,44	37	12	5
48216103	G1G2	11	16	100	6,93	48	16	5

WX-PNC

INDEX

Threading | Thread milling | G (BSP)





- Carbide thread milling cutter
- WX coating
- For all materials
- "ThreadPro" NC code generator software available

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GG	K GGG	
50-75	50-75	40-70	15-30	20-40	50-100	50-65	m/min

N Al	N AC, ADC	S Ti	S Ni	H 25-35 HRC	H 35-45 HRC
50-70	65-130	20-60	20-60	15-30	15-30

G	CARBIDE	WX	30°	h6

A.276

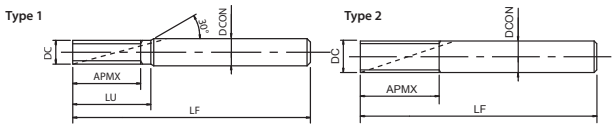
EDP	Min cutting bore diameter	TP	DC	LF	APMX	LU	DCON	NOF	Type
3900299	G1/16G1/8	28	5,9	60	11,8	-	6	3	2
3900301	G1/8	28	7,5	65	14,5	15,4	8	3	1
3900311	G1/4 G3/8	19	10	75	20,1	-	10	4	2
3900312	G3/8	19	11	85	25,4	26,7	12	4	1

AT-1

INDEX

Threading | Thread milling | Rc (PT), R (PT)





- First choice in quality and performance
- One pass thread mill
- EgiAs coating
- For all materials and hardened steels up to 45 HRC
- "ThreadPro" NC code generator software available

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GG	K GGG	
80-160	80-160	80-160	60-120	60-120	80-160	60-120	m/min

N Al	N AC, ADC	H 25-35 HRC	H 35-45 HRC
80-160	100-300	80-200	80-200

A	Rc (PT)	R (PT)	CARBIDE	EgiAs	9°~13°	h6

A.271

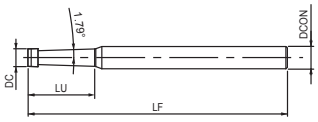
EDP	Min cutting bore diameter	TP	DC	LF	APMX	LU	DCON	NOF	Type
8331075	1/16	28	5,67	60	9,1	-	6	4	2
8331076	1/8	28	7,67	60	9,1	-	8	4	2
8331077	1/4-3/8	19	9,67	75	14,7	-	10	5	2
8331078	3/8	19	11,67	85	14,7	-	12	5	2
8331079	1/2-3/4	14	11,67	85	20	-	12	5	2
8331080	3/4	14	15,67	95	20	-	16	5	2
8331081	1-2	11	19,67	105	27,7	-	20	6	2

AT-2

INDEX

Threading | Thread milling | RC





- First choice in quality and performance
- Thread milling without pre-drilled hole
- DUROREY coating
- For hardened steels up to 65 HRC and stainless steels
- "ThreadPro" NC code generator software available

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GG	K GGG		
35-55	80-160	80-160	60-120	35-100	35-100	35-100	m/min	
0,01~0,07	0,01~0,07	0,01~0,07	0,01~0,07	0,01~0,07	0,01~0,07	0,01~0,07	mm/t	

N Al	N AC, ADC	S Ti	S Ni	H 25-45 HRC	H 45-55 HRC	H ~65 HRC
35-100	35-100	35-55	35-55	35-75	35-65	35-55
0,01~0,07	0,01~0,07	0,01~0,07	0,01~0,07	0,01~0,07	0,01~0,07	0,01~0,07

A	Rc (PT)	CARBIDE	DUROREY	h6	LH

A.272

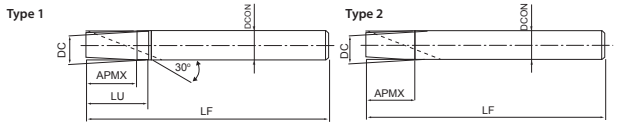
EDP	Min cutting bore diameter	Min cutting bore diameter inch	TP	DC	LF	LU	DCON	NOF
8331214	1/16	1/8	28	4,86	70	18	6	4
8331215	1/8	-	28	5,76	70	19	6	4
8331216	1/4	3/8	19	7,98	80	28	10	4
8331217	3/8	-	19	9,68	80	28	10	4
8331218	1/2	3/4	14	11,61	110	35	12	4
8331219	1	-	11	15,54	135	45	16	4

WX-PNC

INDEX

Threading | Thread milling | Rc R





- Carbide thread milling cutter
- WX coating
- For all materials
- "ThreadPro" NC code generator software available

P	P	P	P	M	K	K	
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	INOX	GG	GGG	
50-75	50-75	40-70	15-30	20-40	50-100	50-65	m/min

N	N	S	S	H	H						
Al	AC, ADC	Ti	Ni	25-35 HRC	35-45 HRC						
50-70	65-130	20-60	20-60	15-30	15-30						

Rc (PT)	R (PT)	CARBIDE	WX	30°	h6

A.276

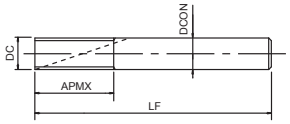
EDP	Min cutting bore diameter	TP	DC	LF	APMX	LU	DCON	NOF	Type
3900201	1/8	28	7,5	60	9,1	12,7	8	3	1
3900211	1/4-3/8	19	10	75	14,7	-	10	4	2
3900214	1/2-3/4	14	12	85	20	-	12	4	2
3900218	1-2	11	20	95	27,7	-	20	5	2

AT-1

INDEX

Threading | Thread milling | Rp





- First choice in quality and performance
- One pass thread mill
- EgiAs coating
- For all materials and hardened steels up to 45 HRC
- "ThreadPro" NC code generator software available

P	P	P	P	M	K	K	
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	INOX	GG	GGG	
80-160	80-160	80-160	60-120	60-120	80-160	60-120	m/min

N	N	H	H								
Al	AC, ADC	25-35 HRC	35-45 HRC								
80-160	100-300	80-200	80-200								

A	Rp (PS)	G (PF)	CARBIDE	EgiAs	9°~13°	h6

A.271

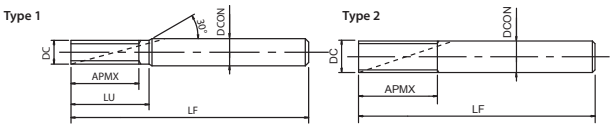
EDP	Min cutting bore diameter	TP	DC	LF	APMX	DCON	NOF
8331082	1/16-1/8	28	5,67	60	11,8	6	4
8331083	1/8	28	7,67	65	14,5	8	4
8331084	1/4-3/8	19	9,67	80	20,1	10	5
8331085	3/8	19	11,67	100	25,4	12	5
8331086	1/2-7/8	14	11,67	100	32,7	12	5
8331087	3/4-7/8	14	15,67	115	39,9	16	5
8331088	1-2	11	19,67	130	50,8	20	6

AT-1

INDEX

Threading | Thread milling | NPT





- First choice in quality and performance
- One pass thread mill
- EgiAs coating
- For all materials and hardened steels up to 45 HRC
- "ThreadPro" NC code generator software available

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GG	K GGG	
80-160	80-160	80-160	60-120	60-120	80-160	60-120	m/min

N Al	N AC, ADC	H 25-35 HRC	H 35-45 HRC
80-160	100-300	80-200	80-200

A	NPT	CARBIDE	EgiAs	9°~13°	h6

A.271

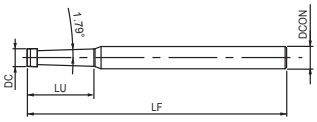
EDP	Min cutting bore diameter	TP	DC	LF	APMX	LU	DCON	NOF	Type
8331089	1/16-1/8	27	5,67	60	10,35	-	6	4	2
8331090	1/8	27	7,67	60	10,35	-	8	4	2
8331091	1/4-3/8	18	9,67	75	15,52	-	10	5	2
8331092	3/8	18	11,67	85	15,52	-	12	5	2
8331093	1/2-3/4	14	15,67	95	19,96	-	16	5	2
8331094	1-2	11,5	18,72	105	24,3	28,7	20	6	1

AT-2

INDEX

Threading | Thread milling | NPT





- First choice in quality and performance
- Thread milling without pre-drilled hole
- DUROREY coating
- For hardened steels up to 65 HRC and stainless steels
- "ThreadPro" NC code generator software available

P C <0,2%	P 0,25<C<0,4	P C ≥ 0,45%	P SCM	M INOX	K GG	K GGG	
35-55 0,01~0,07	80-160 0,01~0,07	80-160 0,01~0,07	60-120 0,01~0,07	35-100 0,01~0,07	35-100 0,01~0,07	35-100 0,01~0,07	m/min mm/t

N Al	N AC, ADC	S Ti	S Ni	H 25-45 HRC	H 45-55 HRC	H ~65 HRC
35-100 0,01~0,07	35-100 0,01~0,07	35-55 0,01~0,07	35-55 0,01~0,07	35-75 0,01~0,07	35-65 0,01~0,07	35-55 0,01~0,07

A	NPT	CARBIDE	DUROREY	h6	LH

A.272

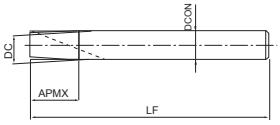
EDP	Min cutting bore diameter	Max cutting bore diameter	TP	DC	LF	LU	DCON	NOF
8331234	1/16	1/8	27	4,86	70	18	6	4
8331235	1/8	-	27	5,76	70	19	6	4
8331236	1/4	3/8	18	7,98	80	28	10	4
8331237	3/8	-	18	9,68	80	28	10	4
8331238	1/2	3/4	14	11,61	110	35	12	4
8331239	1	1	11,5	15,54	135	45	16	4

WX-PNC

INDEX

Threading | Thread milling | NPT





- Carbide thread milling cutter
- WX coating
- For all materials
- "ThreadPro" NC code generator software available

P	P	P	P	M	K	K	
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	INOX	GG	GGG	
50-75	50-75	40-70	15-30	20-40	50-100	50-65	m/min

N	N	S	S	H	H
Al	AC, ADC	Ti	Ni	25-35 HRC	35-45 HRC
50-70	65-130	20-60	20-60	15-30	15-30

NPT | CARBIDE | WX | 30° | h6

A.276

EDP	Min cutting bore diameter	TP	DC	LF	APMX	DCON	NOF
3900259	1/16-1/8	27	5,9	60	10,3	6	3
3900261	1/4-3/8	18	10	75	15,5	10	4
3900265	1/2-3/4	14	16	85	20	16	4
3900268	1-2	11,5	20	95	24,3	20	5

E-DCT

INDEX

Threading | Measuring | M MJ



- Diameter correction tool for thread mill
- Reduce the set up and machining time

M | MJ | ISO 2 6H

FOR 6H

EDP	Thread size
G1609311	M(J)3 x 0,5
G1609312	M(J)4 x 0,7
G1609313	M(J)5 x 0,8
G1609314	M(J)6 x 1
G1609317	M(J)8 x 1,25
G1609322	M(J)10 x 1,5
G1609323	M(J)10 x 1,25
G1609325	M(J)12 x 1,75
G1609326	M(J)12 x 1,5
G1609327	M(J)12 x 1,25
G1609329	M(J)14 x 2
G1609330	M(J)14 x 1,5
G1609334	M(J)16 x 2
G1609335	M(J)16 x 1,5
G1609339	M(J)20 x 2,5
G1609340	M(J)20 x 1,5

E-DCT

INDEX

Threading | Measuring | UNJC UNJF



- Diameter correction tool for thread mill
- Reduce the set up and machining time

DCT

INDEX

Threading | Measuring | Metric



- Diameter correction tool for thread mill
- Reduce the set up and machining time
- Measurable range 100% ~-50% tolerance of thread size 6H

UNJC **UNJF**

For 3B

EDP	Thread size
G1609623	1/4 - 20 UN(J)C
G1609624	1/4 - 28 UN(J)F
G1609625	5/16 - 18 UN(J)
G1609626	5/16 - 24 UN(J)
G1609627	3/8 - 16 UN(J)C
G1609628	3/8 - 24 UN(J)F
G1609631	1/2 - 13 UN(J)C
G1609632	1/2 - 20 UN(J)F
G1609635	5/8 - 11 UN(J)C
G1609636	5/8 - 18 UN(J)F
G1609638	3/4 - 16 UN(J)F

For EG-3B Helicoil

EDP	Thread size
G1609723	1/4 - 20 EG-UN(J)C
G1609724	1/4 - 28 EG-UN(J)F
G1609726	5/16 - 24 EG-UN(J)
G1609728	3/8 - 24 EG-UN(J)F
G1609731	1/2 - 13 EG-UN(J)C
G1609732	1/2 - 20 EG-UN(J)F
G1609736	5/8 - 18 EG-UN(J)F
G1609738	3/4 - 16 EG-UN(J)F

EDP	Thread size	Measurable depth in blind hole (mm)	Sleeve diameter
9342000	M6 x 1 -1,5D	9	13
9342012	M16 x 1,5 - 1D	16	21
9342002	M8 x 1 - 1,5D	12	13
9342013	M18 x 2,5 - 1D	18	23
9342011	M16 x 2 - 1D	16	21
9342015	M20 x 2,5 - 1D	20	25
9342006	M12 x 1,5 - 1,2D	14,4	17
9342017	M24 x 3 - 1D	24	29
9342007	M12 x 1,25 - 1,2D	14,4	17
9342004	M10 x 1 - 1,2D	12	15
9342009	M14 x 1,5 - 1,2D	16,8	19
9342008	M14 x 2 - 1,2D	16,8	19
9342016	M20 x 1,5 - 1D	20	25
9342003	M10 x 1,5 - 1,2D	12	15
9342010	M14 x 1 - 1,2D	16,8	19
9342001	M8 x 1,25 - 1,5D	12	13
9342005	M12 x 1,75 - 1,2D	14,4	17
9342014	M18 x 1,5 - 1D	18	23

DCT

INDEX

Threading | Measuring | UNJF



- Diameter correction tool for thread mill
- Reduce the set up and machining time
- Measurable range 100% ~-50% tolerance of thread size 3B

EDP	Thread size	Measurable depth in blind hole (mm)	Sleeve diameter
9342018	5/16 - 24UNJF - 1,5D	11,9	13

DCT75

INDEX

Threading | Measuring | M MJ



- Diameter correction tool for thread mill
- Reduce the set up and machining time
- Possible to aim at 75% from the min. pitch diameter tolerance

M **MJ**

EDP	Thread size	Thread length	DCON	Taper	Height Master recommended
9342019	M6 x 1	6,2	10	1/25	8
9342020	M8 x 1,25	7,3	10	1/25	8
9342021	M8 x 1	6,2	10	1/25	8
9342022	M10 x 1,5	8,3	10	1/25	7
9342023	M10 x 1,25	7,3	10	1/25	7
9342024	M10 x 1	6,2	10	1/25	7
9342025	M12 x 1,75	9,7	12	1/25	7
9342026	M14 x 1,5	8,7	14	1/25	7
9342027	M16 x 1,5	8,7	16	1/25	7

DCT75

INDEX

Threading | Measuring | UNC



- Diameter correction tool for thread mill
- Reduce the set up and machining time
- Possible to aim at 75% from the min. pitch diameter tolerance

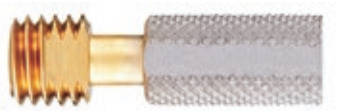
UNC **UNF** **UNEF**

EDP	Thread size	Thread length	DCON	Taper	Height Master recommended
9342028	1/4 - 20 UNC	7	10	1/25	8
9342029	1/4 - 28 UNF	5	10	1/25	8
9342030	5/16 - 18 UNC	7	10	1/25	8
9342031	5/16 - 24 UNF	7	10	1/25	8
9342032	5/16 - 32 UNEF	5	10	1/25	8
9342033	3/8 - 16 UNC	8,8	10	1/25	7
9342034	3/8 - 24 UNF	7	10	1/25	7
9342035	7/16 - 14 UNC	10	12	1/25	7
9342036	7/16 - 20 UNF	7	12	1/25	7
9342037	1/2 - 13 UNC	10,8	13	1/25	7
9342038	1/2 - 20 UNF	7	13	1/25	7

DCT75

INDEX

Threading | Measuring | R (PT)



- Diameter correction tool for thread mill
- Reduce the set up and machining time
- Possible to aim at 75% from the min. pitch diameter tolerance

R (PT)

EDP	Thread size	Thread length	DCON	Taper	Height Master recommended
9342039	R(PT) 1/16	6,01	10	1/16	9
9342040	R(PT) 1/8	6,01	10	1/16	9
9342041	R(PT) 1/4	9,02	14	1/16	9
9342042	R(PT) 3/8	9,36	17	1/16	9

DCT75

Threading | Measuring

DIGITAL INDICATOR



- High performance type
- Digital display system
- Eliminate calculation errors, measurement and calculation with a digital display

EDP	Thread size	Sleeve diameter	DCON	Taper
9342052	M6 - M16 U1/4 - 1/2	23,5	17,5	1/25
9342053	R(PT) 1/16 - 3/8	23,5	17,5	1/16

DCT75

Threading | Measuring

HEIGHT MASTER



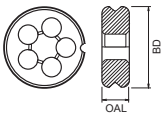
EDP	Size	Height Master recommended
9342043	28	1
9342044	28,25	2
9342045	28,5	3
9342046	28,75	4
9342047	29	5
9342048	29,25	6
9342049	295	7
9342050	29,75	8
9342051	30	9

223B

INDEX

Threading | Circular dies | Metric





- HSS solid circular dies DIN223B
- Bright finish
- With spiral entry for forward chip ejection
- Chamfer lead on both sides

M | HSS | ISO 2 6G

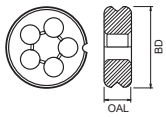
EDP	TD	TP	BD	OAL
16213871	3	0,5	20	5
16214471	4	0,7	20	5
16214971	5	0,8	20	7
16215571	6	1	20	7
16216172	8	1,25	25	9
16216973	10	1,5	30	11
16217974	12	1,75	38	14
16219174	14	2	38	14
16220275	16	2	45	18
16221475	18	2,5	45	18
16222875	20	2,5	45	18

223B

INDEX

Threading | Circular dies | G





- HSS solid circular dies DIN223B
- Bright finish
- With spiral entry for forward chip ejection
- Chamfer lead on both sides

G | HSS | ISO 228 | DIN 259

EDP	TD	TP	BD	OAL
16281974	1/8	28	38	10
16282074	1/4	19	38	10
16282175	3/8	19	45	14
16282275	1/2	14	45	14

CUTTING CONDITIONS

AT-1

 Work Material		Vc (m/min)	F (mm/tooth)
Low Tensile Strength Steel	C~0,25%	80~160	0,01~0,05
Medium Tensile Strength Steel	C~0,25% ~ 0,45%	80~160	0,01~0,05
High Tensile Strength Steel	C~0,45%	80~160	0,01~0,05
Alloy Steel	SCM	60~120	0,01~0,05
Hardened Steel	25~45 HRC	80~200	0,01~0,05
	45~55 HRC	-	-
	50~60 HRC	-	-
Stainless Steel	SUS	60~120	0,01~0,05
Tool Steel	SKD	-	-
Cast Steel	SC	60~120	0,01~0,05
Cast Iron	FC	80~160	0,01~0,05
Ductile Cast Iron	FCD	60~120	0,01~0,05
Copper	Cu	80~160	0,03~0,1
Brass	Bs	80~160	0,03~0,1
Brass Casting	BsC	80~160	0,03~0,1
Bronze	PB	80~160	0,03~0,1
Aluminium Rolled Steel	AL	80~160	0,03~0,1
Aluminium Alloy Casting	AC, ADC	100~300	0,05~0,2
Magnesium Alloy Casting	MC	100~300	0,05~0,2
Zinc Alloy Casting	ZDC	100~300	0,05~0,2
Titanium Alloy	Ti-6AL-4V	-	-
Nickel Alloy	Inconel®	-	-
Thermosetting plastic	-	80~160	0,03~0,1
Thermoplastic	-	80~160	0,03~0,1

1. The indicated speeds and feeds are for water-soluble oil.
2. Water-soluble oil is not suitable for tapping magnesium alloy.
3. Please adjust the cutting conditions depending on the rigidity of machine, tool holders, and workpiece clamping.
4. If the tapping length is long, or when machining a large-pitch thread, select a smaller feed rate and separate the machining process into a few segments.
5. If a machined parallel internal thread is tapered and prevents the go-gauge from going through, add a zero cut (finish machining).

WH-VM-PNC/WX-ST-PNC-3P

 Work Material		Vc (m/min)	F (mm/tooth)
Low Tensile Strength Steel	C~0,25%	60~90	0,02~0,08
Medium Tensile Strength Steel	C~0,25% ~ 0,45%	60~90	0,02~0,08
High Tensile Strength Steel	C~0,45%	60~90	0,02~0,08
Alloy Steel	SCM	30~60	0,01~0,03
Hardened Steel	25~45 HRC	30~60	0,01~0,03
	45~55 HRC	30~60	0,01~0,03
	50~60 HRC	-	-
Stainless Steel	SUS	60~90	0,02~008
Tool Steel	SKD	-	-
Cast Steel	SC	40~65	0,02~0,09
Cast Iron	FC	50~100	0,03~0,1
Ductile Cast Iron	FCD	50~70	0,03~0,1
Copper	Cu	-	-
Brass	Bs	-	-
Brass Casting	BsC	50~100	0,02~0,06
Bronze	PB	50~100	0,02~0,06
Aluminium Rolled Steel	AL	50~100	0,02~0,06
Aluminium Alloy Casting	AC, ADC	50~100	0,02~0,06
Magnesium Alloy Casting	MC	50~100	0,02~0,06
Zinc Alloy Casting	ZDC	50~100	0,02~0,06
Titanium Alloy	Ti-6AL-4V	20~60	0,01~0,03
Nickel Alloy	Inconel®	20~60	0,01~0,03
Thermosetting plastic	-	50~100	0,02~0,06
Thermoplastic	-	50~100	0,02~0,06

CUTTING CONDITIONS

AT-2 / WH(O)-EM-PNC



			Low Carbon Steel - Mild Steel ~C0,25%			Medium Carbon Steel - High Carbon Steel ~C0,25%			Alloy Steel SCM		
Recommended Coolant			Water-Soluble			Water-Soluble			Water-Soluble		
Vc (m/min)			35 ~ 55			80 ~ 120			60 ~ 120		
Thread	Thread Size	DC	Speed (min^{-1})	Feed (mm/min)	Feed per Tooth (mm/t)	Speed (min^{-1})	Feed (mm/min)	Feed per Tooth (mm/t)	Speed (min^{-1})	Feed (mm/min)	Feed per Tooth (mm/t)
M	M 3 ×0,5	2,4	5.968	48	0,01	10.610	85	0,01	7.958	64	0,01
	M 4 ×0,7	3,1	4.621	62	0,015	8.214	111	0,015	6.161	83	0,015
	M 5 ×0,8	4	3.581	49	0,017	6.366	87	0,017	4.775	65	0,017
	M 6 ×1	4,6	3.114	58	0,02	5.536	103	0,02	4.152	78	0,02
	M 8 ×1,25	6,2	2.310	62	0,03	4.107	111	0,03	3.080	83	0,03
	M 10 ×1,5	7,5	1.910	67	0,035	3.395	119	0,035	2.546	89	0,035
	M 12 ×1,75	9	1.592	72	0,045	2.829	127	0,045	2.122	95	0,045
	M 16 ×2	11,7	1.224	72	0,055	2.176	129	0,055	1.632	96	0,055
	M 18 ×2,5	14	1.023	55	0,06	1.819	97	0,06	1.364	73	0,06
	M 20 ×2,5	15,7	912	51	0,065	1.622	91	0,065	1.216	68	0,065
U	No, 8 - 32UNC	3,1	4.621	47	0,01	8.214	84	0,01	6.161	63	0,01
	No, 10 - 24UNC	3,7	3.871	54	0,015	6.882	96	0,015	5.162	72	0,015
	1/4 - 20UNC	4,55	3.148	89	0,025	5.597	159	0,025	4.197	119	0,025
	1/4 - 28UNF	4,55	3.148	89	0,025	5.597	159	0,025	4.197	119	0,025
	5/16 - 18UNC	5,7	2.513	85	0,03	4.468	151	0,03	3.351	113	0,03
	3/8 - 16UNC	6,7	2.138	89	0,035	3.801	158	0,035	2.851	118	0,035
	7/16 - 14UNC	7,7	1.860	91	0,04	3.307	162	0,04	2.480	122	0,04
	1/2 - 13UNC	9,2	1.557	77	0,045	2.768	137	0,045	2.076	103	0,045
Rc (PT)	1/16 - 28	4,86	2.982	*1	0,025	5.302	*1	0,025	3.976	*1	0,025
	1/8 - 28	5,76	2.512	*1	0,03	4.465	*1	0,03	3.349	*1	0,03
	1/4 - 19	7,98	1.814	*1	0,04	3.225	*1	0,04	2.419	*1	0,04
	3/8 - 19	9,68	1.493	*1	0,045	2.654	*1	0,045	1.990	*1	0,045
	1/2 - 14	11,61	1.246	*1	0,055	2.215	*1	0,055	1.661	*1	0,055
	1 - 11	15,54	930	*1	0,065	1.654	*1	0,065	1.240	*1	0,065
NPT	1/16 - 27	4,86	2.984	*1	0,025	5.304	*1	0,025	3.978	*1	0,025
	1/8 - 27	5,76	2.513	*1	0,03	4.467	*1	0,03	3.350	*1	0,03
	1/4 - 18	7,98	1.815	*1	0,04	3.227	*1	0,04	2.420	*1	0,04
	3/8 - 18	9,68	1.493	*1	0,045	2.655	*1	0,045	1.991	*1	0,045
	1/2 - 14	11,61	1.246	*1	0,055	2.215	*1	0,055	1.661	*1	0,055
	1 - 11 1/2	15,54	930	*1	0,065	1.653	*1	0,065	1.240	*1	0,065



			Hardened Steel								
			25~45 HRC			45~50 HRC			50~65 HRC		
Recommended Coolant			Air-Blow								
Vc (m/min)			35 ~ 75			35 ~ 65			35 ~ 55		
Thread	Thread Size	DC	Speed (min^{-1})	Feed (mm/min)	Feed per Tooth (mm/t)	Speed (min^{-1})	Feed (mm/min)	Feed per Tooth (mm/t)	Speed (min^{-1})	Feed (mm/min)	Feed per Tooth (mm/t)
M	M 3 ×0,5	2,4	5.968	48	0,01	5.968	48	0,01	5.968	48	0,01
	M 4 ×0,7	3,1	4.621	62	0,015	4.621	62	0,015	4.621	62	0,015
	M 5 ×0,8	4	3.581	49	0,017	3.581	49	0,017	3.581	49	0,017
	M 6 ×1	4,6	3.114	58	0,02	3.114	58	0,02	3.114	58	0,02
	M 8 ×1,25	6,2	2.310	62	0,03	2.310	62	0,03	2.310	62	0,03
	M 10 ×1,5	7,5	1.910	67	0,035	1.910	67	0,035	1.910	67	0,035
	M 12 ×1,75	9	1.592	72	0,045	1.592	72	0,045	1.592	72	0,045
	M 16 ×2	11,7	1.224	72	0,055	1.224	72	0,055	1.224	72	0,055
	M 18 ×2,5	14	1.023	55	0,06	1.023	55	0,06	1.023	55	0,06
	M 20 ×2,5	15,7	912	51	0,065	912	51	0,065	912	51	0,065
U	No, 8 - 32UNC	3,1	4.621	47	0,01	4.621	47	0,01	4.621	47	0,01
	No, 10 - 24UNC	3,7	3.871	54	0,015	3.871	54	0,015	3.871	54	0,015
	1/4 - 20UNC	4,55	3.148	89	0,025	3.148	89	0,025	3.148	89	0,025
	1/4 - 28UNF	4,55	3.148	89	0,025	3.148	89	0,025	3.148	89	0,025
	5/16 - 18UNC	5,7	2.513	85	0,03	2.513	85	0,03	2.513	85	0,03
	3/8 - 16UNC	6,7	2.138	89	0,035	2.138	89	0,035	2.138	89	0,035
	7/16 - 14UNC	7,7	1.860	91	0,04	1.860	91	0,04	1.860	91	0,04
	1/2 - 13UNC	9,2	1.557	77	0,045	1.557	77	0,045	1.557	77	0,045
Rc (PT)	1/16 - 28	4,86	2.982	*1	0,025	2.982	*1	0,025	2.982	*1	0,025
	1/8 - 28	5,76	2.512	*1	0,03	2.512	*1	0,03	2.512	*1	0,03
	1/4 - 19	7,98	1.814	*1	0,04	1.814	*1	0,04	1.814	*1	0,04
	3/8 - 19	9,68	1.493	*1	0,045	1.493	*1	0,045	1.493	*1	0,045
	1/2 - 14	11,61	1.246	*1	0,055	1.246	*1	0,055	1.246	*1	0,055
	1 - 11	15,54	930	*1	0,065	930	*1	0,065	930	*1	0,065
NPT	1/16 - 27	4,86	2.984	*1	0,025	2.984	*1	0,025	2.984	*1	0,025
	1/8 - 27	5,76	2.513	*1	0,03	2.513	*1	0,03	2.513	*1	0,03
	1/4 - 18	7,98	1.815	*1	0,04	1.815	*1	0,04	1.815	*1	0,04
	3/8 - 18	9,68	1.493	*1	0,045	1.493	*1	0,045	1.493	*1	0,045
	1/2 - 14	11,61	1.246	*1	0,055	1.246	*1	0,055	1.246	*1	0,055
	1 - 11 1/2	15,54	930	*1	0,065	930	*1	0,065	930	*1	0,065

* Values vary depending on the depth of hole to be machined.

1. This cutting condition table shows standard values. When machining, it is recommended to use the program created by the NC code generator software ThreadPro.
2. Please adjust the cutting conditions depending on the rigidity of machine, tool holders and workpiece clamping.
3. Tool vibrations should be kept at a minimum level for maximum accuracy.
4. When machining magnesium alloy materials. please use the coolant oil recommended by the coolant oil manufacturer. Please also properly dispose the cutting chips to prevent fire hazards.
5. Spindle rotation must be counterclockwise due to the left-hand cut configuration.

CUTTING CONDITIONS

AT-2 / WH(O)-EM-PNC



			Stainless Steel - Tool Steel SUS304 - SKD			Cast Steel - Cast Iron - Ductile Cast Iron SC - FC - FCD			Copper - Brass - Brass Casting - Bronze Cu - Bs - BsC - PB ~20HRC			Copper - Brass - Brass Casting - Bronze Cu - Bs - BsC - PB 20HRC~		
Recommended Coolant			Water-Soluble			Air-Blow			Water-Soluble					
Vc (m/min)			35 ~ 100			35 ~ 100			35 ~ 100			35 ~ 75		
Thread	Thread Size	DC	Speed (min^{-1})	Feed (mm/min)	Feed per Tooth (mm/t)	Speed (min^{-1})	Feed (mm/min)	Feed per Tooth (mm/t)	Speed (min^{-1})	Feed (mm/min)	Feed per Tooth (mm/t)	Speed (min^{-1})	Feed (mm/min)	Feed per Tooth (mm/t)
M	M 3 ×0,5	2,4	5.968	48	0,01	7.958	64	0,01	7.958	64	0,01	5.968	48	0,01
	M 4 ×0,7	3,1	4.621	62	0,015	6.161	83	0,015	6.161	83	0,015	4.621	62	0,015
	M 5 ×0,8	4	3.581	49	0,017	4.775	65	0,017	4.775	65	0,017	3.581	49	0,017
	M 6 ×1	4,6	3.114	58	0,02	4.152	78	0,02	4.152	78	0,02	3.114	58	0,02
	M 8 ×1,25	6,2	2.310	62	0,03	3.080	83	0,03	3.080	83	0,03	2.310	62	0,03
	M 10 ×1,5	7,5	1.910	67	0,035	2.546	89	0,035	2.546	89	0,035	1.910	67	0,035
	M 12 ×1,75	9	1.592	72	0,045	2.122	95	0,045	2.122	95	0,045	1.592	72	0,045
	M 16 ×2	11,7	1.224	72	0,055	1.632	96	0,055	1.632	96	0,055	1.224	72	0,055
	M 18 ×2,5	14	1.023	55	0,06	1.364	73	0,06	1.364	73	0,06	1.023	55	0,06
	M 20 ×2,5	15,7	912	51	0,065	1.216	68	0,065	1.216	68	0,065	912	51	0,065
U	No, 8 - 32UNC	3,1	4.621	47	0,01	6.161	63	0,01	6.161	63	0,01	4.621	47	0,01
	No, 10 - 24UNC	3,7	3.871	54	0,015	5.162	72	0,015	5.162	72	0,015	3.871	54	0,015
	1/4 - 20UNC	4,55	3.148	89	0,025	4.197	119	0,025	4.197	119	0,025	3.148	89	0,025
	1/4 - 28UNF	4,55	3.148	89	0,025	4.197	119	0,025	4.197	119	0,025	3.148	89	0,025
	5/16 - 18UNC	5,7	2.513	85	0,03	3.351	113	0,03	3.351	113	0,03	2.513	85	0,03
	3/8 - 16UNC	6,7	2.138	89	0,035	2.851	118	0,035	2.851	118	0,035	2.138	89	0,035
	7/16 - 14UNC	7,7	1.860	91	0,04	2.480	122	0,04	2.480	122	0,04	1.860	91	0,04
	1/2 - 13UNC	9,2	1.557	77	0,045	2.076	103	0,045	2.076	103	0,045	1.557	77	0,045
Rc (PT)	1/16 - 28	4,86	2.982	*1	0,025	3.976	*1	0,025	3.976	*1	0,025	2.982	*1	0,025
	1/8 - 28	5,76	2.512	*1	0,03	3.349	*1	0,03	3.349	*1	0,03	2.512	*1	0,03
	1/4 - 19	7,98	1.814	*1	0,04	2.419	*1	0,04	2.419	*1	0,04	1.814	*1	0,04
	3/8 - 19	9,68	1.493	*1	0,045	1.990	*1	0,045	1.990	*1	0,045	1.493	*1	0,045
	1/2 - 14	11,61	1.246	*1	0,055	1.661	*1	0,055	1.661	*1	0,055	1.246	*1	0,055
	1 - 11	15,54	930	*1	0,065	1.240	*1	0,065	1.240	*1	0,065	930	*1	0,065
NPT	1/16 - 27	4,86	2.984	*1	0,025	3.978	*1	0,025	3.978	*1	0,025	2.984	*1	0,025
	1/8 - 27	5,76	2.513	*1	0,03	3.350	*1	0,03	3.350	*1	0,03	2.513	*1	0,03
	1/4 - 18	7,98	1.815	*1	0,04	2.420	*1	0,04	2.420	*1	0,04	1.815	*1	0,04
	3/8 - 18	9,68	1.493	*1	0,045	1.991	*1	0,045	1.991	*1	0,045	1.493	*1	0,045
	1/2 - 14	11,61	1.246	*1	0,055	1.661	*1	0,055	1.661	*1	0,055	1.246	*1	0,055
	1 - 11 1/2	15,54	930	*1	0,065	1.240	*1	0,065	1.240	*1	0,065	930	*1	0,065



			Aluminium Rolled Steel - Aluminium Alloy Casting AL - AC _ ADC			Magnesium Alloy Casting - Zinc Alloy Casting MC - ZDC			Titanium Alloy Ti-6Al-4V		
Recommended Coolant			Water-Soluble			Water-Soluble			Water-Soluble		
Vc (m/min)			35 ~ 100			35 ~ 100			35 ~ 55		
Thread	Thread Size	DC	Speed (min^{-1})	Feed (mm/min)	Feed per Tooth (mm/t)	Speed (min^{-1})	Feed (mm/min)	Feed per Tooth (mm/t)	Speed (min^{-1})	Feed (mm/min)	Feed per Tooth (mm/t)
M	M 3 ×0,5	2,4	10.610	85	0,01	7.958	64	0,01	5.968	48	0,01
	M 4 ×0,7	3,1	8.214	111	0,015	6.161	83	0,015	4.621	62	0,015
	M 5 ×0,8	4	6.366	87	0,017	4.775	65	0,017	3.581	49	0,017
	M 6 ×1	4,6	5.536	103	0,02	4.152	78	0,02	3.114	58	0,02
	M 8 ×1,25	6,2	4.107	111	0,03	3.080	83	0,03	2.310	62	0,03
	M 10 ×1,5	7,5	3.395	119	0,035	2.546	89	0,035	1.910	67	0,035
	M 12 ×1,75	9	2.829	127	0,045	2.122	95	0,045	1.592	72	0,045
	M 16 ×2	11,7	2.176	129	0,055	1.632	96	0,055	1.224	72	0,055
	M 18 ×2,5	14	1.819	97	0,06	1.364	73	0,06	1.023	55	0,06
	M 20 ×2,5	15,7	1.622	91	0,065	1.216	68	0,065	912	51	0,065
U	No, 8 - 32UNC	3,1	8.214	84	0,01	6.161	63	0,01	4.621	47	0,01
	No, 10 - 24UNC	3,7	6.882	96	0,015	5.162	72	0,015	3.871	54	0,015
	1/4 - 20UNC	4,55	5.597	159	0,025	4.197	119	0,025	3.148	89	0,025
	1/4 - 28UNF	4,55	5.597	159	0,025	4.197	119	0,025	3.148	89	0,025
	5/16 - 18UNC	5,7	4.468	151	0,03	3.351	113	0,03	2.513	85	0,03
	3/8 - 16UNC	6,7	3.801	158	0,035	2.851	118	0,035	2.138	89	0,035
	7/16 - 14UNC	7,7	3.307	162	0,04	2.480	122	0,04	1.860	91	0,04
	1/2 - 13UNC	9,2	2.768	137	0,045	2.076	103	0,045	1.557	77	0,045
Rc (PT)	1/16 - 28	4,86	5.302	*1	0,025	3.976	*1	0,025	2.982	*1	0,025
	1/8 - 28	5,76	4.465	*1	0,03	3.349	*1	0,03	2.512	*1	0,03
	1/4 - 19	7,98	3.225	*1	0,04	2.419	*1	0,04	1.814	*1	0,04
	3/8 - 19	9,68	2.654	*1	0,045	1.990	*1	0,045	1.493	*1	0,045
	1/2 - 14	11,61	2.215	*1	0,055	1.661	*1	0,055	1.246	*1	0,055
	1 - 11	15,54	1.654	*1	0,065	1.240	*1	0,065	930	*1	0,065
NPT	1/16 - 27	4,86	5.304	*1	0,025	3.978	*1	0,025	2.984	*1	0,025
	1/8 - 27	5,76	4.467	*1	0,03	3.350	*1	0,03	2.513	*1	0,03
	1/4 - 18	7,98	3.227	*1	0,04	2.420	*1	0,04	1.815	*1	0,04
	3/8 - 18	9,68	2.655	*1	0,045	1.991	*1	0,045	1.493	*1	0,045
	1/2 - 14	11,61	2.215	*1	0,055	1.661	*1	0,055	1.246	*1	0,055
	1 - 11 1/2	15,54	1,653	*1	0,065	1.240	*1	0,065	930	*1	0,065

*1. Values vary depending on the depth of hole to be machined.

1. This cutting condition table shows standard values. When machining, it is recommended to use the program created by the NC code generator software ThreadPro.
2. Please adjust the cutting conditions depending on the rigidity of machine, tool holders, and workpiece clamping.
3. Tool vibrations should be kept at a minimum level for maximum accuracy.
4. When machining magnesium alloy materials, please use the coolant oil recommended by the coolant oil manufacturer. Please also properly dispose the cutting chips to prevent fire hazards.
5. Spindle rotation must be counterclockwise due to the left-hand cut configuration.

* For titanium alloys and Ni-based alloys, the above condition table applies only when using a water-soluble cutting fluid and processing with a thread length approximately 1xD or an oil hole compatible size (oil hole column: ○ mark).

AT-2 / WH(O)-EM-PNC



			Ni-based Alloy - Inconel			Plastic		
Recommended Coolant			Water-Soluble			Water-Soluble		
Vc (m/min)			35 ~ 55			35 ~ 100		
Thread	Thread Size	DC	Speed (min^{-1})	Feed (mm/min)	Feed per Tooth (mm/t)	Speed (min^{-1})	Feed (mm/min)	Feed per Tooth (mm/t)
M	M 3 ×0,5	2,4	4.642	37	0,01	7.958	64	0,01
	M 4 ×0,7	3,1	3.594	49	0,015	6.161	83	0,015
	M 5 ×0,8	4	2.785	38	0,017	4.775	65	0,017
	M 6 ×1	4,6	2.422	45	0,02	4.152	78	0,02
	M 8 ×1,25	6,2	1.797	49	0,03	3.080	83	0,03
	M 10 ×1,5	7,5	1.485	52	0,035	2.546	89	0,035
	M 12 ×1,75	9	1.238	56	0,045	2.122	95	0,045
	M 16 ×2	11,7	952	56	0,055	1.632	96	0,055
	M 18 ×2,5	14	796	42	0,06	1.364	73	0,06
	M 20 ×2,5	15,7	710	40	0,065	1.216	68	0,065
U	No, 8 - 32UNC	3,1	3.594	37	0,01	6.161	63	0,01
	No, 10 - 24UNC	3,7	3.011	42	0,015	5.162	72	0,015
	1/4 - 20UNC	4,55	2.449	69	0,025	4.197	119	0,025
	1/4 - 28UNF	4,55	2.449	69	0,025	4.197	119	0,025
	5/16 - 18UNC	5,7	1.955	66	0,03	3.351	113	0,03
	3/8 - 16UNC	6,7	1.663	69	0,035	2.851	118	0,035
	7/16 - 14UNC	7,7	1.447	71	0,04	2.480	122	0,04
	1/2 - 13UNC	9,2	1.211	60	0,045	2.076	103	0,045
Rc (PT)	1/16 - 28	4,86	2.320	*1	0,025	3.976	*1	0,025
	1/8 - 28	5,76	1.954	*1	0,03	3.349	*1	0,03
	1/4 - 19	7,98	1.411	*1	0,04	2.419	*1	0,04
	3/8 - 19	9,68	1.161	*1	0,045	1.990	*1	0,045
	1/2 - 14	11,61	969	*1	0,055	1.661	*1	0,055
	1 - 11	15,54	724	*1	0,065	1.240	*1	0,065
NPT	1/16 - 27	4,86	2.321	*1	0,025	3.978	*1	0,025
	1/8 - 27	5,76	1.954	*1	0,03	3.350	*1	0,03
	1/4 - 18	7,98	1.412	*1	0,04	2.420	*1	0,04
	3/8 - 18	9,68	1.161	*1	0,045	1.991	*1	0,045
	1/2 - 14	11,61	969	*1	0,055	1.661	*1	0,055
	1 - 11 1/2	15,54	723	*1	0,065	1.240	*1	0,065

*1. Values vary depending on the depth of hole to be machined.

1. This cutting condition table shows standard values. When machining, it is recommended to use the program created by the NC code generator software ThreadPro.
2. Please adjust the cutting conditions depending on the rigidity of machine, tool holders, and workpiece clamping.
3. Tool vibrations should be kept at a minimum level for maximum accuracy.
4. When machining magnesium alloy materials, please use the coolant oil recommended by the coolant oil manufacturer. Please also properly dispose the cutting chips to prevent fire hazards.
5. Spindle rotation must be counterclockwise due to the left-hand cut configuration.

* For titanium alloys and Ni-based alloys, the above condition table applies only when using a water-soluble cutting fluid and processing with a thread length approximately 1xD or an oil hole compatible size (oil hole column: ○ mark).

Formula for calculating the feed rate of thread mill

$$v_f = \frac{f_z \times z \times n \times (D_m - D_c)}{D_m} \text{ (mm/min)}$$

v_f	Feed (mm/min)	z	Number of Flutes
D_m	Actual Dia. (mm)	f	Feed (mm/t)
D_c	Tool Dia. (mm)	n	Speed (min^{-1})

Note Internal: – External: +

When programming a circular process, the feed rate at the tool center can be obtained by multiplying the linear cut feed rate with a coefficient. The formulas for calculating coefficients vary between external and internal thread cutting. The formula listed left are for calculating the tool feed rate for circular process, including calculating the coefficients to be used for multiplication with the linear-cut feed rate.

AT-2 R-SPEC



		Aluminium Alloy Casting AC4C - ADC Water Soluble						Wrought Aluminium Alloy Magnesium Alloy A5052 - A7075 - AZ91 - AZ80A Water Soluble						Copper Alloy C1100 Water Soluble					
Vc		100~300m/min						100~300m/min						100~300m/min					
Type		2 X D Type			2,5 X D Type			2 X D Type			2,5 X D Type			2 X D Type			2,5 X D Type		
Thread Size	DC	S (min⁻¹)	F (mm/min.)	fz (mm/t)	S (min⁻¹)	F (mm/min.)	fz (mm/t)	S (min⁻¹)	F (mm/min.)	fz (mm/t)	S (min⁻¹)	F (mm/min.)	fz (mm/t)	S (min⁻¹)	F (mm/min.)	fz (mm/t)	S (min⁻¹)	F (mm/min.)	fz (mm/t)
M 3 X 0,5	2,4	13.263	1.592	0,3	13.263	1.592	0,3	13.263	159	0,03	13.263	159	0,03	13.263	159	0,03	13.263	159	0,03
M 4 X 0,7	3,1	14.375	1.941	0,3	14.375	1.941	0,3	14.375	194	0,03	14.375	194	0,03	14.375	194	0,03	14.375	194	0,03
M 5 X 0,8	4	15.915	1.910	0,3	12.732	1.528	0,3	15.915	255	0,04	12.732	204	0,04	15.915	255	0,04	12.732	204	0,04
M 6 X 1	4,6	15.224	2.842	0,4	11.072	2.067	0,4	15.224	284	0,04	11.072	207	0,04	15.224	284	0,04	11.072	207	0,04
M 8 X 1,25	6,2	12.322	2.218	0,4	8.214	1.479	0,4	12.322	277	0,05	8.214	185	0,05	12.322	277	0,05	8.214	185	0,05
M 10 X 1,5	7,5	10.186	2.037	0,4	6.791	1.358	0,4	10.186	255	0,05	6.791	170	0,05	10.186	255	0,05	6.791	170	0,05
M 12 X 1,75	9	8.488	1.698	0,4	5.659	1.132	0,4	8.488	212	0,05	5.659	141	0,05	8.488	212	0,05	5.659	141	0,05

1. AT-2 R-SPEC is only for milling internal threads.
2. This cutting condition table shows standard values. When machining, it is recommended to use the program created by the NC code generator software ThreadPro.
3. Please select "Single-feed" for the path type in ThreadPro. Please adjust the cutting conditions depending on the rigidity of machine, tool holders, and workpiece clamping.
4. Tool vibrations should be kept at a minimum level for maximum accuracy.
5. When machining magnesium alloy materials, please use the coolant oil recommended by the coolant oil manufacturer. Please also properly dispose the cutting chips to prevent fire hazards.
6. Spindle rotation must be counterclockwise due to the left-hand cut configuration.



Note: Bottom shape of finished hole is as depicted in the right picture. Please make sure that it is acceptable based on the cutting instruction in advance.

CUTTING CONDITIONS

WXO-ST-PNC

 Work Material		Vc (m/min)	F (mm/tooth)
Low Tensile Strength Steel	C~0,25%	80~120	0,04~0,1
Medium Tensile Strength Steel	C~0,25% ~ 0,45%	80~120	0,04~0,1
High Tensile Strength Steel	C~0,45%	80~120	0,04~0,1
Alloy Steel	SCM	80~120	0,02~0,08
Hardened Steel	25~45 HRC	60~100	0,02~0,08
	45~55 HRC	-	-
	50~60 HRC	-	-
Stainless Steel	SUS	40~80	0,02~0,06
Tool Steel	SKD	-	-
Cast Steel	SC	40~65	0,02~0,09
Cast Iron	FC	50~100	0,03~0,1
Ductile Cast Iron	FCD	50~65	0,03~0,1
Copper	Cu	65~130	0,03~0,1
Brass	Bs	65~130	0,03~0,1
Brass Casting	BsC	65~130	0,03~0,1
Bronze	PB	65~130	0,03~0,1
Aluminium Rolled Steel	AL	50~70	0,03~0,1
Aluminium Alloy Casting	AC, ADC	65~130	0,03~0,1
Magnesium Alloy Casting	MC	65~130	0,03~0,1
Zinc Alloy Casting	ZDC	65~130	0,03~0,1
Titanium Alloy	Ti-6AL-4V	20~60	0,02~0,06
Nickel Alloy	Inconel®	20~60	0,01~0,03
Thermosetting plastic	-	65~130	0,03~0,13
Thermoplastic	-	65~130	0,03~0,13

WX-PNC

 Work Material		Vc (m/min)	F (mm/tooth)
Low Tensile Strength Steel	C~0,25%	50~75	0,01~0,11
Medium Tensile Strength Steel	C~0,25% ~ 0,45%	40~70	0,01~0,11
High Tensile Strength Steel	C~0,45%	40~70	0,01~0,01
Alloy Steel	SCM	15~30	0,01~0,03
Hardened Steel	25~45 HRC	15~30	0,01~0,03
	45~55 HRC	-	-
	50~60 HRC	-	-
Stainless Steel	SUS	20~40	0,01~0,06
Tool Steel	SKD	-	-
Cast Steel	SC	40~65	0,02~0,09
Cast Iron	FC	50~100	0,03~0,1
Ductile Cast Iron	FCD	50~65	0,03~0,1
Copper	Cu	65~130	0,03~0,1
Brass	Bs	65~130	0,03~0,1
Brass Casting	BsC	65~130	0,03~0,1
Bronze	PB	65~130	0,03~0,1
Aluminium Rolled Steel	AL	50~70	0,03~0,1
Aluminium Alloy Casting	AC, ADC	65~130	0,03~0,1
Magnesium Alloy Casting	MC	65~130	0,03~0,1
Zinc Alloy Casting	ZDC	65~130	0,03~0,1
Titanium Alloy	Ti-6AL-4V	20~60	0,02~0,06
Nickel Alloy	Inconel®	20~60	0,01~0,03
Thermosetting plastic	-	65~130	0,03~0,13
Thermoplastic	-	65~130	0,03~0,13



DRILLING



ICONS LEGEND

Tool material

- CARBIDE — Carbide
- HSS-Co — HSS Cobalt (Co8)
- XPM — High grade powder metallurgy HSS (XPM) (Co10+V5)
- CPM — Powder Metallurgy HSS (PM-T15) (Co5 + V5)
- SPH — Super premium HSS
- HSSE — High vanadium HSS-E V3
- HSS — HSS

Coating / surface treatment

- FX — Multilayer coating TiAlN
- WX — Multilayer composite TiAlN
- CrN — Chromium nitride
- SC — Smooth coating
- TiN — Coating TiN
- WDI — Multilayer coating WDI
- TiAlN — Multilayer coating TiAlN
- V — Multilayer coating TiCN
- OX — Steam oxide
- WXS — Multilayer coating WXS
- WXL — Multilayer coating WXL
- EgiAs — EgiAs coating
- DIA — Diamond coating
- IchAda — Ichada coating
- KeptA — KeptA coating
- DLC — DLC coating
- AlCrN — AlCrN coating

Angle

- 30° — Helix angle

Tool tolerance

- h8 — Tool tolerance
- 0~+0.005 — Tool tolerance for reamer

Shank

- h7 — Shank diameter tolerance
- SHRINK FIT — Suitable for Shrink fit system
- Straight shank
- Tang
- Weldon
- Whistle notch

Drilling depth

- 5D — Drilling depth <5D

Coolant

- Internal coolant
- Coolant

ICONS LEGEND

Point angle



Point angle

Recommendation



Steel
Full recommendation



Steel
Suitable



Non-ferrous materials
Full recommendation



Non-ferrous materials
Suitable



Stainless steel
Full recommendation



Stainless steel
Suitable



Super alloys
Full recommendation



Super alloys
Suitable



Cast iron
Full recommendation



Cast iron
Suitable



Hardened material
Full recommendation



Hardened material
Suitable

A-Brand



A-Brand product

Page reference



Cutting conditions page reference



Body page reference



Inserts page reference

Application



Chamfering



Chamfering



Chamfering



Boring



Plunging



Plunging

Product group symbol



Solid drills



Indexable drills



Reamers



MATERIAL OVERVIEW

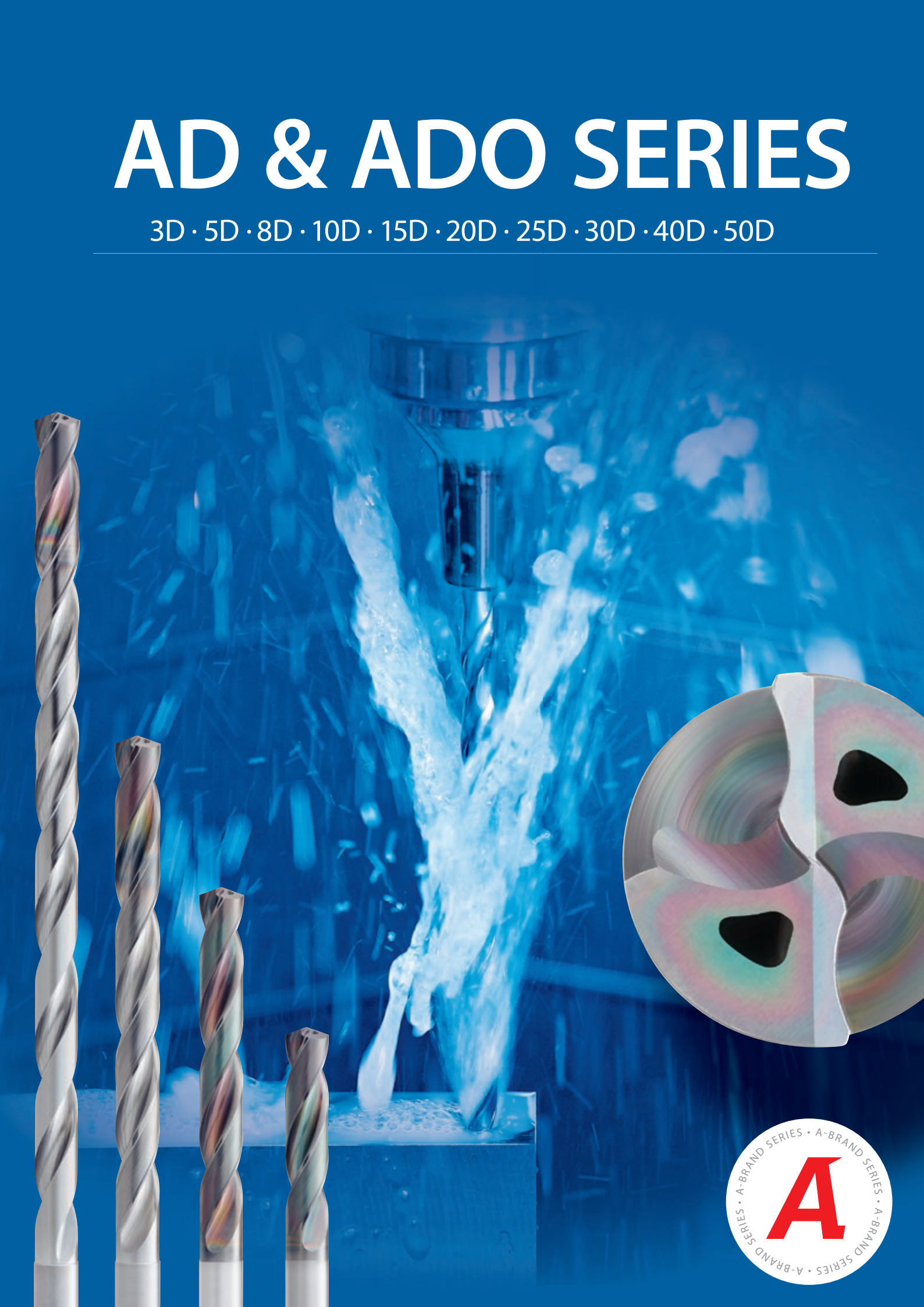
Drilling | Overview DIN ISO 513

		Work Material	DIN
P	C: ≤0,2%	Low carbon steel	**1.0116** (S235J2G3) **1.0401** (C15)
	C: 0,25-0,45%	Medium carbon steel	**1.0501** (C35)
	C: ≥0,45%	High carbon steel	**1.0535** (C55) **1.0553** (S355J0)
	SCM	Alloy steel	**1.7225** (42CrMo4)
M	INOX	Stainless steel	**1.4301** (X5CrNi18-10)
K	GG	Cast iron	**0.6025** (EN-GJL-250/GG25)
	GGG	Ductile cast iron	**0.7040** (EN-GJS-400-15/GGG-40)
N	Al	Aluminium	**3.0205** (Al99)
	AC, ADC	Cast aluminium alloys	**3.2581** (G-AlSi12)
S	Ti	Titanium	**3.7164** (Ti6Al4V)
	Ni	Nickel alloys	**2.4816** (NiCr15Fe/Inconel® 600)
H	25-35HRC	Hardened steel	
	35-45HRC		
	45-52HRC		
	52-62HRC		

CFRP	CFRP
Honeycomb	Honeycomb
Graphite	Graphite

AD & ADO SERIES

3D · 5D · 8D · 10D · 15D · 20D · 25D · 30D · 40D · 50D



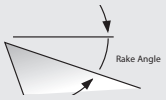
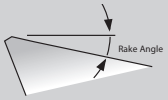
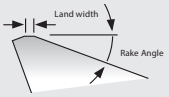
GRADE & CHIPBREAKER

Indexable | Drilling

Grades for drilling

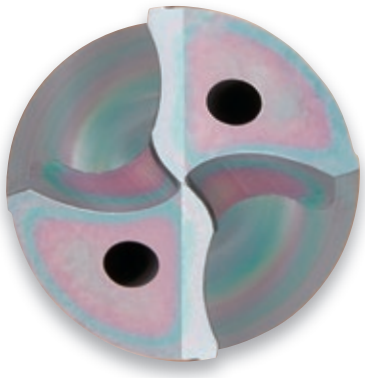
Material	Grades	Coolant/ Dry	Coating	Hardness (HRA)	Surface main component	Surface coating thickness	Features
P	XP3425	Dry	PVD	91,8	Composite multilayer	7 µm	For steel. Thick film-coating, wear resistant, for PXD operation
	XP9020	Dry	PVD	91,9	TiAlN	3 µm	For steel and stainless steel. Wide range of applicationd and areas, well-balanced wear resistance and defect resistance, for drilling operation
	XP9040	Dry	PVD	91,9	TiAlN	3 µm	For machining steel and stainless steel A grade for hole drilling. A tough carbide grade with an anti-chipping and wear-resistant coating
M	XP9020	Coolant	PVD	91,9	TiAlN	3 µm	For steel and stainless steel. Wide range of applicationd and areas, well-balanced wear resistance and defect resistance, for drilling operation
	XP9040	Coolant	PVD	91,9	TiAlN	3 µm	For machining steel and stainless steel A grade for hole drilling. A tough carbide grade with an anti-chipping and wear-resistant coating
K	XP1010	Dry	PVD	91,4	TiAlN	6 µm	For cast iron. High rigidity of cutting edge is acquired by optimal land width and rake angle.
	XP1425	Dry	PVD	91,8	Composite multilayer	7 µm	For cast iron Fine grain hard metal with high strength and toughness, specifically for PXD operation
	XC9025	Dry	CVD	90,8	TiCN-Al_2O_3	6 µm	A grade for hole drilling in cast-iron. Tough, high-strength carbide grade with an anti-chipping and wear-resistant coating
N	CK110	Coolant	-	92	-	-	For aluminium alloys and non-ferrous material Sharp cutting edge with polish treatment
	CF225	Coolant	-	91,8	-	-	For non-ferrous materials High strength and tough non-coat fine grain hard metal for PXD operation

Chipbreakers for drilling

Chipbreaker	Material	Cutting edge	Rake angle	Features
DN	N		10°	For drilling non-ferrous material: a chipbreaker with sharp cutting edge and polish treatment for excellent chip evacuation
DM	P M H		10°	For drilling various materials (steel, stainless steel, cast iron). A general-purpose chipbreaker with an ideal rake angle.
DR	K		9°	For drilling cast iron: a breaker with high rigidity acquired by optimal land width and rake angle.

ALLOY STEELS





A EgiAs CARBIDE

ADOX Series



First choice in quality and performance

Innovative coolant hole geometry: "MEGA COOLER"

EgiAs coating, unique R Gash geometry enables super low cutting resistance and exceptional chip control

Up to 30xD

For general purpose steels and cast iron

174 sizes

3D	5D	8D	10D	15D
B.385	B.386	B.387	B.388	B.389

20D	25D	30D
B.390	B.391	B.392

A EgiAs CARBIDE

ADO Series



First choice in quality and performance

Carbide drill with internal coolant,

EgiAs coating, unique R Gash geometry enables super low cutting resistance and exceptional chip control

Up to 50xD

For general purpose steels and cast iron

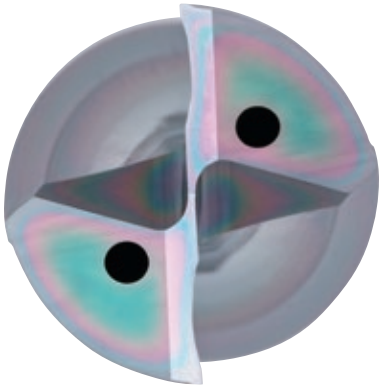
1.676 sizes

3D	5D	PLT	10D	15D
B.364	B.366	B.374	B.375	B.377

20D	25D	30D	40D	50D
B.379	B.381	B.382	B.383	B.384

MULTI FUNCTION





A EgiAs CARBIDE

ADF Series



First choice in quality and performance

Carbide flat drill with EgiAs coating

Up to 3xD

For general purpose steel, **stainless steel** and **cast iron**

491 sizes

2D B.346

3D B.350

VERSATILITY



A WXL CARBIDE

ADO-SUS Series



First choice in quality and performance

Carbide drill with internal coolant, WXL coating

Up to 8xD

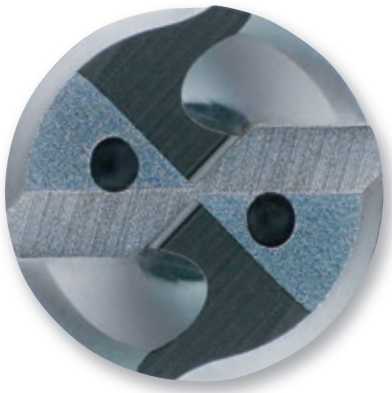
Designed for **stainless steel** and **titanium alloys** application

480 sizes

3D B.356 | 5D B.359 | 8D B.362

MICRO





A KeptA CARBIDE

AD-MICRO Series



First choice in quality and performance

Micro carbide drill with KEPTA coating

Up to 10xD

For general steels, **stainless steels and titanium alloys**

502 sizes

4D B.329

10D B.332

A IchAda CARBIDE

ADO-MICRO Series



First choice in quality and performance

Micro carbide drill with internal coolant, IchAda coating

Up to 30xD

For general purpose steel and **stainless steel**

71 sizes

2D B.335

5D B.336

12D B.337

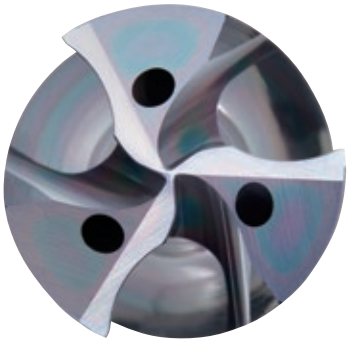
15D B.338

20D B.339

25D B.340

30D B.341

HIGH FEED / PRODUCTIVITY





A | EgiAs | CARBIDE

ADO-TRS Series

First choice in quality and performance

3 flute carbide drill with internal coolant, EgiAs coating

Up to 5xD

Allows **high feed 1.000mm/min** process in steel and cast iron

224 sizes



3D B.369

5D B.371

A | WDI | CARBIDE

TRS Series

First choice in quality and performance

3 flute carbide drill with internal coolant, WDI coating

10xD

Allows **high feed 1.000mm/min** process in steel and cast iron

11 sizes



10D B.373

Product map

HARDENED MATERIALS







DURONEY CARBIDE

WH55

Carbide drill with DUROREY coating

Up to 5xD

For hardened material up to **55HRC**

36 sizes



5D

B.421

DURONEY CARBIDE

WHO55

Carbide drill with internal coolant, DUROREY coating

Up to 5xD

For hardened material up to **55HRC** including **Inconel**

54 sizes



5D

B.422

DURONEY CARBIDE

WH70

Carbide drill with DUROREY coating

Up to 3xD

With low helix for high rigidity, up to **70HRC** material

101 sizes

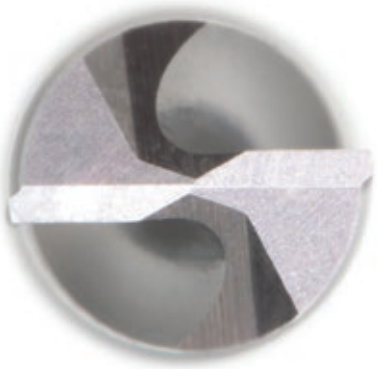


3D

B.423

Product map

IMPRESSIVE SIZE RANGE







WX CARBIDE

WX-MS-GDS



Micro carbide drill with multilayer WX coating

Small sizes for **precision** operation

241 sizes

5D

B.342

TiN HSSE

EX-SUS Series



HSSE drill with TiN coating

Up to 5xD

For **stainless steel**, low carbon steel and cast aluminium

635 sizes from Ø 0,5-6 mm in 0,01 mm increments (EX-SUS-GDS)

3D 5D

B.435 B.442

WDI PM

VPH-GDS



Powder metal drill with WDI coating

Up to 3xD

For cast iron, **exotic material** and **hardened steel**

126 sizes

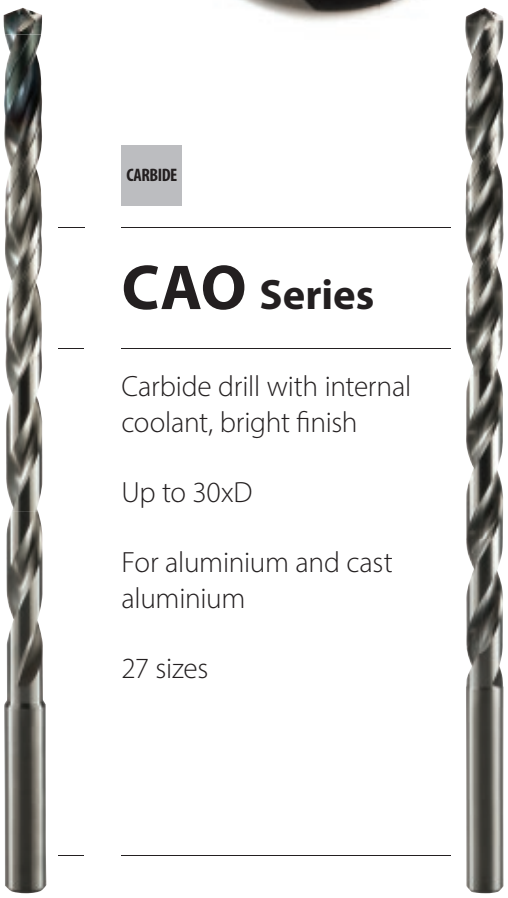
3D

B.426

Product map

NON STEP DEEP HOLE DRILLING





EgiAs CARBIDE

ADO Series

First choice in quality and performance

Carbide drill with internal coolant, EgiAs coating

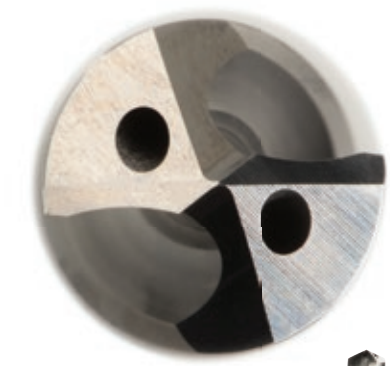
Up to 50xD

For general purpose steels and cast iron

863 sizes

3D B.364 | 5D B.366 | 10D B.375 | 15D B.377 | 20D B.379

25D B.381 | 30D B.382 | 40D B.383 | 50D B.384



CARBIDE

CAO Series

Carbide drill with internal coolant, bright finish

Up to 30xD

For aluminium and cast aluminium

27 sizes

15D B.393 | 20D B.393 | 30D B.393



WXL HSS-Co

TDXL

HSS-Co drill with WXL coating

Up to 20xD

For steels, cast iron and cast aluminium

103 sizes

10D B.456 | 15D B.458 | 20D B.459

SELECTION CHART

Micro drills

Tool material		Flutes	Point angle	Tolerance	Shank tolerance		A-Brand	Product series	Page	Size range Ø	No. of sizes
Carbide		2	140	-0.004 - 0	h4	KeptA	A	AD-MICRO-4D NEW	B.329	0,5 - 3	251
Carbide		2	140	-0.004 - 0	h4	KeptA	A	AD-MICRO-10D NEW	B.332	0,5 - 3	251
Carbide		2	140	0.001 - 0.010	h6	IchAda	A	ADO-MICRO-2D	B.335	0,7 - 2	17
Carbide		2	135	-0.009 - 0	h6	IchAda	A	ADO-MICRO-5D	B.336	0,7 - 2	19
Carbide		2	135	-0.009 - 0	h6	IchAda	A	ADO-MICRO-12D	B.337	1 - 2	11
Carbide		2	135	-0.009 - 0	h6	IchAda	A	ADO-MICRO-15D	B.338	2	1
Carbide		2	135	-0.009 - 0	h6	IchAda	A	ADO-MICRO-20D	B.339	1 - 2	11
Carbide		2	135	-0.009 - 0	h6	IchAda	A	ADO-MICRO-25D	B.340	2	1
Carbide		2	135	-0.009 - 0	h6	IchAda	A	ADO-MICRO-30D	B.341	1 - 2	11
Carbide	-	2	130 - 140	0 - 0.01	h6	WX		WX-MS-GDS	B.342	0,2 - 5	241
Carbide	-	2	120	0 - 0.008	h6	SC		MRS-GDL	B.345	0,5 - 3	75

Up to ≤2D

Tool material		Flutes	Point angle	Tolerance	Shank tolerance		A-Brand	Product series	Page	Size range Ø	No. of sizes
Carbide	-	2	-	h8	h6	EgiAs	A	ADF-2D	B.346	0,2 - 20	253
Carbide	-	2	-	h8	h6	EgiAs	A	ADFLS-2D	B.349	3 - 20	78
Carbide	-	2	140	h8	h6	EgiAs	A	AD-2D	B.352	2 - 20	160
Indexable		2	-	-	-	-		P2D	B.526	12 - 63	77
Indexable		2	-		-	-	-	PDZ	B.531	16 - 43	33

Up to ≤3D

Tool material		Flutes	Point angle	Tolerance	Shank tolerance		A-Brand	Product series	Page	Size range Ø	No. of sizes
Carbide		2	140	h8	h6	EgiAs	A	ADO-3D	B.364	2 - 20	167
Carbide		2	140	h8	h6	EgiAs	A	ADOX-3D NEW	B.385	2 - 6	34
Carbide		2	140	h8	h6	WXL	A	ADO-SUS-3D	B.356	2 - 20	179
Carbide		2	-	h8	h6	EgiAs	A	ADFO-3D	B.350	3 - 20	160
Carbide	-	2	TRIPLE	0-0,02	h6	DIA		D-STAD	B.418	4 - 8	4
Carbide	-	2	-	0-0,02	h6	DIA		D-DAD	B.419	2,5 - 9,5	6
Carbide	-	2	-	0-0,02	h6	DIA		D-GDN90	B.420	2,5 - 9,5	6
Carbide		**3**	140	h8	h6	EgiAs	A	ADO-TRS-3D	B.369	3 - 20	112

SELECTION CHART

Drilling | Selection chart | By material

Product series	Page	P				M	K		N		S		H				CFRP
		C: ≤0,2%	C: 0,25-0,4%	C: ≥0,45%	SCM	INOX	GG	GGG	Al	AC,ADC	Ti	Ni	25-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
AD-MICRO-4D NEW	B.329	●	●	●	●	●	●	●		◎	●		●	◎	◎		
AD-MICRO-10D NEW	B.332	●	●	●	●	●	●	●		◎	●		●	◎	◎		
ADO-MICRO-2D	B.335	●	●	●	●	●	●	●		◎	◎		●	◎	◎		
ADO-MICRO-5D	B.336	●	●	●	●	●	●	●		◎	◎		●	◎	◎		
ADO-MICRO-12D	B.337	●	●	●	●	●	●	●		◎	◎		●	◎	◎		
ADO-MICRO-15D	B.338	●	●	●	●	●	●	●		◎	◎		●	◎	◎		
ADO-MICRO-20D	B.339	●	●	●	●	●	●	●		◎	◎		●	◎	◎		
ADO-MICRO-25D	B.340	●	●	●	●	●	●	●		◎	◎		●	◎	◎		
ADO-MICRO-30D	B.341	●	●	●	●	●	●	●		◎	◎		●	◎	◎		
WX-MS-GDS	B.342	●	●	◎	◎	◎	◎		●	◎	◎						
MRS-GDL	B.345	●	●	◎	◎	●											

Product series	Page	P				M	K		N		S		H				CFRP
		C: ≤0,2%	C: 0,25-0,4%	C: ≥0,45%	SCM	INOX	GG	GGG	Al	AC,ADC	Ti	Ni	25-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
ADF-2D	B.346	●	●	●	●		●	●	◎	◎			●	◎	◎		
ADFLS-2D	B.349	◎	◎	◎	◎		◎	◎	◎				◎	◎			
AD-2D	B.352	●	●	●	●		◎	●	◎	◎			●	◎	◎		
P2D	B.526	●	●	●	●	●	●	●	●	●							
PDZ	B.531	●	●	●	●	●	●	●	●	●							

Product series	Page	P				M	K		N		S		H				CFRP
		C: ≤0,2%	C: 0,25-0,4%	C: ≥0,45%	SCM	INOX	GG	GGG	Al	AC,ADC	Ti	Ni	25-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
ADO-3D	B.364	●	●	●	●	◎	●	●		◎	◎		●	◎	◎		
ADOX-3D NEW	B.385	●	●	●	●	◎	●	●		◎	◎		●	◎	◎		
ADO-SUS-3D	B.356	●	●	●	●	●	●	●		◎	●		●	◎	◎		
ADFO-3D	B.350	●	●	●	●	●	●	●	◎	◎			●	◎	◎		
D-STAD	B.418																●
D-DAD	B.419																●
D-GDN90	B.420																●
ADO-TRS-3D	B.369	●	●	●	●	◎	●	●	◎	◎	◎		●	◎	◎		

SELECTION CHART

Up to ≤3D

Tool material		Flutes	Point angle	Tolerance	Shank tolerance		A-Brand	Product series	Page	Size range Ø	No. of sizes
Carbide	-	2	140	m7	h6	EgiAs		HYP-HP-3D	B.394	1 - 20	154
Carbide	-	2	140	h8	h6	EgiAs		HYP-HP-SC-3D	B.396	6 - 14	7
Carbide		2	140	h8	h6	EgiAs		HYP-HPO-SC-3D	B.405	6 - 14	6
Carbide		2	140	m7	h6	EgiAs		HYP-HPO-3D	B.399	3 - 20	136
Carbide		2	140	m7	HE	EgiAs		HYP-HPO-3D-HE	B.401	3 - 20	134
Carbide		2	140	m7	HB	EgiAs		HYP-HPO-3D-HB	B.403	3 - 20	136
Carbide	-	2	130	m7	-	-		HYP-AL-3D	B.414	1 - 12,7	137
Carbide	-	2	120	h8	h6	DUROREY		WH70-DRL	B.423	2 - 12	101
HSSE	-	2	120-150	h8	h7	TiN		EX-SUS-GDS	B.435	0,5 - 20	**635**
HSSE	-	2	120-130	h8	h7	TiN		EX-GDS	B.448	1 - 13	193
HSSE	-	2	120-140	h8	h7	WDI		NEXUS-GDS	B.430	1 - 12	106
PM	-	2	130	h8	h7	WDI		VPH-GDS	B.426	0,5 - 13	126
Indexable		2	-	-	-	-		P3D	B.529	12 - 63	88
Indexable		2	-	-	-	-		PDZ (3D)	B.531	16 - 43	33
Top solid		2	140	-	-	-		PXD 3D	B.536	14 - 25,99	13
Indexable		2	-	-	-	-		PHP	B.538	14 - 40	40

Up to ≤4D

Tool material		Flutes	Point angle	Tolerance	Shank tolerance		A-Brand	Product series	Page	Size range Ø	No. of sizes
Carbide	-	2	140	h8	h6	EgiAs	A	AD-4D	B.354	2 - 20	149
Indexable		2	-	-	-	-		P4D	B.532	12 - 63	77

Up to ≤5D

Tool material		Flutes	Point angle	Tolerance	Shank tolerance		A-Brand	Product series	Page	Size range Ø	No. of sizes
Carbide		2	140	h8	h6	EgiAs	A	ADO-5D	B.366	2 - 20	191
Carbide		2	140	h8	h6	EgiAs	A	ADOX-5D NEW	B.386	2 - 6	31
Carbide		2	140	h8	h6	WXL	A	ADO-SUS-5D	B.359	2 - 20	198
Carbide		**3**	140	h8	h6	EgiAs	A	ADO-TRS-5D	B.371	3 - 20	112
Carbide	-	2	140	m7	h6	EgiAs		HYP-HP-5D	B.397	1 - 20	154
Carbide		2	140	m7	h6	EgiAs		HYP-HPO-5D	B.406	1 - 20	156

SELECTION CHART

Drilling | Selection chart | By material

Product series	Page	P				M	K		N		S		H				CFRP
		C: ≤0,2%	C: 0,25-0,4%	C: ≥0,45%	SCM	INOX	GG	GGG	Al	AC,ADC	Ti	Ni	25-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
HYP-HP-3D	B.394	○	●	●	●	○	●	●	○	○			●	○	○		
HYP-HP-SC-3D	B.396	○	●	●	●	○	●	●	○	○			●	○	○		
HYP-HPO-SC-3D	B.405	○	●	●	●	○	●	●	○	○			●	○	○		
HYP-HPO-3D	B.399	○	●	●	●	○	●	●	○	○			●	○	○		
HYP-HPO-3D-HE	B.401	○	●	●	●	○	●	●	○	○			●	○	○		
HYP-HPO-3D-HB	B.403	○	●	●	●	○	●	●	○	○			●	○	○		
HYP-AL-3D	B.414								●	●							
WH70-DRL	B.423															●	
EX-SUS-GDS	B.435	●	○			●			●	○							
EX-GDS	B.448	○	●	●	●		●	○		○		○	●	●			
NEXUS-GDS	B.430	●	○			●			●	●	●						
VPH-GDS	B.426	○	○	○	○		●	●			●	●	●	●	●		
P3D	B.529	●	●	●	●	●	●	●	●	●							
PDZ (3D)	B.531	●	●	●	●	●	●	●	●	●							
PXD 3D	B.536	●	●	●	●		●	●	●	●							
PHP	B.538	●	●	●	●	●	●	●	●	●	○	○					

Product series	Page	P				M	K		N		S		H				CFRP
		C: ≤0,2%	C: 0,25-0,4%	C: ≥0,45%	SCM	INOX	GG	GGG	Al	AC,ADC	Ti	Ni	25-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
AD-4D	B.354	●	●	●	●		○	●	○	○			●	○			
P4D	B.532	●	●	●	●	●	●	●	●	●							

Product series	Page	P				M	K		N		S		H				CFRP
		C: ≤0,2%	C: 0,25-0,4%	C: ≥0,45%	SCM	INOX	GG	GGG	Al	AC,ADC	Ti	Ni	25-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
ADO-5D	B.366	●	●	●	●	○	●	●		○	○		●	○	○		
ADOX-5D NEW	B.386	●	●	●	●	○	●	●		○	○		●	○	○		
ADO-SUS-5D	B.359	●	●	●	●	●	●	●		○	●		●	○	○		
ADO-TRS-5D	B.371	●	●	●	●	○	●	●	○	○			●				
HYP-HP-5D	B.397	○	●	●	●	○	●	●	○	○			●	○	○		
HYP-HPO-5D	B.406	○	●	●	●	○	●	●	○	○			●	○	○		

SELECTION CHART

Up to ≤5D

Tool material		Flutes	Point angle	Tolerance	Shank tolerance		A-Brand	Product series	Page	Size range Ø	No. of sizes
Carbide		2	140	m7	HE	EgiAs		HYP-HPO-5D-HE	B.408	3 - 20	134
Carbide		2	140	m7	HB	EgiAs		HYP-HPO-5D-HB	B.410	3 - 20	136
Carbide			130	m7		-		HYP-ALO-5D	B.416	3 - 12,7	119
Carbide	-	2	140	h8	h6	DUROREY		WH55-5D	B.421	2 - 12	36
Carbide		2	140	h8	h6	DUROREY		WHO55-5D	B.422	3,3 - 12	54
Carbide	-	2	118	0/-0.013	h6	-		JOBBER DRILL	B.467	1 - 12,7	125
HSSE	-	2	120-130	h8	h7	TiN		EX-SUS-GDR	B.442	2 - 20	485
HSSE	-	2	120-130	h8	h7	TiN		EX-GDR	B.451	2 - 32	249
HSSE	-	2	120-130	h8	h7	WDI		NEXUS-GDR	B.432	2 - 12	32
HSSE	-	2	120	h8	h7	V		V-SDR	B.433	2 - 13	111
HSS-Co		2	130	h8	h6-h7	V		V-HDO-GDR	B.454	6 - 32	96
SPH	-	2	120	h8	h7	V		VP-GDR	B.428	2 - 32	144
Indexable		2	-	-	-	-		P5D	B.534	12 - 63	77
Top solid		2	140	-	-	-		PXD 5D	B.537	14 - 25,99	13

Pilot drills

Tool material		Flutes	Point angle	Tolerance	Shank tolerance		A-Brand	Product series	Page	Size range Ø	No. of sizes
Carbide		2	160	h8	h6	EgiAs	A	ADO-PLT	B.374	3,03 - 12,03	15

Up to ≤8D

Tool material		Flutes	Point angle	Tolerance	Shank tolerance		A-Brand	Product series	Page	Size range Ø	No. of sizes
Carbide		2	140	h8	h6	EgiAs	A	ADOX-8D NEW	B.387	2 - 6	13
Carbide		2	135	h8	h6	WXL	A	ADO-SUS-8D	B.362	2 - 12	101
Carbide		2	140	m7	h6	EgiAs		HYP-HPO-8D	B.412	3 - 20	134
HSS-Co	-	2	130	h8	h7	TiN		EX-GDXL-8D	B.460	11 - 13	21

SELECTION CHART

Drilling | Selection chart | By material

Product series	Page	P				M	K		N		S		H				CFRP
		C: ≤0,2%	C: 0,25-0,4%	C: ≥0,45%	SCM	INOX	GG	GGG	AI	AC,ADC	Ti	Ni	25-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
HYP-HPO-5D-HE	B.408	◎	●	●	●	◎	●	●	◎	◎			●	◎	◎		
HYP-HPO-5D-HB	B.410	◎	●	●	●	◎	●	●	◎	◎			●	◎	◎		
HYP-ALO-5D	B.416								●	●							
WH55-5D	B.421													●	●	◎	
WHO55-5D	B.422											●		●	●	◎	
JOBBER DRILL	B.467	◎	◎	◎	◎		◎		◎	◎			◎				
EX-SUS-GDR	B.442	●	◎			●			●	◎							
EX-GDR	B.451	◎	●	●	●		●	◎	◎	◎			◎				
NEXUS-GDR	B.432	●	◎			●			●	●	●						
V-SDR	B.433	●	●	◎	●		◎	◎	◎	◎							
V-HDO-GDR	B.454	●	●	●	●	●	◎	◎	◎	●	◎	◎	●				
VP-GDR	B.428	●	●	●	●		●	●	◎	●	◎	◎	●				
P5D	B.534	●	●	●	●	●	●	●	●	●							
PXD 5D	B.537	●	●	●	●		●	●	●	●							

Product series	Page	P				M	K		N		S		H				CFRP
		C: ≤0,2%	C: 0,25-0,4%	C: ≥0,45%	SCM	INOX	GG	GGG	AI	AC,ADC	Ti	Ni	25-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
ADO-PLT	B.374	◎	●	●	●	◎	●	●	◎	◎			●	●			

Product series	Page	P				M	K		N		S		H				CFRP
		C: ≤0,2%	C: 0,25-0,4%	C: ≥0,45%	SCM	INOX	GG	GGG	AI	AC,ADC	Ti	Ni	25-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
ADOX-8D NEW	B.387	●	●	●	●	◎	●	●		◎	◎		●	◎	◎		
ADO-SUS-8D	B.362	●	●	●	●	●	●	●		◎	●		●	◎	◎		
HYP-HPO-8D	B.412	◎	●	●	●	◎	●	●	◎	◎			●	◎	◎		
EX-GDXL-8D	B.460	◎	●	●	●		●	●		◎			◎				

SELECTION CHART

Up to ≤10D

Tool material		Flutes	Point angle	Tolerance	Shank tolerance		A-Brand	Product series	Page	Size range Ø	No. of sizes
Carbide		2	140	e8	h6	EgiAs	A	ADO-10D	B.375	2 - 12,5	102
Carbide		2	140	e8	h6	EgiAs	A	ADOX-10D NEW	B.388	2,4 - 6	22
Carbide		**3**	140	h8	h6	WDI	A	TRS-HO-10D	B.373	5 - 12	11
HSS-Co	-	2	120	h8	h7	WXL		TDXL-10D	B.456	1,6 - 12	103
HSS-Co	-	2	130	h8	h7	TiN		EX-GDXL-10D	B.461	3,6 - 13	89

Up to ≤15D

Tool material		Flutes	Point angle	Tolerance	Shank tolerance		A-Brand	Product series	Page	Size range Ø	No. of sizes
Carbide		2	140	e8	h6	EgiAs	A	ADO-15D	B.377	2 - 12,5	102
Carbide		2	140	e8	h6	EgiAs	A	ADOX-15D NEW	B.389	2,3 - 6	24
Carbide		2	140	h8	h6	-		CAO-GDXL	B.393	3 - 10	9
HSS-Co	-	2	120	h8	h7	WXL		TDXL-15D	B.458	1,6 - 12	68
HSS-Co	-	2	130	h8	h7	TiN		EX-GDXL-15D	B.462	2 - 13	104

Up to ≤20D

Tool material		Flutes	Point angle	Tolerance	Shank tolerance		A-Brand	Product series	Page	Size range Ø	No. of sizes
Carbide		2	140	e8	h6	EgiAs	A	ADO-20D	B.379	2 - 12,5	102
Carbide		2	140	e8	h6	EgiAs	A	ADOX-20D NEW	B.390	2,3 - 6	22
Carbide		2	140	h8	h6	-		CAO-GDXL-20D	B.393	4 - 10	9
HSS-Co	-	2	120	h8	h7	WXL		TDXL-20D	B.459	1,6 - 12	48
HSS-Co	-	2	130	h8	h7	TiN		EX-GDXL-20D	B.464	2 - 10,9	72

Up to ≤25D

Tool material		Flutes	Point angle	Tolerance	Shank tolerance		A-Brand	Product series	Page	Size range Ø	No. of sizes
Carbide		2	140	e8	h6	EgiAs	A	ADO-25D	B.381	2,5 - 12	92
Carbide		2	140	e8	h6	EgiAs	A	ADOX-25D NEW	B.391	2,3 - 6	11
HSS-Co	-	2	130	h8	h7	TiN		EX-GDXL-25D	B.465	3,3- 8,1	36

SELECTION CHART

Drilling | Selection chart | By material

Product series	Page	P				M	K		N		S		H				CFRP
		C: ≤0,2%	C: 0,25-0,4%	C: ≥0,45%	SCM	INOX	GG	GGG	AI	AC,ADC	Ti	Ni	25-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
ADO-10D	B.375	●	●	●	●	◎	●	●	◎	◎	◎	◎	◎				
ADOX-10D NEW	B.388	●	●	●	●	◎	●	●	◎	◎	◎	◎	◎				
TRS-HO-10D	B.373	●	●	●	●		●	●									
TDXL-10D	B.456	◎	●	●	●		●	●		●							
EX-GDXL-10D	B.461	◎	●	●	●		●	●		◎			◎				

Product series	Page	P				M	K		N		S		H				CFRP
		C: ≤0,2%	C: 0,25-0,4%	C: ≥0,45%	SCM	INOX	GG	GGG	AI	AC,ADC	Ti	Ni	25-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
ADO-15D	B.377	●	●	●	●	◎	●	●	◎	◎	◎	◎	◎				
ADOX-15D NEW	B.389	●	●	●	●	◎	●	●	◎	◎	◎	◎	◎				
CAO-GDXL	B.393								◎	●							
TDXL-15D	B.458	◎	●	●	●		●	●		●							
EX-GDXL-15D	B.462	◎	●	●	●		●	●		◎			◎				

Product series	Page	P				M	K		N		S		H				CFRP
		C: ≤0,2%	C: 0,25-0,4%	C: ≥0,45%	SCM	INOX	GG	GGG	AI	AC,ADC	Ti	Ni	25-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
ADO-20D	B.379	●	●	●	●	◎	●	●	◎	◎	◎	◎	◎				
ADOX-20D NEW	B.390	●	●	●	●	◎	●	●	◎	◎	◎	◎	◎				
CAO-GDXL	B.393								◎	●							
TDXL-20D	B.459	◎	●	●	●		●	●		●							
EX-GDXL-20D	B.464	◎	●	●	●		●	●		◎			◎				

Product series	Page	P				M	K		N		S		H				CFRP
		C: ≤0,2%	C: 0,25-0,4%	C: ≥0,45%	SCM	INOX	GG	GGG	AI	AC,ADC	Ti	Ni	25-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
ADO-25D	B.381	●	●	●	●	◎	●	●	◎	◎	◎	◎	◎				
ADOX-25D NEW	B.391	●	●	●	●	◎	●	●	◎	◎	◎	◎	◎				
EX-GDXL-25D	B.465	◎	●	●	●		●	●		◎			◎				

SELECTION CHART

Up to ≤30D

Tool material		Flutes	Point angle	Tolerance	Shank tolerance		A-Brand	Product series	Page	Size range Ø	No. of sizes
Carbide		2	140	e8	h6	EgiAs	A	ADO-30D	B.382	2 - 10	81
Carbide		2	140	e8	h6	EgiAs	A	ADOX-30D NEW	B.392	2,3 - 6	11
Carbide		2	140	h8	h6	-		CAO-GDXL-30D	B.393	5 - 8	5
HSS-Co	-	2	130	h8	h7	TiN		EX-GDXL-30D	B.466	3 - 6,3	10

Up to ≤40D

Tool material		Flutes	Point angle	Tolerance	Shank tolerance		A-Brand	Product series	Page	Size range Ø	No. of sizes
Carbide		2	140	e8	h6	EgiAs	A	ADO-40D	B.383	3 - 10	23

Up to ≤50D

Tool material		Flutes	Point angle	Tolerance	Shank tolerance		A-Brand	Product series	Page	Size range Ø	No. of sizes
Carbide		2	140	e8	h6	EgiAs	A	ADO-50D	B.384	3 - 8,5	26

Spotting, Chamfering, Counterboring

Tool material		Flutes	Point angle	Tolerance	Shank tolerance		A-Brand	Product series	Page	Size range Ø	No. of sizes
Carbide	-	2	60 / 90 / 120 / 140	-	h7	EgiAs	A	AD-LDS	B.469	0,5 - 12	30
Carbide	-	2	90	-	h7	EgiAs	A	AD-LS-LDS	B.470	3 - 12	6
Carbide	-	2	90 / 120 / 142	-	h6	-		HYP-LDS	B.471	3 - 20	24
HSS	-	2	60 / 90 / 120	-	h7	TiN		TIN-NC-LDS	B.472	3 - 25	21
HSS	-	2	60 / 90 / 120	-	h7	-		NC-LDS	B.473	3 - 25	27
Indexable	-	-	60 / 90 / 118 / 120	-	-	-		HY-PRO-CARB	B.548	8 - 40	12
Indexable	-	-	-	-	-	-		PZAG BORE	B.541	54 - 82	7
Indexable	-	-	-	-	-	-		PZAG SS	B.540	14 - 48	11
Indexable		-	90 / 120	-	-	-		PLDS SS	B.542	14,4 - 17,3	4
Indexable		-	90 / 120	-	-	-		PLDS SF	B.543	14,4 - 17,3	2
Indexable		1/3	-	-	-	-		PMEN SS NEW	B.544	8,5 - 35,6	10
Indexable		4/5	-	-	-	-		PMEN BORE NEW	B.545	40,5 - 63,6	6
Indexable		1/3	-	-	-	-		PMEN SF NEW	B.546	8,5 - 35,6	10

SELECTION CHART

Drilling | Selection chart | By material

Product series	Page	P				M	K		N		S		H				CFRP
		C: ≤0,2%	C: 0,25-0,4%	C: ≥0,45%	SCM	INOX	GG	GGG	Al	AC,ADC	Ti	Ni	25-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
ADO-30D	B.382	◉	◉	◉	◉	◎	◉	◉	◎	◎	◎	◎	◎				
ADOX-30D NEW	B.392	◉	◉	◉	◉	◎	◉	◉	◎	◎	◎	◎	◎				
CAO-GDXL-30D	B.393								◎	◉							
EX-GDXL-30D	B.466	◎	◉	◉	◉		◉	◉		◎			◎				

Product series	Page	P				M	K		N		S		H				CFRP
		C: ≤0,2%	C: 0,25-0,4%	C: ≥0,45%	SCM	INOX	GG	GGG	Al	AC,ADC	Ti	Ni	25-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
ADO-40D	B.383	◉	◉	◉	◉	◎	◉	◉	◎	◎	◎	◎	◎				

Product series	Page	P				M	K		N		S		H				CFRP
		C: ≤0,2%	C: 0,25-0,4%	C: ≥0,45%	SCM	INOX	GG	GGG	Al	AC,ADC	Ti	Ni	25-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
ADO-50D	B.384	◉	◉	◉	◉	◎	◉	◉	◎	◎	◎	◎	◎				

Product series	Page	P				M	K		N		S		H				CFRP
		C: ≤0,2%	C: 0,25-0,4%	C: ≥0,45%	SCM	INOX	GG	GGG	Al	AC,ADC	Ti	Ni	25-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
AD-LDS	B.469	◉	◉	◉	◉	◎	◉	◉	◎	◉	◎	◎	◉	◉			
AD-LS-LDS	B.470	◉	◉	◉	◉	◎	◉	◉	◎	◉	◎	◎	◉	◉			
HYP-LDS	B.471	◉	◉	◉	◉		◉	◉		◎	◎	◎	◉	◎			
TIN-NC-LDS	B.472	◉	◉	◉	◉	◉	◉	◉		◉	◉		◎				
NC-LDS	B.473	◉	◉	◉	◉	◉	◉	◉		◉	◉		◎				
HY-PRO-CARB	B.548	◉	◉			◉	◉		◉				◉				
PZAG BORE	B.541	◉	◉			◉	◉	◉	◎		◎		◎				
PZAG SS	B.540	◉	◉			◉	◉	◉	◎		◎		◎				
PLDS SS	B.542	◉	◉			◉	◉	◉	◎		◎		◎				
PLDS SF	B.543	◉	◉			◉	◉	◉	◎		◎		◎				
PMEN SS NEW	B.544	◉	◉	◉		◉	◉		◉		◉	◉	◉	◉	◉		
PMEN BORE NEW	B.545	◉	◉	◉		◉	◉		◉		◉	◉	◉	◉	◉		
PMEN SF NEW	B.546	◉	◉	◉		◉	◉		◉		◉	◉	◉	◉	◉		

SELECTION CHART

Drill for removing broken tap

Tool material		Flutes	Point angle	Tolerance	Shank tolerance		A-Brand	Product series	Page	Size range Ø	No. of sizes
Carbide	-	-	-	-	h7	-		EX-H-DRL	B.425	2 - 12	11

Reamer

Tool material		Flutes	Point angle	Tolerance	Shank tolerance		A-Brand	Product series	Page	Size range Ø	No. of sizes
Carbide	-	4 / 6	-	0/+0.005	h6	-		CRM	B.474	0,3 - 13,05	**1276**
Carbide		5	-	0/+0.005	h6	AlCrN		HS-OIL-CRM NEW	B.488	2,97 - 12,03	86
Carbide		4 / 6	-	0/+0.005	h6	DLC		AL-CRM NEW	B.489	1,97 - 12,03	98
Carbide		4	-	0/+0.005	h6	FX		H-CRM NEW	B.491	1,97 - 12,03	98

SELECTION CHART

Drilling | Selection chart | By material

Product series	Page	P				M	K		N		S		H				CFRP
		C: ≤0,2%	C: 0,25-0,4%	C: ≥0,45%	SCM	INOX	GG	GGG	Al	AC,ADC	Ti	Ni	25-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
EX-H-DRL	B.425															◉	

Product series	Page	P				M	K		N		S		H				CFRP
		C: ≤0,2%	C: 0,25-0,4%	C: ≥0,45%	SCM	INOX	GG	GGG	Al	AC,ADC	Ti	Ni	25-35 HRC	35-45 HRC	45-50 HRC	50-70 HRC	
CRM	B.474	◉	◉	◉	◉	◎	◉		◉	◉	◎		◉	◉	◎		
HS-OIL-CRM NEW	B.488	◉	◉	◉	◉		◉	◉		◉			◉	◉	◉		
AL-CRM NEW	B.489								◉	◉							
H-CRM NEW	B.491				◉	◉					◉		◉	◉	◉	◉	

SELECTION CHART SIZE

Drilling | Selection chart | By size | Micro

◉ = All sizes available within interval

◎ = Limited number of sizes available within interval



NEW NEW

Product series		AD-MICRO-4D	AD-MICRO-10D	ADO-MICRO-2D	ADO-MICRO-5D	ADO-MICRO-12D	ADO-MICRO-15D	ADO-MICRO-20D	ADO-MICRO-25D	ADO-MICRO-30D
A-Brand		A	A	A	A	A	A	A	A	A
Total # of sizes		251 sizes	251 sizes	17 sizes	19 sizes	11 sizes	1 size	11 sizes	1 size	11 sizes
Incremental step	Diameter	B.329	B.332	B.335	B.336	B.337	B.338	B.339	B.340	B.341
0,1	0,50 ~ 0,59	◉	◉							
0,1	0,60 ~ 0,69	◉	◉							
0,1	0,70	◉	◉	◉	◉					
0,1	0,71 ~ 0,74	◉	◉							
0,1	0,75	◉	◉	◉	◉					
0,1	0,76 ~ 0,79	◉	◉							
0,1	0,80	◉	◉	◉	◉					
0,1	0,81 ~ 0,84	◉	◉							
0,1	0,85	◉	◉	◉	◉					
0,1	0,86 ~ 0,89	◉	◉							
0,1	0,90	◉	◉	◉	◉					
0,1	0,91 ~ 0,94	◉	◉							
0,1	0,95	◉	◉	◉	◉					
0,1	0,96 ~ 0,99	◉	◉							
0,1	1,00	◉	◉	◉	◉	◉		◉		◉
0,1	1,01 ~ 1,09	◉	◉							
0,1	1,10	◉	◉	◉	◉	◉		◉		◉
0,1	1,11 ~ 1,19	◉	◉							
0,1	1,20	◉	◉	◉	◉	◉		◉		◉
0,1	1,21 ~ 1,29	◉	◉							
0,1	1,30	◉	◉	◉	◉	◉		◉		◉
0,1	1,31 ~ 1,39	◉	◉							
0,1	1,40	◉	◉	◉	◉	◉		◉		◉
0,1	1,41 ~ 1,49	◉	◉							
0,1	1,50	◉	◉	◉	◉	◉		◉		◉
0,1	1,51 ~ 1,54	◉	◉							
0,1	1,55	◉	◉		◉					
0,1	1,56 ~ 1,59	◉	◉							
0,1	1,60	◉	◉	◉	◉	◉		◉		◉
0,1	1,61 ~ 1,69	◉	◉							
	1,70	◉	◉	◉	◉	◉		◉		◉
	1,71 ~ 1,79	◉	◉							
	1,80	◉	◉	◉	◉	◉		◉		◉
	1,81 ~ 1,83	◉	◉							
	1,84	◉	◉		◉					
	1,85 ~ 1,89	◉	◉							
	1,90	◉	◉	◉	◉	◉		◉		◉
	1,91 ~ 1,99	◉	◉							
	2,00	◉	◉	◉	◉	◉	◉	◉	◉	◉
	2,01 ~ 2,10	◉	◉							
	2,11 ~ 2,20	◉	◉							
	2,21 ~ 2,30	◉	◉							
	2,31 ~ 2,40	◉	◉							
	2,41 ~ 2,50	◉	◉							
	2,51 ~ 2,60	◉	◉							
	2,61 ~ 2,70	◉	◉							
	2,71 ~ 2,80	◉	◉							
	2,81 ~ 2,90	◉	◉							
	2,91 ~ 3,00	◉	◉							

SELECTION CHART SIZE

Drilling | Selection chart | By size | Micro

◉ = All sizes available within interval

◎ = Limited number of sizes available within interval






Product series		WX-MS-GDS	EX-SUS-GDS	EX-SUS-GDR	VPH-GDS
Tool material		Carbide	HSS	HSS	PM
Incremental		0,01 mm incremental from Ø0,2 to Ø2	0,01 mm incremental from Ø0,5 to Ø6	0,01 mm incremental from Ø2 to Ø6	0,1 mm incremental from Ø0,5 to Ø13
Total # of sizes		241 sizes	635 sizes	485 sizes	126 sizes
Incremental step	Diameter	B.342	B.435	B.442	B.426
0,01	0,2 ~ 0,49	◉			
0,01	0,50 ~ 0,59	◉	◉		0,5
0,01	0,60 ~ 0,69	◉	◉		0,6
0,01	0,70 ~ 0,79	◉	◉		0,7
0,01	0,80 ~ 0,89	◉	◉		0,8
0,01	0,90 ~ 0,99	◉	◉		0,9
0,01	1,00 ~1,09	◉	◉		1,0
0,01	1,10 ~ 1,19	◉	◉		1,1
0,01	1,20 ~ 1,29	◉	◉		1,2
0,01	1,30 ~ 1,39	◉	◉		1,3
0,01	1,40 ~ 1,49	◉	◉		1,4
0,01	1,50 ~ 1,59	◉	◉		1,5
0,01	1,60 ~ 1,69	◉	◉		1,6
0,01	1,70 ~ 1,79	◉	◉		1,7
0,01	1,80 ~ 1,89	◉	◉		1,8
0,01	1,90 ~ 1,99	◉	◉		1,9
0,01	2,00 ~ 2,09	2,0 / 2,05	◉	◉	2,0
0,01	2,10 ~ 2,19	2,1 / 2,15	◉	◉	2,1
0,01	2,20 ~ 2,29	2,2 /2,25	◉	◉	2,2
0,01	2,30 ~ 2,39	2,3 / 2,35	◉	◉	2,3
0,01	2,40 ~ 2,49	2,4 / 2,45	◉	◉	2,4
0,01	2,50 ~ 2,59	2,5 / 2,55	◉	◉	2,5
0,01	2,60 ~ 2,69	2,6 / 2,65	◉	◉	2,6
0,01	2,70 ~ 2,79	2,7 / 2,75	◉	◉	2,7
0,01	2,80 ~ 2,89	2,8 / 2,85	◉	◉	2,8
0,01	2,90 ~ 2,99	2,9 / 2,95	◉	◉	2,9
0,01	3,00 ~ 3,09	3,0 / 3,05	◉	◉	3,0
0,01	3,10 ~ 3,19	3,1 /3,15	◉	◉	3,1
0,01	3,20 ~ 3,29	3,2 / 3,25	◉	◉	3,2
0,01	3,30 ~ 3,39	3,3 / 3,35	◉	◉	3,3
0,01	3,40 ~ 3,49	3,4 / 3,45	◉	◉	3,4
0,01	3,50 ~ 3,59	3,5 / 3,55	◉	◉	3,5
0,01	3,60 ~ 3,69	3,6 / 3,65	◉	◉	3,6
0,01	3,70 ~ 3,79	3,7 / 3,75	◉	◉	3,7
0,01	3,80 ~ 3,89	3,8 / 3,85	◉	◉	3,8
0,01	3,90 ~ 3,99	3,9 / 3,95	◉	◉	3,9
0,01	4,00 ~ 4,09	4,0 / 4,05	◉	◉	4,0
0,01	4,10 ~ 4,19	4,1 / 4,15	◉	◉	4,1
0,01	4,20 ~ 4,29	4,2 / 4,25	◉	◉	4,2
0,01	4,30 ~ 4,39	4,3 / 4,35	◉	◉	4,3
0,01	4,40 ~ 4,49	4,4 / 4,45	◉	◉	4,4
0,01	4,50 ~ 4,59	4,5 / 4,55	◉	◉	4,5
0,01	4,60 ~ 4,69	4,6 / 4,65	◉	◉	4,6
0,01	4,70 ~ 4,79	4,7 / 4,75	◉	◉	4,7
0,01	4,80 ~ 4,89	4,8 / 4,85	◉	◉	4,8
0,01	4,90 ~ 4,99	4,9 / 4,95	◉	◉	4,9
0,01	5,00 ~ 5,09	5	◉	◉	5,0
0,01	5,10 ~ 5,19		◉	◉	5,1
0,01	5,20 ~ 5,29		◉	◉	5,2
0,01	5,30 ~ 5,39		◉	◉	5,3
0,01	5,40 ~ 5,49		◉	◉	5,4
0,01	5,50 ~ 5,59		◉	◉	5,5
0,01	5,60 ~ 5,69		◉	◉	5,6
0,01	5,70 ~ 5,79		◉	◉	5,7
0,01	5,80 ~ 5,89		◉	◉	5,8
0,01	5,90 ~ 5,99		◉	◉	5,9
0,1	6,0 ~ 6,9		◉	◉	◉
0,1	7,0 ~ 7,9		◉	◉	◉
0,1	8,0 ~ 8,9		◉	◉	◉
0,1	9,0 ~ 9,9		◉	◉	◉
0,1	10,0 ~ 10,9		◉	◉	◉
0,1	11,0 ~ 11,9		◉	◉	◉
0,1	12,0 ~ 12,9		◉	◉	◉
0,5	13		◉	◉	◉
0,5	13,5 ~ 20		◉	◉	
	1/8 - (3,17)		◉	◉	
	9/64 - (3,57)		◉	◉	
	5/32 - (3,97)		◉	◉	
	11/64 - (4,37)		◉	◉	
	3/16 - (4,76)		◉	◉	
	13/64 - (5,16)		◉	◉	
	7/32 - (5,56)		◉	◉	
	15/64 - (5,95)		◉	◉	
	31/64 - (12,3)		◉	◉	◉
	1/2 - (12,7)		◉	◉	◉

SELECTION CHART SIZE

Drilling | Selection chart | By size | Carbide up to 5D

● = All sizes available within interval

◎ = Limited number of sizes available within interval



Product series		ADF-2D	ADFLS-2D	AD-2D	ADFO-3D	ADO-3D	ADOX-3D NEW	ADO-SUS-3D NEW SIZES	D-STAD	D-DAD	D-GDN90	ADO-TRS-3D	HYP-HP-3D	HYP-HPO-3D	HYP-HPO-3D-HE	HYP-HPO-3D-HB
A-Brand		A	A	A	A	A	A	A				A				
Total # of sizes		253	78	160	160	167	34	179	4	6	6	112	154	136	134	136
Incremental step	Diameter	B.346	B.349	B.352	B.350	B.364	B.385	B.356	B.418	B.419	B.420	B.369	B.394	B.399	B.401	B.403
0,05	0,2 ~ 0,95	●														
0,1	1,0 ~ 1,9	●											●			
0,1	2,0 ~ 2,9	●		●		●	◎	●		◎	◎		●			
0,1	3,0 ~ 3,9	●	●	●	●	●	◎	●		◎	◎	◎	●	●	●	●
0,1	4,0 ~ 4,9	●	●	●	●	●	◎	●	◎	◎	◎	◎	●	●	●	●
0,1	5,0 ~ 5,9	●	●	●	●	●	◎	●				●	●	●	●	●
0,1	6,0 ~ 6,9	●	◎	●	●	●	◎	●	◎	◎	◎	●	●	●	●	●
0,1	7,0 ~ 7,9	●	◎	●	●	●		●				●	●	●	●	●
0,1	8,0 ~ 8,9	●	◎	●	●	●		●	◎			●	●	●	●	●
0,1	9,0 ~ 9,9	●	◎	●	●	●		●		◎	◎	●	●	●	●	●
0,1	10,0 ~ 10,9	●	◎	●	●	●		●				●	●	●	●	●
0,1	11,0 ~ 11,9	●	◎	●	●	●		◎				●	●	●	●	●
0,1	12,0 ~ 12,9	●	◎	●	●	●		●				◎	◎	◎	◎	◎
	13	●	●	●	●	●		●				●	●	●	●	●
	13,1	●		●	●	●		●				●				
	13,2	●		●	●	●		●								
	13,3	●		●	●	●		●				●				
	13,35							●								
	13,4	●		●	●	●		●								
	13,5	●	●	●	●	●		●				●	●	●	●	●
	13,6	●		●	●	●		●								
	13,7	●		●	●	●		●								
	13,8	●		●	●	●		●								
	13,9	●		●	●	●		●								
	14	●	●	●	●	●		●				●	●	●	●	●
	14,1	●		●	●	●		●				●				
	14,2	●		●	●	●		●				●				
	14,3	●		●	●	●		●				●				
	14,4	●		●	●	●		●								
	14,5	●	●	●	●	●		●				●	●	●	●	●
	14,6	●		●	●	●		●								
	14,7	●		●	●	●		●								
	14,8	●		●	●	●		●								
	14,9	●		●	●	●		●								
	15	●	●	●	●	●		●				●	●	●	●	●
	15,1	●		●	●	●		●								
	15,2	●		●	●	●		●				●				
	15,3	●		●	●	●		●				●				
	15,35							●								
	15,4	●		●	●	●		●								
	15,5	●	●	●	●	●		●				●	●	●	●	●
	15,6	●		●	●	●		●								
	15,7	●		●	●	●		●								
	15,8	●		●	●	●		●								
	15,9	●		●	●	●		●								
	16	●	●	●	●	●		●				●	●	●	●	●
	16,5	●	●	●	●	●		●				●	●	●	●	●
	16,7							●								
	17	●	●	●	●	●		●				●	●	●	●	●
	17,3							●								
	17,35							●								
	17,5	●	●	●	●	●		●				●	●	●	●	●
	17,8							●								
	18	●	●	●	●	●		●				●	●	●	●	●
	18,5	●	●	●	●	●		●				●	●	●	●	●
	18,7							●								
	18,8							●								
	19	●	●	●	●	●		●				●	●	●	●	●
	19,3							●								
	19,35							●								
	19,5	●	●	●	●	●		●				●	●	●	●	●
	20	●	●	●	●	●		●				●	●	●	●	●
	3/32 - (2,38)															
	7/64 - (2,78)	●		●												
	1/8 - (3,17)												●	●	●	●
	9/64 - (3,57)												●	●	●	●
	5/32 - (3,97)												●	●	●	●
	11/64 - (4,37)												●	●	●	●
	3/16 - (4,76)												●	●	●	●
	13/64 - (5,16)												●	●	●	●
	7/32 - (5,56)												●	●	●	●
	15/64 - (5,95)												●	●	●	●
	1/4 - (6,35)								●				●	●	●	●
	17/64 - (6,75)												●	●	●	●
	9/32 - (7,14)												●	●	●	●
	19/64 - (7,54)			●									●	●	●	●
	5/16 - (7,94)												●	●	●	●
	21/64 - (8,33)												●	●	●	●
	11/32 - (8,73)												●	●	●	●
	23/64 - (9,13)												●	●	●	●
	3/8 - (9,52)												●	●	●	●
	25/64 - (9,92)												●	●	●	●
	13/32 - (10,32)												●	●	●	●
	27/64 - (10,72)												●	●	●	●
	7/16 - (11,11)												●	●	●	●
	29/64 - (11,51)												●	●	●	●
	15/32 - (11,91)												●	●	●	●
	31/64 - (12,3)	●						●					●	●	●	●
	1/2 - (12,7)	●						●					●	●	●	●
	9/16 - (14,29)												●	●	●	●

SELECTION CHART SIZE

Drilling | Selection chart | By size | Carbide up to 5D

● = All sizes available within interval

◎ = Limited number of sizes available within interval



NEW

Product series		HYP-AL-3D	WH70-DRL	AD-4D	ADO-5D	ADOX-5D	ADO-SUS-5D	ADO-TRS-5D	HYP-HP-5D	HYP-HPO-5D	HYP-HPO-5D-HE	HYP-HPO-5D-HB	HYP-ALO-5D	WH55-5D	WHO55-5D	JOBBER DRILL
A-Brand				A	A	A	A	A								
Total # of sizes		137	101	149	191	31	198	112	154	156	134	136	119	36	54	125
Incremental step	Diameter	B.414	B.423	B.354	B.366	B.386	B.359	B.371	B.397	B.406	B.408	B.410	B.416	B.421	B.422	B.467
0,05	0,2 ~ 0,95															
0,1	1,0 ~ 1,9	●							●	●						●
0,1	2,0 ~ 2,9	●	●	●	●	◎	●		●	●				◎		●
0,1	3,0 ~ 3,9	●	●	●	●	◎	●	◎	●	●	●	●	●	◎	◎	●
0,1	4,0 ~ 4,9	●	●	●	●	◎	●	◎	●	●	●	●	●	◎	●	●
0,1	5,0 ~ 5,9	●	●	●	●	◎	●	●	●	●	●	●	●	◎	●	●
0,1	6,0 ~ 6,9	●	●	●	●	◎	●	●	●	●	●	●	●	◎	◎	●
0,1	7,0 ~ 7,9	●	●	●	●		●	●	●	●	●	●	●	◎	◎	●
0,1	8,0 ~ 8,9	●	●	●	●		●	●	●	●	●	●	●	◎	◎	●
0,1	9,0 ~ 9,9	●	●	●	●		●	●	●	●	●	●	●	◎	◎	●
0,1	10,0 ~ 10,9	●	●	●	●		●	●	●	●	●	●	●	◎	◎	●
0,1	11,0 ~ 11,9	●	●	●	●		●	●	●	●	●	●	●	◎	◎	●
0,1	12,0 ~ 12,9	●	◎	●	●		●	●	◎	◎	◎	◎	●	◎	◎	◎
	13			●	●		●	●	●	●	●	●				
	13,1			●	●		●									
	13,2			●	●		●									
	13,3			●	●		●	●								
	13,4			●	●		●									
	13,5			●	●		●	●	●	●	●	●				
	13,6			●	●		●									
	13,7			●	●		●									
	13,8			●	●		●									
	13,9			●	●		●									
	14			●	●		●	●	●	●	●	●				
	14,1			●	●		●	●								
	14,2			●	●		●	●								
	14,3			●	●		●	●								
	14,4			●	●		●									
	14,5			●	●		●	●	●	●	●	●				
	14,6			●	●		●									
	14,7			●	●		●									
	14,8			●	●		●									
	14,9			●	●		●									
	15			●	●		●	●	●	●	●	●				
	15,1			●	●		●									
	15,2			●	●		●	●								
	15,3			●	●		●	●								
	15,4			●	●		●									
	15,5			●	●		●	●	●	●	●	●				
	15,6			●	●		●									
	15,7			●	●		●									
	15,8			●	●		●									
	15,9			●	●		●									
	16			●	●		●	●	●	●	●	●				
	16,5			●	●		●	●	●	●	●	●				
	16,7						●									
	17			●	●		●	●	●	●	●	●				
	17,3						●									
	17,5			●	●		●	●	●	●	●	●				
	18			●	●		●	●	●	●	●	●				
	18,5			●	●		●	●	●	●	●	●				
	18,7						●									
	19			●	●		●	●	●	●	●	●				
	19,3						●									
	19,5			●	●		●	●	●	●	●	●				
	20			●	●		●	●	●	●	●	●				
	3/32 - (2,38)															●
	7/64 - (2,78)				●		●									●
	'1/8 - (3,17)								●	●	●	●	●			●
	9/64 - (3,57)								●	●	●	●	●			●
	5/32 - (3,97)								●	●	●	●	●			●
	11/64 - (4,37)								●	●	●	●	●			●
	'3/16 - (4,76)								●	●	●	●	●			●
	'13/64 - (5,16)								●	●	●	●	●			
	7/32 - (5,56)								●	●	●	●	●		●	
	'15/64 - (5,95)								●	●	●	●	●			
	1/4 - (6,35)								●	●	●	●	●			●
	17/64 - (6,75)								●	●	●	●	●			
	9/32 - (7,14)								●	●	●	●	●			●
	19/64 - (7,54)						●		●	●	●	●	●			
	5/16 - (7,94)								●	●	●	●	●			●
	21/64 - (8,33)								●	●	●	●	●			
	11/32 - (8,73)								●	●	●	●	●			●
	23/64 - (9,13)								●	●	●	●	●			
	3/8 - (9,52)				●		●		●	●	●	●	●			
	25/64 - (9,92)								●	●	●	●	●			
	13/32 - (10,32)								●	●	●	●	●			
	27/64 - (10,72)								●	●	●	●	●			
	7/16 - (11,11)								●	●	●	●	●			●
	29/64 - (11,51)								●	●	●	●	●			
	15/32 - (11,91)								●	●	●	●	●			●
	31/64 - (12,3)				●		●		●	●	●	●	●			
	1/2 - (12,7)			●	●		●		●	●	●	●	●			●
	9/16 - (14,29)								●	●	●	●				

SELECTION CHART SIZE

Drilling | Selection chart | By size | Carbide up to 5D | Tap pilot hole

◉ = All sizes available within interval

◎ = Limited number of sizes available within interval




NEW

NEW SIZES







Product series		ADF-2D	AD-2D	ADOX-3D	ADO-SUS-3D	ADO-TRS-3D	HYP-HP-3D	HYP-HPO-3D	HYP-HPO-3D-HE	HYP-HPO-3D-HB	HYP-AL-3D
A-Brand		A	A	A	A	A					
Total # of sizes		34	9	34	19	12	1	3	1	3	-
Incremental step	Diameter	B.346	B.352	B.385	B.356	B.369	B.394	B.399	B.401	B.403	B.414
	0,37	◉									
	0,46	◉									
	0,62	◉									
	1,04	◉									
	1,05	◉									
	1,32	◉									
	1,33	◉									
	1,43	◉									
	2,00			◉							
	2,30			◉							
	2,32	◉									
	2,42	◉									
	2,50			◉							
	2,54	◉									
	2,58	◉									
	2,60			◉							
	2,76	◉	◉	◉							
	2,78			◉							
	2,80			◉							
	2,83				◉						
	2,87				◉						
	2,90			◉							
	3,00			◉							
	3,03	◉									
	3,15	◉			◉						
	3,20			◉							
	3,30			◉							
	3,4			◉							
	3,49										
	3,50			◉							
	3,53	◉									
	3,60			◉							
	3,66	◉	◉	◉		◉					
	3,68	◉	◉	◉							
	3,70			◉							
	3,73				◉						
	3,75			◉							
	3,90			◉							
	4,03	◉									
	4,15										
	4,20			◉							
	4,30			◉							
	4,45				◉						
	4,50			◉							
	4,53	◉									
	4,60			◉							
	4,62	◉	◉	◉							
	4,64	◉	◉	◉							
	4,65				◉			◉		◉	
	4,90			◉							
	5,00			◉							
	5,03	◉									
	5,10			◉							
	5,20			◉							
	5,25			◉							
	5,52	◉	◉	◉							
	5,54	◉	◉	◉							
	5,55				◉	◉		◉		◉	
	5,60			◉							
	6,00			◉							
	6,03	◉									
	6,53	◉									
	7,03	◉									
	7,36		◉								
	7,38		◉			◉					
	7,45				◉	◉					
	7,55				◉						
	8,03	◉									
	8,53	◉									
	8,58										
	9,03	◉									
	9,25				◉	◉					
	9,26										
	9,38					◉					
	9,54										
	9,55				◉						
	9,97										
	10,03	◉									
	11,03	◉									
	11,24										
	11,25					◉					
	11,38					◉					
	11,56										
	12,03	◉									
	13,25					◉					
	13,38					◉					
	13,43				◉						
	13,55				◉						
	15,25										
	15,55				◉						
	15,87						◉	◉	◉	◉	
	16,1				◉						
	17,25					◉					
	17,55				◉						
	17,8				◉						
	18,1				◉						
	19,25					◉					
	19,55				◉						

SELECTION CHART SIZE

Drilling | Selection chart | By size | Carbide up to 5D | Tap pilot hole

◉ = All sizes available within interval

◎ = Limited number of sizes available within interval



NEW

Product series		ADO-5D	ADOX-5D	ADO-SUS-5D	ADO-TRS-5D	HYP-HP-5D	HYP-HPO-5D	HYP-HPO-5D-HE	HYP-HPO-5D-HB	HYP-ALO-5D	WHO55-5D
A-Brand		A	A	A	A						
Total # of sizes		18	31	27	12	1	3	1	3	2	5
Incremental step	Diameter	B.366	B.386	B.359	B.371	B.397	B.406	B.408	B.410	B.416	B.421
	2,00		◉								
	2,15			◉							
	2,25			◉							
	2,30		◉								
	2,32										
	2,35			◉							
	2,42										
	2,50		◉								
	2,54										
	2,55			◉							
	2,58										
	2,60		◉								
	2,70		◉								
	2,76	◉		◉							
	2,80		◉								
	2,83			◉							
	2,87			◉							
	2,90		◉								
	3,00		◉								
	3,03										
	3,15	◉		◉							
	3,20		◉								
	3,30		◉								
	3,35			◉							
	3,40		◉								
	3,49										◉
	3,50		◉								
	3,53										
	3,60		◉								
	3,66	◉		◉	◉						
	3,68	◉		◉							
	3,73										
	3,80		◉								
	3,90		◉								
	4,00		◉								
	4,03										
	4,10		◉								
	4,15										◉
	4,20		◉								
	4,30		◉								
	4,45			◉							
	4,50		◉								
	4,53										
	4,60		◉								
	4,62	◉									
	4,64	◉		◉							
	4,65						◉		◉	◉	
	4,80		◉								
	4,90		◉								
	5,00		◉								
	5,03										
	5,10		◉								
	5,20		◉								
	5,30		◉								
	5,50		◉								
	5,52	◉		◉							
	5,54	◉		◉							
	5,55				◉		◉		◉	◉	
	5,60		◉								
	5,80		◉								
	6,00		◉								
	6,03										
	6,53										
	7,03										
	7,36	◉		◉							
	7,38	◉		◉	◉						
	7,45			◉	◉						
	7,55										
	8,03										
	8,53										
	8,58										◉
	9,03										
	9,25	◉		◉	◉						
	9,26	◉		◉							
	9,38	◉		◉	◉						
	9,54	◉		◉							
	9,55										
	9,97										◉
	10,03										
	11,03										
	11,24	◉		◉							
	11,25				◉						
	11,38	◉		◉	◉						
	11,56										◉
	12,03										
	13,25	◉		◉	◉						
	13,38				◉						
	13,43			◉							
	13,55			◉							
	15,25	◉		◉							
	15,55			◉							
	15,87	◉				◉	◉	◉	◉		
	17,55			◉	◉						
	19,25										
	19,55			◉	◉						

SELECTION CHART SIZE

Drilling | Selection chart | By size | Carbide up to 50D

◉ = All sizes available within interval

◎ = Limited number of sizes available within interval



NEW NEW NEW

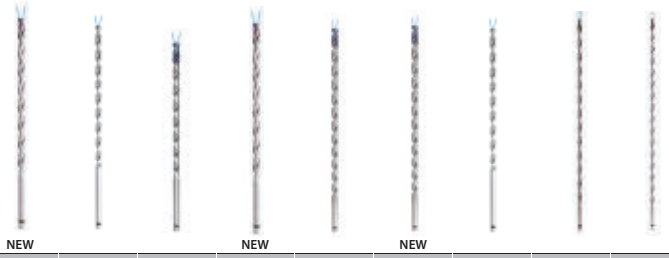
Product series		ADO-SUS-8D	ADOX-8D	HYP-HPO-8D	ADO-10D	ADOX-10D	TRS-HO-10D	ADO-15D	ADOX-15D	CAO-GDXL-15D	ADO-20D
A-Brand		A	A		A	A	A	A	A		A
Total # of sizes		101	13	134	102	22	11	102	24	9	102
Incremental step	Diameter	B.362	B.387	B.412	B.375	B.388	B.373	B.377	B.389	B.393	B.379
	2,0	◉	◉		◉			◉			◉
0,1	2,1 ~ 2,9	◉	◎		◉	◎		◉	◎		◉
	3,0	◉	◉	◉	◉	◉		◉	◉	◉	◉
0,1	3,1 ~ 3,9	◉	◎	◉	◉	◎		◉	◎		◉
	4,0	◉		◉	◉	◉		◉	◉	◉	◉
0,1	4,1 ~4,9	◉		◉	◉	◎		◉	◎		◉
	5,0	◉	◉	◉	◉	◉	◉	◉		◉	◉
0,1	5,1 ~ 5,9	◉	◎	◉	◉	◎	◎	◉	◎		◉
	6,0	◉	◉	◉	◉	◉	◉	◉	◉	◉	◉
0,1	6,1 ~ 6,9	◉		◉	◉		◎	◉		◎	◉
	7,0	◉		◉	◉		◉	◉		◉	◉
0,1	7,1 ~ 7,9	◉		◉	◉		◎	◉			◉
	8,0	◉		◉	◉		◉	◉		◉	◉
0,1	8,1 ~ 8,9	◉		◉	◉		◎	◉			◉
	9,0	◉		◉	◉		◉	◉		◉	◉
0,1	9,1 ~ 9,9	◉		◉	◉			◉			◉
	10,0	◉		◉	◉		◉	◉		◉	◉
0,1	10,1 ~ 10,9	◉		◉	◉			◉			◉
	11,0	◉		◉	◉			◉			◉
0,1	11,1 ~ 11,9	◉		◉	◉			◉			◉
	12,0	◉		◉	◉		◉	◉			◉
	12,5			◉	◉			◉			◉
	13,0			◉							
	13,5			◉							
	14,0			◉							
	14,5			◉							
	15,0			◉							
	15,5			◉							
	16,0			◉							
	16,5			◉							
	17,0			◉							
	17,5			◉							
	18,0			◉							
	18,5			◉							
	19,0			◉							
	19,5			◉							
	20,0			◉							
	1/8 - (3,17)			◉							
	9/64 - (3,57)			◉							
	5/32 - (3,97)			◉							
	11/64 - (4,37)			◉							
	3/16 - (4,76)			◉							
	13/64 - (5,16)			◉							
	7/32 - (5,56)			◉							
	15/64 - (5,95)			◉							
	1/4 - (6,35)			◉							
	17/64 - (6,75)			◉							
	9/32 - (7,14)			◉							
	19/64 - (7,54)			◉							
	5/16 - (7,94)			◉							
	21/64 - (8,33)			◉							
	11/32 - (8,73)			◉							
	23/64 - (9,13)			◉							
	3/8 - (9,52)			◉							
	25/64 - (9,92)			◉							
	13/32 - (10,32)			◉							
	27/64 - (10,72)			◉							
	7/16 - (11,11)			◉							
	29/64 - (11,51)			◉							
	15/32 - (11,91)			◉							
	31/64 - (12,3)			◉							
	1/2 - (12,7)			◉							
	9/16 - (14,29)			◉							
	5/8 - (15,87)			◉							

SELECTION CHART SIZE

Drilling | Selection chart | By size | Carbide up to 50D

● = All sizes available within interval

◎ = Limited number of sizes available within interval



NEW NEW NEW

● = All sizes available within interval

◎ = Limited number of sizes available within interval



Product series		ADOX-20D	CAO-GDXL-20D	ADO-25D	ADOX-25D	ADO-30D	ADOX-30D	CAO-GDXL-30D	ADO-40D	ADO-50D	Product series		ADO-PLT
A-Brand		A		A	A	A	A		A	A	A-Brand		A
Total # of sizes		22	9	92	11	81	11	5	6	5	Total # of sizes		15
Incremental step	Diameter	B.390	B.393	B.381	B.391	B.382	B.392	B.393	B.383	B.384	Incremental step	Diameter	B.374
	2,0					●						3,03	●
0,1	2,1 ~ 2,9	◎		◎	◎	●	◎					3,53	●
	3,0	●		●	●	●	●		●	●		4,03	●
0,1	3,1 ~ 3,9	◎		●	◎	●	◎		◎	◎		4,53	●
	4,0	●	●	●		●	●		●	●		5,03	●
0,1	4,1 ~4,9	◎	◎	●		●	◎		◎	◎		5,53	●
	5,0	●	●	●	●	●	●	●	●	●		6,03	●
0,1	5,1 ~ 5,9	◎	◎	●		●		◎	◎	◎		6,53	●
	6,0	●	●	●	●	●	●	●	●	●		7,03	●
0,1	6,1 ~ 6,9			●		●			◎	◎		8,03	●
	7,0		●	●		●		●	●	●		8,53	●
0,1	7,1 ~ 7,9			●		●			◎	◎		9,03	●
	8,0		●	●		●		●	●	●		10,03	●
0,1	8,1 ~ 8,9			●		●			◎	◎		11,03	●
	9,0		●	●		●			●			12,03	●
0,1	9,1 ~ 9,9			●		●							
	10,0		●	●		●			●				
0,1	10,1 ~ 10,9			●									
	11,0			●									
0,1	11,1 ~ 11,9			●									
	12,0			●									
	12,5												
	13,0												
	13,5												
	14,0												
	14,5												
	15,0												
	15,5												
	16,0												
	16,5												
	17,0												
	17,5												
	18,0												
	18,5												
	19,0												
	19,5												
	20,0												
	1/8 - (3,17)												
	9/64 - (3,57)												
	5/32 - (3,97)												
	11/64 - (4,37)												
	3/16 - (4,76)												
	13/64 - (5,16)												
	7/32 - (5,56)												
	15/64 - (5,95)												
	1/4 - (6,35)												
	17/64 - (6,75)												
	9/32 - (7,14)												
	19/64 - (7,54)												
	5/16 - (7,94)												
	21/64 - (8,33)												
	11/32 - (8,73)												
	23/64 - (9,13)												
	3/8 - (9,52)												
	25/64 - (9,92)												
	13/32 - (10,32)												
	27/64 - (10,72)												
	7/16 - (11,11)												
	29/64 - (11,51)												
	15/32 - (11,91)												
	31/64 - (12,3)												
	1/2 - (12,7)												
	9/16 - (14,29)												
	5/8 - (15,87)												

SELECTION CHART SIZE

Drilling | Selection chart | By size | HSS up to 5D

◉ = All sizes available within interval

◎ = Limited number of sizes available within interval



Product series		EX-GDS	NEXUS-GDS	EX-GDR	NEXUS-GDR	V-SDR	V-HDO-GDR	VP-GDR
Incremental		0,05 mm incremental from Ø1 to Ø6		0,05 mm incremental from Ø2 to Ø12				
Total # of sizes		193	106	249	32	111	96	144
Incremental step	Diameter	B.448	B.430	B.451	B.432	B.434	B.454	B.428
0,1	1,0 ~ 1,9	◉	◉					
	2,0	◉	◉	◉	◉	◉		◉
0,1	2,1 ~ 2,9	◉	◉	◉	◎	◉		◉
	3,0	◉	◉	◉	◉	◉		◉
0,1	3,1 ~ 3,9	◉	◉	◉	◎	◉		◉
	4,0	◉	◉	◉	◉	◉		◉
0,1	4,1 ~ 4,9	◉	◉	◉	◎	◉		◉
	5,0	◉	◉	◉	◉	◉		◉
0,1	5,1 ~ 5,9	◉	◉	◉	◎	◉		◉
	6,0	◉	◉	◉	◉	◉	◉	◉
0,1	6,1 ~ 6,9	◉	◉	◉	◎	◉	◉	◉
	7,0	◉	◉	◉	◉	◉	◉	◉
0,1	7,1 ~ 7,9	◉	◎	◉		◉	◉	◉
	8,0	◉	◉	◉	◉	◉	◉	◉
0,1	8,1 ~ 8,9	◉	◉	◉	◎	◉	◉	◉
	9,0	◉	◉	◉	◉	◉	◉	◉
0,1	9,1 ~ 9,9	◉	◎	◉		◉	◉	◉
	10,0	◉	◉	◉	◉	◉	◉	◉
0,1	10,1 ~ 10,9	◉	◎	◉	◎	◉	◉	◉
	11,0	◉	◉	◉	◉	◉	◉	◉
0,1	11,1 ~ 11,9	◉	◎	◉		◉	◉	◉
	12,0	◉	◉	◉	◉	◉	◉	◉
0,1	12,1 ~ 12,9	◉		◉		◉	◎	◉
	13,0	◉		◉		◉	◉	◉
	13,5			◉			◉	◉
	14,0			◉			◉	◉
	14,1			◉				
	14,5			◉			◉	◉
	15,0			◉			◉	◉
	15,5			◉			◉	◉
	15,6			◉				
	16,0			◉			◉	◉
	16,5			◉			◉	◉
	17,0			◉			◉	◉
	17,5			◉			◉	◉
	17,6			◉				
	18,0			◉			◉	◉
	18,5			◉			◉	◉
	19,0			◉			◉	◉
	19,5			◉			◉	◉
	19,6			◉				
	20,0			◉			◉	◉
	20,5			◉			◉	◉
	21,0			◉			◉	◉
	21,1			◉				
	21,5			◉			◉	◉
	22,0			◉			◉	◉
	22,5			◉			◉	◉
	23,0			◉			◉	◉
	23,5			◉			◉	◉
	24,0			◉			◉	◉
	24,5			◉			◉	◉
	25,0			◉			◉	◉
	25,5			◉			◉	◉
	26,0			◉			◉	◉
	26,5			◉			◉	◉
	27,0			◉			◉	◉
	28,0			◉			◉	◉
	29,0			◉			◉	◉
	30,0			◉			◉	◉
	31,0			◉			◉	◉
	32,0			◉			◉	◉
	5,95 - (15/64)	◉		◉				
	6,35 - (1/4)			◉				
	6,75 - (17/64)			◉				
	12,3 - (31/64)	◉		◉		◉		◉
	12,7 - (1/2)	◉		◉		◉		◉

SELECTION CHART SIZE

Drilling | Selection chart | By size | HSS up to 5D | Tap pilot hole

◉ = All sizes available within interval

◎ = Limited number of sizes available within interval



Product series		EX-GDS	NEXUS-GDS	EX-GDR	NEXUS-GDR	V-SDR	V-HDO-GDR	VP-GDR
Incremental		0,05 mm incremental from Ø1 to Ø6		0,05 mm incremental from Ø2 to Ø12				
Total # of sizes		28	20	29				
Incremental step	Diameter	B.448	B.430	B.451	B.432	B.434	B.454	B.428
	1,81		◉					
	1,83		◉					
	2,11		◉					
	2,13		◉					
	2,28		◉					
	2,38		◉					
	2,76		◉					
	2,78		◉					
	3,25	◉	◉	◉				
	3,65	◉	◉	◉				
	3,67		◉					
	4,15	◉		◉				
	4,45	◉		◉				
	4,59		◉					
	4,63		◉					
	4,65	◉		◉				
	5,48		◉					
	5,55	◉		◉				
	6,55	◉		◉				
	6,65	◉		◉				
	7,34		◉					
	7,35	◉		◉				
	7,38		◉					
	7,45			◉				
	7,55	◉		◉				
	7,65	◉		◉				
	8,35	◉		◉				
	8,55	◉		◉				
	8,65	◉		◉				
	9,18		◉					
	9,24		◉					
	9,25	◉		◉				
	9,34		◉					
	9,35	◉		◉				
	9,36		◉					
	9,45	◉		◉				
	9,55	◉		◉				
	9,65	◉		◉				
	9,95	◉		◉				
	10,25	◉		◉				
	10,35	◉		◉				
	10,55	◉		◉				
	10,65	◉		◉				
	10,95	◉		◉				
	11,25	◉		◉				
	11,35	◉		◉				
	11,55	◉		◉				

SELECTION CHART SIZE

Drilling | Selection chart | By size | HSS up to 30D



◉ = All sizes available within interval

◎ = Limited number of sizes available within interval

Product series		EX-GDXL 8D	TDXL 10D	EX-GDXL 10D	TDXL 15D	EX-GDXL 15D	TDXL 20D	EX-GDXL 20D	EX-GDXL 25D	EX-GDXL 30D
A-Brand										
Total # of sizes		21	103	89	68	104	48	72	36	10
Incremental step	Diameter	B.460	B.456	B.461	B.458	B.462	B.459	B.464	B.465	B.466
	1,6		◉		◉		◉			
	1,8		◉		◉		◉			
	2,0		◉		◉	◉	◉	◉		
0,1	2,1 ~ 2,9		◉		◉	◉	◉	◎		
	3,0		◉		◉	◉	◉	◉	◉	◉
0,1	3,1 ~ 3,9		◉	◎	◉	◎	◎	◎	◎	◎
	4,0		◉	◉	◉	◉	◉	◉		
0,1	4,1 ~ 4,9		◉	◎	◉	◉	◎	◉		
	5,0		◉	◉	◉	◉	◉	◉	◉	◉
0,1	5,1 ~ 5,9		◉	◎	◎	◉	◎	◉	◎	◎
	6,0		◉	◉	◉	◉	◉		◉	◉
0,1	6,1 ~ 6,9		◉	◉	◎	◉	◎	◎	◎	◎
	7,0		◉	◉	◉	◉	◉	◉	◉	
0,1	7,1 ~ 7,9		◉	◉	◎	◎	◎	◉	◉	
	8,0		◉	◉	◉		◉	◉	◉	
0,1	8,1 ~ 8,9		◉	◉	◎	◎	◎	◉	◎	
	9,0		◉	◉	◉	◉	◉	◉		
0,1	9,1 ~ 9,9		◉	◉	◎	◉		◉		
	10,0		◉	◉	◉	◉	◉	◉		
0,1	10,1 ~ 10,9		◉	◉	◎	◉		◉		
	11,0	◉	◉	◉	◉	◉	◉			
0,1	11,1 ~ 11,9	◉	◉	◉	◎	◉				
	12,0	◉	◉	◉	◉	◉	◉			
0,1	12,1 ~ 12,9	◉		◉		◉				
	12,3 (31/64)	◉		◉		◉				
	12,7 (1/2)	◉		◉		◉				

SELECTION CHART SIZE

Drilling | Selection chart | By size | Indexables up to 5D

◉ = All sizes available within interval

◎ = Limited number of sizes available within interval



Product series		P2D	PDZ	P3D	PDZ (3D)	PXD 3D	PHP	P4D	P5D	PXD-5D	PZAG SS
A-Brand											
Total # of sizes		77	33	88	33	13	40	77	77	13	11
Incremental step	Diameter	B.526	B.528	B.529	B.531	B.536	B.538	B.532	B.534	B.537	B.540
	12	◉		◉				◉	◉		
	12,5	◉		◉				◉	◉		
	12,7			◉							
	13	◉		◉				◉	◉		
	13,5	◉		◉				◉	◉		
	14	◉		◉		◉	◉	◉	◉	◉	◉
	14,5	◉		◉		◉	◉	◉	◉	◉	
	15	◉		◉		◉	◉	◉	◉	◉	
	15,5	◉		◉			◉	◉	◉		
	16	◉	◉	◉	◉	◉	◉	◉	◉	◉	
	16,5	◉	◉	◉	◉		◉	◉	◉		
	17	◉	◉	◉	◉	◉	◉	◉	◉	◉	
	17,5	◉	◉	◉	◉		◉	◉	◉		◉
	18	◉	◉	◉	◉	◉	◉	◉	◉	◉	
	18,5	◉	◉	◉	◉		◉	◉	◉		
	19	◉	◉	◉	◉	◉	◉	◉	◉	◉	
	19,5	◉	◉	◉	◉		◉	◉	◉		
	20	◉	◉	◉	◉	◉	◉	◉	◉	◉	◉
	20,5	◉		◉			◉	◉	◉		
	21	◉	◉	◉	◉	◉	◉	◉	◉	◉	
	21,5	◉		◉			◉	◉	◉		
	22	◉	◉	◉	◉	◉	◉	◉	◉	◉	
	22,5	◉		◉			◉	◉	◉		
	23	◉	◉	◉	◉	◉	◉	◉	◉	◉	◉
	23,5	◉		◉			◉	◉	◉		
	24	◉	◉	◉	◉	◉	◉	◉	◉	◉	
	24,5	◉		◉			◉	◉	◉		
	25	◉	◉	◉	◉	◉	◉	◉	◉	◉	
	25,5	◉		◉			◉	◉	◉		
	26	◉	◉	◉	◉		◉	◉	◉		◉
	26,5	◉		◉			◉	◉	◉		
	27	◉	◉	◉	◉		◉	◉	◉		
	27,5			◉							
	28	◉	◉	◉	◉		◉	◉	◉		
	28,5	◉		◉				◉	◉		
	29	◉	◉	◉	◉		◉	◉	◉		◉
	29,5			◉							
	30	◉	◉	◉	◉		◉	◉	◉		
	30,5			◉							
	31	◉	◉	◉	◉		◉	◉	◉		
	31,5			◉							
	32	◉	◉	◉	◉		◉	◉	◉		◉
	32,5			◉							
	33	◉	◉	◉	◉		◉	◉	◉		
	33,5	◉		◉				◉	◉		
	34	◉	◉	◉	◉		◉	◉	◉		
	34,5			◉							
	35	◉	◉	◉	◉		◉	◉	◉		◉
	35,5			◉							
	36	◉	◉	◉	◉		◉	◉	◉		
	37	◉	◉	◉	◉		◉	◉	◉		
	37,5			◉							
	38	◉	◉	◉	◉		◉	◉	◉		
	39	◉	◉	◉	◉		◉	◉	◉		◉
	40	◉	◉	◉	◉		◉	◉	◉		
	40,5			◉							
	41	◉	◉	◉	◉			◉	◉		
	42	◉	◉	◉	◉			◉	◉		
	43	◉	◉	◉	◉			◉	◉		◉
	44	◉		◉				◉	◉		
	45	◉		◉				◉	◉		
	46	◉		◉				◉	◉		
	47	◉		◉				◉	◉		
	48	◉		◉				◉	◉		◉
	49	◉		◉				◉	◉		
	50	◉		◉				◉	◉		
	50,5			◉							
	51	◉		◉				◉	◉		
	52	◉		◉				◉	◉		
	53	◉		◉				◉	◉		
	54	◉		◉				◉	◉		
	55	◉		◉				◉	◉		
	56	◉		◉				◉	◉		
	57	◉		◉				◉	◉		
	58	◉		◉				◉	◉		
	59	◉		◉				◉	◉		
	60	◉		◉				◉	◉		
	61	◉		◉				◉	◉		
	62	◉		◉				◉	◉		
	63	◉		◉				◉	◉		

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Drilling

Micro

Solid carbide

	Product series		A-Brand	Features	Range	No. of sizes	Page
	AD-MICRO-4D NEW	KeptA	A	Micro carbide drill with KeptA coating For general steels, stainless steels and titanium alloys	0,5 - 3	251	B.329
	AD-MICRO-10D NEW	KeptA	A	Micro carbide drill with KeptA coating For general steels, stainless steels and titanium alloys	0,5 - 3	251	B.332
	ADO-MICRO-2D	IchAda	A	Micro carbide drill with internal coolant, IchAda coating Small sizes for precision operation	0.7 - 2	17	B.335
	ADO-MICRO-5D	IchAda	A	Micro carbide drill with internal coolant, IchAda coating Small sizes for precision operation	0.7 - 2	19	B.336
	ADO-MICRO-12D	IchAda	A	Micro carbide drill with internal coolant, IchAda coating Small sizes for precision operation	1 - 2	11	B.337
	ADO-MICRO-15D	IchAda	A	Micro carbide drill with internal coolant, IchAda coating Small sizes for precision operation	2	1	B.338
	ADO-MICRO-20D	IchAda	A	Micro carbide drill with internal coolant, IchAda coating Small sizes for precision operation	1 - 2	11	B.339
	ADO-MICRO-25D	IchAda	A	Micro carbide drill with internal coolant, IchAda coating Small sizes for precision operation	2	1	B.340
	ADO-MICRO-30D	IchAda	A	Micro carbide drill with internal coolant, IchAda coating Small sizes for precision operation	1 - 2	11	B.341
	WX-MS-GDS	WX		Micro carbide drill with multilayer TiAlN coating Small sizes for precision operation	0,2 - 5	241	B.342
	MRS-GDL	SC		Micro carbide drill with SC coating For deep micro drilling in stainless steel	0,5 - 3	75	B.345

≤2D

Solid carbide

	Product series		A-Brand	Features	Range	No. of sizes	Page
	ADF-2D	EgiAs	A	Carbide drill with EgiAs coating Flat drilling application	0,2 - 20	253	B.346
	ADFLS-2D	EgiAs	A	Carbide drill with EgiAs coating For deep reach flat drilling application	3 - 20	78	B.349
	AD-2D	EgiAs	A	Carbide drill with EgiAs coating For general purpose steels and cast iron	2 - 20	160	B.352

≤3D

Solid carbide

	Product series		A-Brand	Features	Range	No. of sizes	Page
	ADO-3D	EgiAs	A	Carbide drill with internal coolant, EgiAs coating For general purpose steels and cast iron	2 - 20	167	B.364
	ADOX-3D NEW	EgiAs	A	Carbide drill with internal coolant, EgiAs coating For general purpose steels and cast iron	2 - 6	34	B.385

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Drilling

≤3D

Solid carbide

	Product series		A-Brand	Features	Range	No. of sizes	Page
	ADO-SUS-3D NEW SIZES	WXL	A	Carbide drill with internal coolant, WXL coating Designed for stainless steel and titanium alloys	2 - 20	179	B.356
	ADFO-3D	EgiAs	A	Carbide drill with internal coolant, EgiAs coating Flat drilling application	3 - 20	160	B.350
	D-STAD	DIA		Triple angle carbide drill with diamond coating For CFRP	4 - 8	4	B.418
	D-DAD	DIA		Double angle drill For CFRP	2,5 - 9,5	6	B.419
	D-GDN90	DIA		Diamond coated 90° point angle drill For CFRP	2,5 - 9,5	6	B.420
	ADO-TRS-3D	EgiAs	A	3 flute carbide drill with internal coolant, EgiAs coating Allows high feed 1.000mm/min process in steel and cast iron	3 - 20	112	B.369
	HYP-HP-3D	EgiAs		Carbide drill with EgiAs coating General purpose	1 - 20	154	B.394
	HYP-HPO-3D	EgiAs		Carbide drill with internal coolant, EgiAs coating General purpose	3 - 20	136	B.399
	HYP-HPO-3D-HE	EgiAs		Carbide drill with internal coolant, EgiAs coating With Whistle Notch shank for general purpose	3 - 20	134	B.401
	HYP-HPO-3D-HB	EgiAs		Carbide drill with internal coolant, EgiAs coating With Weldon shank for general purpose	3 - 20	136	B.403
	HYP-HP-SC-3D	EgiAs		Carbide step drill with EgiAs coating General purpose, for tap drill holes	6 -14	7	B.396
	HYP-HPO-SC-3D	EgiAs		Carbide step drill with internal coolant, EgiAs coating General purpose, for tap drill holes	6 -14	6	B.405
	HYP-AL-3D			Carbide drill, bright finish Up to 3xD For Aluminium and cast Aluminium	1 -12,7	137	B.414
	WH70-DRL	DUROREY		Carbide drill with DUROREY coating With low helix for high rigidity, up to 70HRC material	2 - 12	101	B.423

≤4D

Solid carbide

	Product series		A-Brand	Features	Range	No. of sizes	Page
	AD-4D	EgiAs	A	Carbide drill with EgiAs coating For general purpose steels and cast iron	2 - 20	149	B.354

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Drilling

≤5D

Solid carbide

	Product series		A-Brand	Features	Range	No. of sizes	Page
	ADO-5D	EgiAs	A	Carbide drill with internal coolant, EgiAs coating For general purpose steels and cast iron	2 - 20	191	B.366
	ADOX-5D NEW	EgiAs	A	Carbide drill with internal coolant, EgiAs coating For general purpose steels and cast iron	2 - 6	31	B.386
	ADO-SUS-5D	WXL	A	Carbide drill with internal coolant, WXL coating Designed for stainless steel and titanium alloys	2 - 20	198	B.359
	ADO-TRS-5D	EgiAs	A	3 flute carbide drill with internal coolant, EgiAs coating Allows high feed 1.000mm/min process in steel and cast iron	3 - 20	112	B.371
	HYP-HP-5D	EgiAs		Carbide drill with EgiAs coating General purpose	1 - 20	154	B.397
	HYP-HPO-5D	EgiAs		Carbide drill with internal coolant, EgiAs coating General purpose	1 - 20	156	B.406
	HYP-HPO-5D-HE	EgiAs		Carbide drill with internal coolant, EgiAs coating With Whistle Notch shank for general purpose	3 - 20	134	B.408
	HYP-HPO-5D-HB	EgiAs		Carbide drill with internal coolant, EgiAs coating With Weldon shank for general purpose	3 - 20	136	B.410
	HYP-ALO-5D			Carbide drill with internal coolant, bright finish Up to 5xD For Aluminium and cast Aluminium	3 - 12,7	119	B.416
	WH55-5D	DUROREY		Carbide drill with DUROREY coating For hardened material up to 55HRC	2 - 12	36	B.421
	WHO55-5D	DUROREY		Carbide drill with internal coolant, DUROREY coating For hardened material up to 55HRC including Inconel	3,3 -12	54	B.422
	JOBBER DRILL			Carbide drill bright finish General purpose	1 - 12,7	125	B.467

Pilot

Solid carbide

	Product series		A-Brand	Features	Range	No. of sizes	Page
	ADO-PLT	EgiAs	A	Carbide pilot drill with internal coolant, EgiAs coating For general purpose steels and cast iron	3,03 - 12,03	15	B.374

≤8D

Solid carbide

	Product series		A-Brand	Features	Range	No. of sizes	Page
	ADO-SUS-8D	WXL	A	Carbide drill with internal coolant, WXL coating Designed for stainless steel and titanium alloys	2 - 12	101	B.362
	ADOX-8D NEW	EgiAs	A	Carbide drill with internal coolant, EgiAs coating For general purpose steels and cast iron	2 - 6	13	B.387
	HYP-HPO-8D	EgiAs		Carbide drill with internal coolant, EgiAs coating General purpose	3 - 20	134	B.412

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Drilling

≤10D

Solid carbide



Product series		A-Brand	Features	Range	No. of sizes	Page
ADO-10D	EgiAs	A	Carbide drill with internal coolant, EgiAs coating For general purpose steels and cast iron Double margin	2 - 12,5	102	B.375
ADOX-10D NEW	EgiAs	A	Carbide drill with internal coolant, EgiAs coating For general purpose steels and cast iron	2,4 - 6	22	B.388
TRS-HO-10D	WDI	A	3 flute carbide drill with internal coolant, WDI coating Allows high feed 1.000mm/min process in steel and cast iron	5 - 12	11	B.373

≤15D

Solid carbide



Product series		A-Brand	Features	Range	No. of sizes	Page
ADO-15D	EgiAs	A	Carbide drill with internal coolant, EgiAs coating For general purpose steels and cast iron Double margin	2 - 12,5	102	B.377
ADOX-15D NEW	EgiAs	A	Carbide drill with internal coolant, EgiAs coating For general purpose steels and cast iron	2,3 - 6	24	B.389
CAO-GDXL-15D			Carbide drill with internal coolant, bright finish For aluminium and cast aluminium	3 - 10	9	B.393

≤20D

Solid carbide



Product series		A-Brand	Features	Range	No. of sizes	Page
ADO-20D	EgiAs	A	Carbide drill with internal coolant, EgiAs coating For general purpose steels and cast iron Double margin	2 - 12,5	102	B.379
ADOX-20D NEW	EgiAs	A	Carbide drill with internal coolant, EgiAs coating For general purpose steels and cast iron	2,3 - 6	22	B.390
CAO-GDXL-20D			Carbide drill with internal coolant, bright finish For aluminium and cast aluminium	4 - 10	9	B.393

≤25D

Solid carbide



Product series		A-Brand	Features	Range	No. of sizes	Page
ADO-25D	EgiAs	A	Carbide drill with internal coolant, EgiAs coating For general purpose steels and cast iron Double margin	2,5 - 12	92	B.381
ADOX-25D NEW	EgiAs	A	Carbide drill with internal coolant, EgiAs coating For general purpose steels and cast iron	2,3 - 6	11	B.391

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Drilling

≤30D

Solid carbide



Product series		A-Brand	Features	Range	No. of sizes	Page
ADO-30D	EgiAs	A	Carbide drill with internal coolant, EgiAs coating For general purpose steels and cast iron Double margin	2 - 10	81	B.382
ADOX-30D NEW	EgiAs	A	Carbide drill with internal coolant, EgiAs coating For general purpose steels and cast iron	2,3 - 6	11	B.392
CAO-GDXL-30D			Carbide drill with internal coolant, bright finish For aluminium and cast aluminium	5 - 8	5	B.393

≤40D

Solid carbide

Product series		A-Brand	Features	Range	No. of sizes	Page
ADO-40D	EgiAs	A	Carbide drill with internal coolant, EgiAs coating For general purpose steels and cast iron Double margin	3 - 10	23	B.383

≤50D

Solid carbide

Product series		A-Brand	Features	Range	No. of sizes	Page
ADO-50D	EgiAs	A	Carbide drill with internal coolant, EgiAs coating For general purpose steels and cast iron Double margin	3 - 8,5	26	B.384

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Drilling

≤3D

HSS



Product series		A-Brand	Features	Range	No. of sizes	Page
EX-SUS-GDS	TiN		HSSE drill with TiN coating For stainless steel, low carbon steel and cast aluminium From Ø 0,5 - 6 mm in 0,01 mm increments	0,5 - 20	635	B.435
EX-GDS	TiN		HSSE drill with TiN coating General purpose	1 - 13	193	B.448
NEXUS-GDS	WDI		HSSE drill with WDI coating For stainless steel and non-ferrous materials	1 - 12	106	B.430

≤5D

HSS



Product series		A-Brand	Features	Range	No. of sizes	Page
EX-SUS-GDR	TiN		HSSE drill with TiN coating For stainless steel, low carbon steel and cast aluminium From Ø 2 - 6 mm in 0,01 mm increments	2 - 20	485	B.442
EX-GDR	TiN		HSSE drill with TiN coating General purpose	2 - 32	249	B.451
NEXUS-GDR	WDI		HSSE drill with WDI coating For stainless steel and non-ferrous materials	2 - 12	32	B.432
V-SDR	V		HSSE drill with TiCN coating General purpose	2 - 13	111	B.433
V-HDO-GDR	V		HSS-Co drill with internal coolant, TiCN coating General purpose	6 - 32	96	B.454

≤8D

HSS



Product series		A-Brand	Features	Range	No. of sizes	Page
EX-GDXL-8D	TiN		HSS-Co drill with TiN coating For general purpose steels and cast iron	11 - 13	21	B.460

≤10D

HSS



Product series		A-Brand	Features	Range	No. of sizes	Page
TDXL-10D	WXL		HSS-Co drill with WXL coating For steels, cast iron and cast aluminium	1,6 - 12	103	B.456
EX-GDXL-10D	TiN		HSS-Co drill with TiN coating For general purpose steels and cast iron	3,6 - 13	89	B.461

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Drilling

≤15D

HSS



Product series		A-Brand	Features	Range	No. of sizes	Page
TDXL-15D	WXL		HSS-Co drill with WXL coating For steels, cast iron and cast aluminium	1,6 - 12	68	B.458
EX-GDXL-15D	TiN		HSS-Co drill with TiN coating For general purpose steels and cast iron	2 - 13	104	B.462

≤20D

HSS



Product series		A-Brand	Features	Range	No. of sizes	Page
TDXL-20D	WXL		HSS-Co drill with WXL coating For steels, cast iron and cast aluminium	1,6 - 12	48	B.459
EX-GDXL-20D	TiN		HSS-Co drill with TiN coating For general purpose steels and cast iron	2 - 10,9	72	B.464

≤25D

HSS

Product series		A-Brand	Features	Range	No. of sizes	Page
EX-GDXL-25D	TiN		HSS-Co drill with TiN coating For general purpose steels and cast iron	3,3 - 8,1	36	B.465

≤30D

HSS

Product series		A-Brand	Features	Range	No. of sizes	Page
EX-GDXL-30D	TiN		HSS-Co drill with TiN coating For general purpose steels and cast iron	3 - 6,3	10	B.466

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Drilling

≤3D
Powder metal



Product series		A-Brand	Features	Range	No. of sizes	Page
VPH-GDS	WDI		Powder metal drill with WDI coating For cast iron, exotic material and hardened steel	0,5 - 13	126	B.426

≤5D
Powder metal



Product series		A-Brand	Features	Range	No. of sizes	Page
VP-GDR	V		Powder metal drill with TiCN coating For steel, cast iron and non-ferrous material	2 - 32	144	B.428

≤2D
Indexable



Product series		A-Brand	Features	Range	No. of sizes	Page
P2D			Indexable drill with internal coolant 3 different insert grades available	12 - 63	77	B.526
PDZ			Indexable flat drill with internal coolant	16 - 43	33	B.531

≤3D
Indexable



Product series		A-Brand	Features	Range	No. of sizes	Page
P3D			Indexable drill with internal coolant 3 different insert grades available	12 - 63	88	B.529
PDZ (3D)			Indexable flat drill with internal coolant Up to 3xD	16 - 43	33	B.531
PXD-3D			Exchangeable head drill with internal coolant 3 different solid carbide head types based on work material	14 - 25,99	13	B.536
PHP			Indexable drill with internal coolant 2 different insert grades available	14 - 40	40	B.538

≤4D
Indexable



Product series		A-Brand	Features	Range	No. of sizes	Page
P4D			Indexable drill with internal coolant 3 different insert grades available	12 - 63	77	B.532

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Drilling

≤5D

Indexable



Product series		A-Brand	Features	Range	No. of sizes	Page
P5D			Indexable drill with internal coolant 3 different insert grades available	12 - 63	77	B.534
PXD-5D			Exchangeable head drill with internal coolant 3 different solid carbide head types based on work material	14,99 - 25,99	13	B.537

Spot/Chamfer/Centring

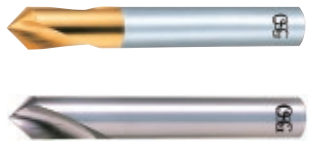
Carbide



Product series		A-Brand	Features	Range	No. of sizes	Page
AD-LDS	EgiAs	A	Carbide drill with EgiAs coating Carbide starter drill	0,5 - 12	30	B.469
AD-LS-LDS	EgiAs	A	Carbide drill with EgiAs coating Carbide long shank starter drill	3 - 12	6	B.470
HYP-LDS			Carbide drill for centring and chamfering, bright finish For steels and cast iron With 90º, 120º or 142º point angle	3 - 20	24	B.471

Spot/Chamfer

HSS



Product series		A-Brand	Features	Range	No. of sizes	Page
TiN-NC-LDS	TiN		HSS drill for centering and chamfering with TiN coating For steels and cast iron With 60º, 90º or 120º point angle	3 - 25	21	B.472
NC-LDS			HSS drill for centering and chamfering, bright finish For steels and cast iron With 90º, 120º or 130º point angle	3 - 25	27	B.473

Spot/Chamfer

Indexable



Product series		A-Brand	Features	Range	No. of sizes	Page
PLDS SS			Indexable multi purpose centering and chamfering tool Straight shank type With 90º or 120º point angle	14,4-17,3	4	B.542
PLDS SF			Indexable multi purpose centering and chamfering tool Screw fit type With 90º or 120º point angle	14,4-17,3	2	B.543
PMEN SS NEW			Chamfering Cutter Body compatible with chamfer angles (KAPR1) 45°,30° and 60°	8,5 - 35,6	10	B.544
PMEN BORE NEW			Chamfering Cutter Body compatible with chamfer angles (KAPR1) 45°,30° and 60°	40,5 - 63,6	6	B.545
PMEN SF NEW			Chamfering Cutter Body compatible with chamfer angles (KAPR1) 45°,30° and 60°	8,5 - 35,6	10	B.546

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Drilling

Spot/Chamfer

Indexable



Product series		A-Brand	Features	Range	No. of sizes	Page
HY-PRO-CARB			Indexable multi purpose centering and chamfering tool	9 - 29,4	12	B.548
HY-PRO-CARB			Boring tool For boring pre-drilled and precast holes Steel shank, Weldon flat, DIN 1835B	9,8 - 21,8	13	B.553
HY-PRO-CARB			Counterbore mono To produce counterbores for cap screws, hex screwheads, ejectors, spot facing, gasket seats etc Straight shank with Weldon flat, DIN 1835B	8 - 20	13	B.554
HY-PRO-CARB			Counterbore mono To produce counterbores for cap screws, hex screwheads, ejectors, spot facing, gasket seats etc. Straight shank with Weldon flat, DIN 1835B With internal coolant supply	10 - 30	21	B.555
HY-PRO-CARB			Counterbore multi To produce counterbores for cap screws, hex screwheads, ejectors, spot facing, gasket seats etc. Straight shank with Weldon flat, DIN 1835B With internal coolant supply	15 - 40	11	B.556
HY-PRO-CARB			Chamfering and face milling For chamfering, countersinking, facing, etc. Straight shank with Weldon flat, DIN 1835B	13 - 40	10	B.557

Others



Product series		A-Brand	Features	Range	No. of sizes	Page
EX-H-DRL			Carbide drill for removing broken taps, bright finish For hardened material up to 70HRC	2 - 12	11	B.425

Carbide Reamers



Product series		A-Brand	Features	Range	No. of sizes	Page
CRM			Carbide straight reamer, bright finish From Ø 0,3 - 13,05 mm in 0,01 mm increments	0,3 - 13,05	1276	B.474
HS-OIL-CRM NEW	AlCrN		Carbide low right-hand helix reamer Multilayer AlCrN coating For high speed reaming in various materials	2,97 - 12,03	86	B.488
AL-CRM NEW	DLC		Carbide straight-fluted reamer DLC coating For non-ferrous materials	1,97 - 12,03	98	B.489
H-CRM NEW	FX		Carbide low right-hand helix reamer FX coating For stainless steel, Titanium alloys and hardened materials up to 60 HRCs	1,97 - 12,03	98	B.491

Counterboring



Product series		A-Brand	Features	Range	No. of sizes	Page
PZAG BORE			Counterboring cutter Bore type	54 - 82	7	B.541
PZAG SS			Counterboring cutter straight shank Cylindrical type	14 - 48	11	B.540

ISO 13399 LEGEND

ISO code	Description
ae	Maximum depth plunging
AN	Clearance angle major
APMX	Depth of cut maximum
b	Keyway depth
CBDP	Connection bore depth
CRKS	Connection retention knob thread size
DC	Cutting diameter
DC_INCH	Cutting diameter Inch size
DCN	Cutting diameter minimum
DCON	Connection diameter
DCSFMS	Contact surface diameter machine side
DCX	Cutting diameter maximum
IC	Inscribed circle diameter
KAPR	Tool cutting edge angle
KWW	Keyway width
L	Cutting edge length
LCF	Length chip flute
LF	Functional length
LH	Head length
LPR	Protruding length
LS	Shank length
LU	Usable length
OAL	Overall length
PHD	Premachined hole diameter
PL	Point length
RE	Corner radius
S	Insert thickness
SIG	Point angle
TCL	Tap chamfer length
W1	Insert width
ZEFP	Peripheral effective cutting edge count

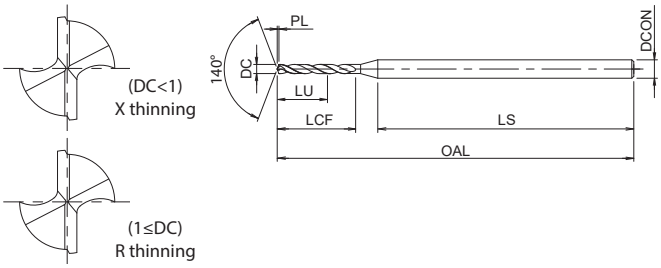
AD-MICRO-4D

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NEW





- First choice in quality and performance
- Micro carbide drill with KeptA coating
- Up to 4xD
- For general steels, stainless steels and titanium alloys
- 251 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | K GGG | N AC, ADC | S Ti | H 25-35 HRC | H 35-45 HRC | H 45-52 HRC

A | CARBIDE | KeptA | 0~-0.004 | ±30° | SHANK h4 | SHRINK FIT | 140°

B.513

EDP	DC	LU	LCF	OAL	DCON	LS	PL
8750050	0,5	2	3	38	3	30,1	0,09
8750051	0,51	2,1	3	38	3	30,2	0,09
8750052	0,52	2,1	3	38	3	30,2	0,10
8750053	0,53	2,2	3	38	3	30,2	0,10
8750054	0,54	2,2	3,5	38	3	29,7	0,10
8750055	0,55	2,2	3,5	38	3	29,7	0,10
8750056	0,56	2,3	3,5	38	3	29,7	0,10
8750057	0,57	2,3	3,5	38	3	29,8	0,10
8750058	0,58	2,4	3,5	38	3	29,8	0,11
8750059	0,59	2,4	3,5	38	3	29,8	0,11
8750060	0,6	2,4	3,5	38	3	29,8	0,11
8750061	0,61	2,5	4	38	3	29,3	0,11
8750062	0,62	2,5	4	38	3	29,4	0,11
8750063	0,63	2,6	4	38	3	29,4	0,12
8750064	0,64	2,6	4	38	3	29,4	0,12
8750065	0,65	2,6	4	38	3	29,4	0,12
8750066	0,66	2,7	4	38	3	29,4	0,12
8750067	0,67	2,7	4	38	3	29,5	0,12
8750068	0,68	2,8	4,5	38	3	29	0,12
8750069	0,69	2,8	4,5	38	3	29	0,13
8750070	0,7	2,8	4,5	38	3	29	0,13
8750071	0,71	2,9	4,5	38	3	29	0,13
8750072	0,72	2,9	4,5	38	3	29	0,13
8750073	0,73	3	4,5	38	3	29,1	0,13
8750074	0,74	3	4,5	38	3	29,1	0,14
8750075	0,75	3	4,5	38	3	29,1	0,14
8750076	0,76	3,1	5	38	3	28,6	0,14
8750077	0,77	3,1	5	38	3	28,6	0,14
8750078	0,78	3,2	5	38	3	28,7	0,14
8750079	0,79	3,2	5	38	3	28,7	0,14
8750080	0,8	3,2	5	38	3	28,6	0,15
8750081	0,81	3,3	5	38	3	28,6	0,15
8750082	0,82	3,3	5	38	3	28,6	0,15
8750083	0,83	3,4	5	38	3	28,7	0,15
8750084	0,84	3,4	5	38	3	28,7	0,15
8750085	0,85	3,4	5	38	3	28,7	0,16
8750086	0,86	3,5	5,5	38	3	28,2	0,16
8750087	0,87	3,5	5,5	38	3	28,2	0,16
8750088	0,88	3,6	5,5	38	3	28,2	0,16
8750089	0,89	3,6	5,5	38	3	28,3	0,16
8750090	0,9	3,6	5,5	38	3	28,3	0,16
8750091	0,91	3,7	5,5	38	3	28,3	0,17
8750092	0,92	3,7	5,5	38	3	28,3	0,17
8750093	0,93	3,8	5,5	38	3	28,3	0,17
8750094	0,94	3,8	5,5	38	3	28,4	0,17
8750095	0,95	3,8	5,5	38	3	28,4	0,17

EDP	DC	LU	LCF	OAL	DCON	LS	PL
8750096	0,96	3,9	6	42	3	31,9	0,18
8750097	0,97	3,9	6	42	3	31,9	0,18
8750098	0,98	4	6	42	3	31,9	0,18
8750099	0,99	4	6	42	3	31,9	0,18
8750100	1	4	6	42	3	31,8	0,18
8750101	1,01	4,1	6	42	3	31,8	0,18
8750102	1,02	4,1	6	42	3	31,8	0,19
8750103	1,03	4,2	6	42	3	31,8	0,19
8750104	1,04	4,2	6	42	3	31,8	0,19
8750105	1,05	4,2	6	42	3	31,9	0,19
8750106	1,06	4,3	6	42	3	31,9	0,19
8750107	1,07	4,3	7	42	3	30,9	0,20
8750108	1,08	4,4	7	42	3	30,9	0,20
8750109	1,09	4,4	7	42	3	30,9	0,20
8750110	1,1	4,4	7	42	3	31	0,20
8750111	1,11	4,5	7	42	3	31	0,20
8750112	1,12	4,5	7	42	3	31	0,20
8750113	1,13	4,6	7	42	3	31	0,21
8750114	1,14	4,6	7	42	3	31	0,21
8750115	1,15	4,6	7	42	3	31	0,21
8750116	1,16	4,7	7	42	3	31,1	0,21
8750117	1,17	4,7	7	42	3	31,1	0,21
8750118	1,18	4,8	7	42	3	31,1	0,22
8750119	1,19	4,8	8	42	3	30,1	0,22
8750120	1,2	4,8	8	42	3	30,1	0,22
8750121	1,21	4,9	8	42	3	30,2	0,22
8750122	1,22	4,9	8	42	3	30,2	0,22
8750123	1,23	5	8	42	3	30,2	0,22
8750124	1,24	5	8	42	3	30,2	0,23
8750125	1,25	5	8	42	3	30,2	0,23
8750126	1,26	5,1	8	42	3	30,3	0,23
8750127	1,27	5,1	8	42	3	30,3	0,23
8750128	1,28	5,2	8	42	3	30,3	0,23
8750129	1,29	5,2	8	42	3	30,3	0,24
8750130	1,3	5,2	8	42	3	30,3	0,24
8750131	1,31	5,3	8	42	3	30,3	0,24
8750132	1,32	5,3	8	42	3	30,4	0,24
8750133	1,33	5,4	9	42	3	29,4	0,24
8750134	1,34	5,4	9	42	3	29,4	0,24
8750135	1,35	5,4	9	42	3	29,4	0,25
8750136	1,36	5,5	9	42	3	29,4	0,25
8750137	1,37	5,5	9	42	3	29,5	0,25
8750138	1,38	5,6	9	42	3	29,5	0,25
8750139	1,39	5,6	9	42	3	29,5	0,25
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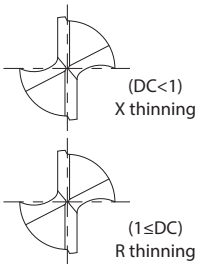
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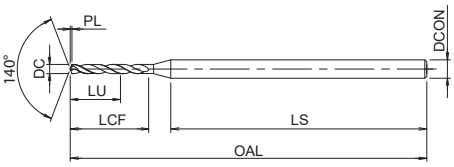
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- Up to 4xD
- For general steels, stainless steels and titanium alloys
- 251 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | K GGG | N AC, ADC | S Ti | H 25-35 HRC | H 35-45 HRC | H 45-52 HRC

A | CARBIDE | KeptA | 0~-0.004 | ±30° | SHANK h4 | SHRINK FIT | 140°

B.513

EDP	DC	LU	LCF	OAL	DCON	LS	PL
8750142	1,42	5,7	9	42	3	29,6	0,26
8750143	1,43	5,8	9	42	3	29,6	0,26
8750144	1,44	5,8	9	42	3	29,6	0,26
8750145	1,45	5,8	9	42	3	29,6	0,26
8750146	1,46	5,9	9	42	3	29,6	0,27
8750147	1,47	5,9	9	42	3	29,6	0,27
8750148	1,48	6	9	42	3	29,7	0,27
8750149	1,49	6	9	42	3	29,7	0,27
8750150	1,5	6	9	42	3	29,7	0,27
8750151	1,51	6,1	10	42	3	28,7	0,28
8750152	1,52	6,1	10	42	3	28,7	0,28
8750153	1,53	6,2	10	42	3	28,8	0,28
8750154	1,54	6,2	10	42	3	28,8	0,28
8750155	1,55	6,2	10	42	3	28,8	0,28
8750156	1,56	6,3	10	42	3	28,8	0,28
8750157	1,57	6,3	10	42	3	28,8	0,29
8750158	1,58	6,4	10	42	3	28,9	0,29
8750159	1,59	6,4	10	42	3	28,9	0,29
8750160	1,6	6,4	10	42	3	28,9	0,29
8750161	1,61	6,5	10	42	3	28,9	0,29
8750162	1,62	6,5	10	42	3	28,9	0,30
8750163	1,63	6,6	10	42	3	28,9	0,30
8750164	1,64	6,6	10	42	3	29	0,30
8750165	1,65	6,6	10	42	3	29	0,30
8750166	1,66	6,7	10	42	3	29	0,30
8750167	1,67	6,7	10	42	3	29	0,30
8750168	1,68	6,8	10	42	3	29	0,31
8750169	1,69	6,8	10	42	3	29,1	0,31
8750170	1,7	6,8	10	42	3	29,1	0,31
8750171	1,71	6,9	11	42	3	28,1	0,31
8750172	1,72	6,9	11	42	3	28,1	0,31
8750173	1,73	7	11	42	3	28,1	0,32
8750174	1,74	7	11	42	3	28,1	0,32
8750175	1,75	7	11	42	3	28,2	0,32
8750176	1,76	7,1	11	42	3	28,2	0,32
8750177	1,77	7,1	11	42	3	28,2	0,32
8750178	1,78	7,2	11	42	3	28,2	0,32
8750179	1,79	7,2	11	42	3	28,2	0,33
8750180	1,8	7,2	11	42	3	28,3	0,33
8750181	1,81	7,3	11	42	3	28,3	0,33
8750182	1,82	7,3	11	42	3	28,3	0,33
8750183	1,83	7,4	11	42	3	28,3	0,33
8750184	1,84	7,4	11	42	3	28,3	0,34
8750185	1,85	7,4	11	42	3	28,4	0,34
8750186	1,86	7,5	11	42	3	28,4	0,34
8750187	1,87	7,5	11	42	3	28,4	0,34

EDP	DC	LU	LCF	OAL	DCON	LS	PL
8750188	1,88	7,6	11	42	3	28,4	0,34
8750189	1,89	7,6	11	42	3	28,4	0,34
8750190	1,9	7,6	11	42	3	28,4	0,35
8750191	1,91	7,7	12	46	3	31,5	0,35
8750192	1,92	7,7	12	46	3	31,5	0,35
8750193	1,93	7,8	12	46	3	31,5	0,35
8750194	1,94	7,8	12	46	3	31,5	0,35
8750195	1,95	7,8	12	46	3	31,5	0,36
8750196	1,96	7,9	12	46	3	31,6	0,36
8750197	1,97	7,9	12	46	3	31,6	0,36
8750198	1,98	8	12	46	3	31,6	0,36
8750199	1,99	8	12	46	3	31,6	0,36
8750200	2	8	12	46	3	31,6	0,36
8750201	2,01	8,1	12	46	3	31,7	0,37
8750202	2,02	8,1	12	46	3	31,7	0,37
8750203	2,03	8,2	12	46	3	31,7	0,37
8750204	2,04	8,2	12	46	3	31,7	0,37
8750205	2,05	8,2	12	46	3	31,7	0,37
8750206	2,06	8,3	12	46	3	31,7	0,38
8750207	2,07	8,3	12	46	3	31,8	0,38
8750208	2,08	8,4	12	46	3	31,8	0,38
8750209	2,09	8,4	12	46	3	31,8	0,38
8750210	2,1	8,4	12	46	3	31,8	0,38
8750211	2,11	8,5	13	46	3	30,8	0,38
8750212	2,12	8,5	13	46	3	30,9	0,39
8750213	2,13	8,6	13	46	3	30,9	0,39
8750214	2,14	8,6	13	46	3	30,9	0,39
8750215	2,15	8,6	13	46	3	30,9	0,39
8750216	2,16	8,7	13	46	3	30,9	0,39
8750217	2,17	8,7	13	46	3	31	0,40
8750218	2,18	8,8	13	46	3	31	0,40
8750219	2,19	8,8	13	46	3	31	0,40
8750220	2,2	8,8	13	46	3	31	0,40
8750221	2,21	8,9	13	46	3	31	0,40
8750222	2,22	8,9	13	46	3	31	0,40
8750223	2,23	9	13	46	3	31,1	0,41
8750224	2,24	9	13	46	3	31,1	0,41
8750225	2,25	9	13	46	3	31,1	0,41
8750226	2,26	9,1	13	46	3	31,1	0,41
8750227	2,27	9,1	13	46	3	31,1	0,41
8750228	2,28	9,2	13	46	3	31,2	0,42
8750229	2,29	9,2	13	46	3	31,2	0,42
8750230	2,3	9,2	13	46	3	31,2	0,42
8750231	2,31	9,3	13	46	3	31,2	0,42
8750232	2,32	9,3	13	46	3	31,2	0,42
8750233	2,33	9,4	13	46	3	31,2	0,42

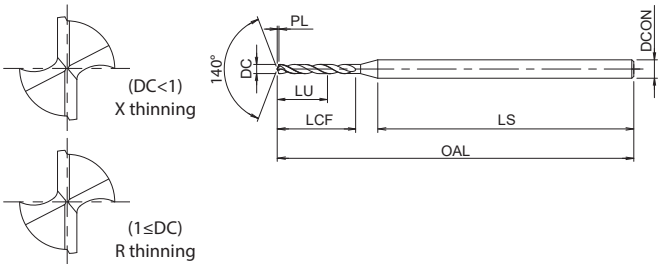
AD-MICRO-4D

Drilling | Solid carbide | Micro drills

INDEX

NEW





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- Up to 4xD
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A | CARBIDE | KeptA | 0~-0.004 | ±30° | SHANK h4 | SHRINK FIT | 140°

B.513

EDP	DC	LU	LCF	OAL	DCON	LS	PL
8750234	2,34	9,4	13	46	3	31,3	0,43
8750235	2,35	9,4	13	46	3	31,3	0,43
8750236	2,36	9,5	13	46	3	31,3	0,43
8750237	2,37	9,5	13	46	3	31,3	0,43
8750238	2,38	9,6	13	46	3	31,3	0,43
8750239	2,39	9,6	13	46	3	31,4	0,44
8750240	2,4	9,6	14	46	3	30,4	0,44
8750241	2,41	9,7	14	46	3	30,4	0,44
8750242	2,42	9,7	14	46	3	30,4	0,44
8750243	2,43	9,8	14	46	3	30,4	0,44
8750244	2,44	9,8	14	46	3	30,5	0,44
8750245	2,45	9,8	14	46	3	30,5	0,45
8750246	2,46	9,9	14	46	3	30,5	0,45
8750247	2,47	9,9	14	46	3	30,5	0,45
8750248	2,48	10	14	46	3	30,5	0,45
8750249	2,49	10	14	46	3	30,5	0,45
8750250	2,5	10	14	46	3	30,6	0,46
8750251	2,51	10,1	14	46	3	30,6	0,46
8750252	2,52	10,1	14	46	3	30,6	0,46
8750253	2,53	10,2	14	46	3	30,6	0,46
8750254	2,54	10,2	14	46	3	30,6	0,46
8750255	2,55	10,2	14	46	3	30,7	0,46
8750256	2,56	10,3	14	46	3	30,7	0,47
8750257	2,57	10,3	14	46	3	30,7	0,47
8750258	2,58	10,4	14	46	3	30,7	0,47
8750259	2,59	10,4	14	46	3	30,7	0,47
8750260	2,6	10,4	14	46	3	30,8	0,47
8750261	2,61	10,5	14	46	3	30,8	0,48
8750262	2,62	10,5	14	46	3	30,8	0,48
8750263	2,63	10,6	14	46	3	30,8	0,48
8750264	2,64	10,6	14	46	3	30,8	0,48
8750265	2,65	10,6	14	46	3	30,8	0,48
8750266	2,66	10,7	16	46	3	28,9	0,48
8750267	2,67	10,7	16	46	3	28,9	0,49
8750268	2,68	10,8	16	46	3	28,9	0,49
8750269	2,69	10,8	16	46	3	28,9	0,49
8750270	2,7	10,8	16	46	3	28,9	0,49
8750271	2,71	10,9	16	46	3	29	0,49
8750272	2,72	10,9	16	46	3	29	0,50
8750273	2,73	11	16	46	3	29	0,50
8750274	2,74	11	16	46	3	29	0,50
8750275	2,75	11	16	46	3	29	0,50
8750276	2,76	11,1	16	46	3	29,1	0,50
8750277	2,77	11,1	16	46	3	29,1	0,50
8750278	2,78	11,2	16	46	3	29,1	0,51
8750279	2,79	11,2	16	46	3	29,1	0,51

EDP	DC	LU	LCF	OAL	DCON	LS	PL
8750280	2,8	11,2	16	46	3	29,1	0,51
8750281	2,81	11,3	16	46	3	29,1	0,51
8750282	2,82	11,3	16	46	3	29,2	0,51
8750283	2,83	11,4	16	46	3	29,2	0,52
8750284	2,84	11,4	16	46	3	29,2	0,52
8750285	2,85	11,4	16	46	3	29,2	0,52
8750286	2,86	11,5	16	46	3	29,2	0,52
8750287	2,87	11,5	16	46	3	29,3	0,52
8750288	2,88	11,6	16	46	3	29,3	0,52
8750289	2,89	11,6	16	46	3	29,3	0,53
8750290	2,9	11,6	16	46	3	29,3	0,53
8750291	2,91	11,7	16	46	3	29,3	0,53
8750292	2,92	11,7	16	46	3	29,4	0,53
8750293	2,93	11,8	16	46	3	29,4	0,53
8750294	2,94	11,8	16	46	3	29,4	0,54
8750295	2,95	11,8	16	46	3	29,4	0,54
8750296	2,96	11,9	16	46	3	29,4	0,54
8750297	2,97	11,9	16	46	3	29,4	0,54
8750298	2,98	12	16	46	3	29,5	0,54
8750299	2,99	12	16	46	3	29,5	0,54
8750300	3	12	16	46	3	29,5	0,55

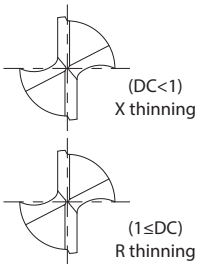
AD-MICRO-10D

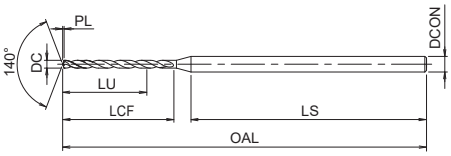
Drilling | Solid carbide | Micro drills

INDEX

NEW







- First choice in quality and performance
- Micro carbide drill with KeptA coating
- Up to 10xD
- For general steels, stainless steels and titanium alloys
- 251 sizes

P	P	P	P	M	K	K	N	S	H	H	H
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	INOX	GG	GGG	AC, ADC	Ti	25-35 HRC	35-45 HRC	45-52 HRC

A | CARBIDE | KeptA | 0~-0.004 | ±30° | SHANK h4 | SHRINK FIT | 140°

B.513

EDP	DC	LU	LCF	OAL	DCON	LS	PL
8760050	0,5	5	5,8	42	3	31,3	0,09
8760051	0,51	5,1	5,8	42	3	31,4	0,09
8760052	0,52	5,2	5,8	42	3	31,4	0,10
8760053	0,53	5,3	5,8	42	3	31,4	0,10
8760054	0,54	5,4	6,5	42	3	30,7	0,10
8760055	0,55	5,5	6,5	42	3	30,7	0,10
8760056	0,56	5,6	6,5	42	3	30,7	0,10
8760057	0,57	5,7	6,5	42	3	30,8	0,10
8760058	0,58	5,8	6,5	42	3	30,8	0,11
8760059	0,59	5,9	6,5	42	3	30,8	0,11
8760060	0,6	6	6,5	42	3	30,8	0,11
8760061	0,61	6,1	7	42	3	30,3	0,11
8760062	0,62	6,2	7	42	3	30,4	0,11
8760063	0,63	6,3	7	42	3	30,4	0,12
8760064	0,64	6,4	7	42	3	30,4	0,12
8760065	0,65	6,5	7	42	3	30,4	0,12
8760066	0,66	6,6	7	42	3	30,4	0,12
8760067	0,67	6,7	7	42	3	30,5	0,12
8760068	0,68	6,8	8	42	3	29,5	0,12
8760069	0,69	6,9	8	42	3	29,5	0,13
8760070	0,7	7	8	42	3	29,5	0,13
8760071	0,71	7,1	8	42	3	29,5	0,13
8760072	0,72	7,2	8	42	3	29,5	0,13
8760073	0,73	7,3	8	42	3	29,6	0,13
8760074	0,74	7,4	8	42	3	29,6	0,14
8760075	0,75	7,5	8	42	3	29,6	0,14
8760076	0,76	7,6	9	42	3	28,6	0,14
8760077	0,77	7,7	9	42	3	28,6	0,14
8760078	0,78	7,8	9	42	3	28,7	0,14
8760079	0,79	7,9	9	42	3	28,7	0,14
8760080	0,8	8	9	42	3	28,6	0,15
8760081	0,81	8,1	9	42	3	28,6	0,15
8760082	0,82	8,2	9	42	3	28,6	0,15
8760083	0,83	8,3	9	42	3	28,7	0,15
8760084	0,84	8,4	9	42	3	28,7	0,15
8760085	0,85	8,5	9	42	3	28,7	0,16
8760086	0,86	8,6	10,5	46	3	31,2	0,16
8760087	0,87	8,7	10,5	46	3	31,2	0,16
8760088	0,88	8,8	10,5	46	3	31,2	0,16
8760089	0,89	8,9	10,5	46	3	31,3	0,16
8760090	0,9	9	10,5	46	3	31,3	0,16
8760091	0,91	9,1	10,5	46	3	31,3	0,17
8760092	0,92	9,2	10,5	46	3	31,3	0,17
8760093	0,93	9,3	10,5	46	3	31,3	0,17
8760094	0,94	9,4	10,5	46	3	31,4	0,17
8760095	0,95	9,5	10,5	46	3	31,4	0,17

EDP	DC	LU	LCF	OAL	DCON	LS	PL
8760096	0,96	9,6	11,5	46	3	30,4	0,18
8760097	0,97	9,7	11,5	46	3	30,4	0,18
8760098	0,98	9,8	11,5	46	3	30,4	0,18
8760099	0,99	9,9	11,5	46	3	30,4	0,18
8760100	1	10	11,5	46	3	30,3	0,18
8760101	1,01	10,1	11,5	46	3	30,3	0,18
8760102	1,02	10,2	11,5	46	3	30,3	0,19
8760103	1,03	10,3	11,5	46	3	30,3	0,19
8760104	1,04	10,4	11,5	46	3	30,3	0,19
8760105	1,05	10,5	11,5	46	3	30,4	0,19
8760106	1,06	10,6	11,5	46	3	30,4	0,19
8760107	1,07	10,7	13	46	3	28,9	0,20
8760108	1,08	10,8	13	46	3	28,9	0,20
8760109	1,09	10,9	13	46	3	28,9	0,20
8760110	1,1	11	13	46	3	29	0,20
8760111	1,11	11,1	13	50	3	33	0,20
8760112	1,12	11,2	13	50	3	33	0,20
8760113	1,13	11,3	13	50	3	33	0,21
8760114	1,14	11,4	13	50	3	33	0,21
8760115	1,15	11,5	13	50	3	33	0,21
8760116	1,16	11,6	13	50	3	33,1	0,21
8760117	1,17	11,7	13	50	3	33,1	0,21
8760118	1,18	11,8	13	50	3	33,1	0,22
8760119	1,19	11,9	14	50	3	32,1	0,22
8760120	1,2	12	14	50	3	32,1	0,22
8760121	1,21	12,1	14	50	3	32,2	0,22
8760122	1,22	12,2	14	50	3	32,2	0,22
8760123	1,23	12,3	14	50	3	32,2	0,22
8760124	1,24	12,4	14	50	3	32,2	0,23
8760125	1,25	12,5	14	50	3	32,2	0,23
8760126	1,26	12,6	14	50	3	32,3	0,23
8760127	1,27	12,7	14	50	3	32,3	0,23
8760128	1,28	12,8	14	50	3	32,3	0,23
8760129	1,29	12,9	14	50	3	32,3	0,24
8760130	1,3	13	14	50	3	32,3	0,24
8760131	1,31	13,1	14	50	3	32,3	0,24
8760132	1,32	13,2	14	50	3	32,4	0,24
8760133	1,33	13,3	15	50	3	31,4	0,24
8760134	1,34	13,4	15	50	3	31,4	0,24
8760135	1,35	13,5	15	50	3	31,4	0,25
8760136	1,36	13,6	15	50	3	31,4	0,25
8760137	1,37	13,7	15	50	3	31,5	0,25
8760138	1,38	13,8	15	50	3	31,5	0,25
8760139	1,39	13,9	15	50	3	31,5	0,25
8760140	1,4	14	16,5	50	3	30	0,26
8760141	1,41	14,1	16,5	50	3	30	0,26

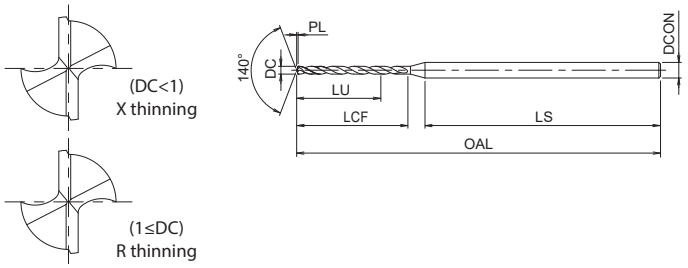
AD-MICRO-10D

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A | CARBIDE | KeptA | 0~-0.004 | ±30° | SHANK h4 | SHRINK FIT | 140°

B.513

EDP	DC	LU	LCF	OAL	DCON	LS	PL
8760142	1,42	14,2	16,5	50	3	30,1	0,26
8760143	1,43	14,3	16,5	50	3	30,1	0,26
8760144	1,44	14,4	16,5	50	3	30,1	0,26
8760145	1,45	14,5	16,5	50	3	30,1	0,26
8760146	1,46	14,6	16,5	50	3	30,1	0,27
8760147	1,47	14,7	16,5	50	3	30,1	0,27
8760148	1,48	14,8	16,5	50	3	30,2	0,27
8760149	1,49	14,9	16,5	50	3	30,2	0,27
8760150	1,5	15	16,5	50	3	30,2	0,27
8760151	1,51	15,1	17,5	50	3	29,2	0,28
8760152	1,52	15,2	17,5	50	3	29,2	0,28
8760153	1,53	15,3	17,5	50	3	29,3	0,28
8760154	1,54	15,4	17,5	50	3	29,3	0,28
8760155	1,55	15,5	17,5	50	3	29,3	0,28
8760156	1,56	15,6	17,5	50	3	29,3	0,28
8760157	1,57	15,7	17,5	50	3	29,3	0,29
8760158	1,58	15,8	17,5	50	3	29,4	0,29
8760159	1,59	15,9	17,5	50	3	29,4	0,29
8760160	1,6	16	17,5	50	3	29,4	0,29
8760161	1,61	16,1	18,5	50	3	28,4	0,29
8760162	1,62	16,2	18,5	50	3	28,4	0,30
8760163	1,63	16,3	18,5	50	3	28,4	0,30
8760164	1,64	16,4	18,5	50	3	28,5	0,30
8760165	1,65	16,5	18,5	50	3	28,5	0,30
8760166	1,66	16,6	18,5	50	3	28,5	0,30
8760167	1,67	16,7	18,5	50	3	28,5	0,30
8760168	1,68	16,8	18,5	50	3	28,5	0,31
8760169	1,69	16,9	18,5	50	3	28,6	0,31
8760170	1,7	17	18,5	50	3	28,6	0,31
8760171	1,71	17,1	20,5	54	3	30,6	0,31
8760172	1,72	17,2	20,5	54	3	30,6	0,31
8760173	1,73	17,3	20,5	54	3	30,6	0,32
8760174	1,74	17,4	20,5	54	3	30,6	0,32
8760175	1,75	17,5	20,5	54	3	30,7	0,32
8760176	1,76	17,6	20,5	54	3	30,7	0,32
8760177	1,77	17,7	20,5	54	3	30,7	0,32
8760178	1,78	17,8	20,5	54	3	30,7	0,32
8760179	1,79	17,9	20,5	54	3	30,7	0,33
8760180	1,8	18	20,5	54	3	30,8	0,33
8760181	1,81	18,1	20,5	54	3	30,8	0,33
8760182	1,82	18,2	20,5	54	3	30,8	0,33
8760183	1,83	18,3	20,5	54	3	30,8	0,33
8760184	1,84	18,4	20,5	54	3	30,8	0,34
8760185	1,85	18,5	20,5	54	3	30,9	0,34
8760186	1,86	18,6	20,5	54	3	30,9	0,34
8760187	1,87	18,7	20,5	54	3	30,9	0,34

EDP	DC	LU	LCF	OAL	DCON	LS	PL
8760188	1,88	18,8	20,5	54	3	30,9	0,34
8760189	1,89	18,9	20,5	54	3	30,9	0,34
8760190	1,9	19	20,5	54	3	30,9	0,35
8760191	1,91	19,1	23	54	3	28,5	0,35
8760192	1,92	19,2	23	54	3	28,5	0,35
8760193	1,93	19,3	23	54	3	28,5	0,35
8760194	1,94	19,4	23	54	3	28,5	0,35
8760195	1,95	19,5	23	54	3	28,5	0,36
8760196	1,96	19,6	23	54	3	28,6	0,36
8760197	1,97	19,7	23	54	3	28,6	0,36
8760198	1,98	19,8	23	54	3	28,6	0,36
8760199	1,99	19,9	23	54	3	28,6	0,36
8760200	2	20	23	54	3	28,6	0,36
8760201	2,01	20,1	23	54	3	28,7	0,37
8760202	2,02	20,2	23	54	3	28,7	0,37
8760203	2,03	20,3	23	54	3	28,7	0,37
8760204	2,04	20,4	23	54	3	28,7	0,37
8760205	2,05	20,5	23	54	3	28,7	0,37
8760206	2,06	20,6	23	54	3	28,7	0,38
8760207	2,07	20,7	23	54	3	28,8	0,38
8760208	2,08	20,8	23	54	3	28,8	0,38
8760209	2,09	20,9	23	54	3	28,8	0,38
8760210	2,1	21	23	54	3	28,8	0,38
8760211	2,11	21,1	24,5	58	3	31,3	0,38
8760212	2,12	21,2	24,5	58	3	31,4	0,39
8760213	2,13	21,3	24,5	58	3	31,4	0,39
8760214	2,14	21,4	24,5	58	3	31,4	0,39
8760215	2,15	21,5	24,5	58	3	31,4	0,39
8760216	2,16	21,6	24,5	58	3	31,4	0,39
8760217	2,17	21,7	24,5	58	3	31,5	0,40
8760218	2,18	21,8	24,5	58	3	31,5	0,40
8760219	2,19	21,9	24,5	58	3	31,5	0,40
8760220	2,2	22	24,5	58	3	31,5	0,40
8760221	2,21	22,1	24,5	58	3	31,5	0,40
8760222	2,22	22,2	24,5	58	3	31,5	0,40
8760223	2,23	22,3	24,5	58	3	31,6	0,41
8760224	2,24	22,4	24,5	58	3	31,6	0,41
8760225	2,25	22,5	24,5	58	3	31,6	0,41
8760226	2,26	22,6	26	58	3	30,1	0,41
8760227	2,27	22,7	26	58	3	30,1	0,41
8760228	2,28	22,8	26	58	3	30,2	0,42
8760229	2,29	22,9	26	58	3	30,2	0,42
8760230	2,3	23	26	58	3	30,2	0,42
8760231	2,31	23,1	26	58	3	30,2	0,42
8760232	2,32	23,2	26	58	3	30,2	0,42
8760233	2,33	23,3	26	58	3	30,2	0,42

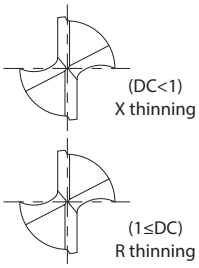
AD-MICRO-10D

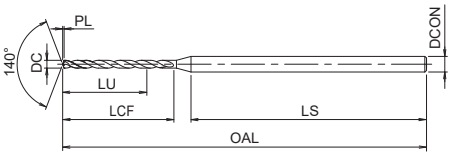
Drilling | Solid carbide | Micro drills

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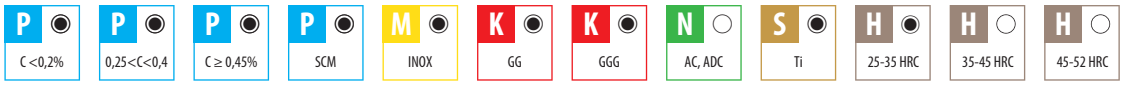
NEW







- First choice in quality and performance
- Micro carbide drill with KeptA coating
- Up to 10xD
- For general steels, stainless steels and titanium alloys
- 251 sizes







EDP	DC	LU	LCF	OAL	DCON	LS	PL
8760234	2,34	23,4	26	58	3	30,3	0,43
8760235	2,35	23,5	26	58	3	30,3	0,43
8760236	2,36	23,6	26	58	3	30,3	0,43
8760237	2,37	23,7	26	58	3	30,3	0,43
8760238	2,38	23,8	26	58	3	30,3	0,43
8760239	2,39	23,9	26	58	3	30,4	0,44
8760240	2,4	24	29	62	3	31,4	0,44
8760241	2,41	24,1	29	62	3	31,4	0,44
8760242	2,42	24,2	29	62	3	31,4	0,44
8760243	2,43	24,3	29	62	3	31,4	0,44
8760244	2,44	24,4	29	62	3	31,5	0,44
8760245	2,45	24,5	29	62	3	31,5	0,45
8760246	2,46	24,6	29	62	3	31,5	0,45
8760247	2,47	24,7	29	62	3	31,5	0,45
8760248	2,48	24,8	29	62	3	31,5	0,45
8760249	2,49	24,9	29	62	3	31,5	0,45
8760250	2,5	25	29	62	3	31,6	0,46
8760251	2,51	25,1	29	62	3	31,6	0,46
8760252	2,52	25,2	29	62	3	31,6	0,46
8760253	2,53	25,3	29	62	3	31,6	0,46
8760254	2,54	25,4	29	62	3	31,6	0,46
8760255	2,55	25,5	29	62	3	31,7	0,46
8760256	2,56	25,6	29	62	3	31,7	0,47
8760257	2,57	25,7	29	62	3	31,7	0,47
8760258	2,58	25,8	29	62	3	31,7	0,47
8760259	2,59	25,9	29	62	3	31,7	0,47
8760260	2,6	26	29	62	3	31,8	0,47
8760261	2,61	26,1	29	62	3	31,8	0,48
8760262	2,62	26,2	29	62	3	31,8	0,48
8760263	2,63	26,3	29	62	3	31,8	0,48
8760264	2,64	26,4	29	62	3	31,8	0,48
8760265	2,65	26,5	29	62	3	31,8	0,48
8760266	2,66	26,6	31	62	3	29,9	0,48
8760267	2,67	26,7	31	62	3	29,9	0,49
8760268	2,68	26,8	31	62	3	29,9	0,49
8760269	2,69	26,9	31	62	3	29,9	0,49
8760270	2,7	27	31	62	3	29,9	0,49
8760271	2,71	27,1	31	62	3	30	0,49
8760272	2,72	27,2	31	62	3	30	0,50
8760273	2,73	27,3	31	62	3	30	0,50
8760274	2,74	27,4	31	62	3	30	0,50
8760275	2,75	27,5	31	62	3	30	0,50
8760276	2,76	27,6	31	62	3	30,1	0,50
8760277	2,77	27,7	31	62	3	30,1	0,50
8760278	2,78	27,8	31	62	3	30,1	0,51
8760279	2,79	27,9	31	62	3	30,1	0,51

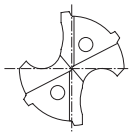
EDP	DC	LU	LCF	OAL	DCON	LS	PL
8760280	2,8	28	31	62	3	30,1	0,51
8760281	2,81	28,1	33	62	3	28,1	0,51
8760282	2,82	28,2	33	62	3	28,2	0,51
8760283	2,83	28,3	33	62	3	28,2	0,52
8760284	2,84	28,4	33	62	3	28,2	0,52
8760285	2,85	28,5	33	62	3	28,2	0,52
8760286	2,86	28,6	33	62	3	28,2	0,52
8760287	2,87	28,7	33	62	3	28,3	0,52
8760288	2,88	28,8	33	62	3	28,3	0,52
8760289	2,89	28,9	33	62	3	28,3	0,53
8760290	2,9	29	33	62	3	28,3	0,53
8760291	2,91	29,1	33	62	3	28,3	0,53
8760292	2,92	29,2	33	62	3	28,4	0,53
8760293	2,93	29,3	33	62	3	28,4	0,53
8760294	2,94	29,4	33	62	3	28,4	0,54
8760295	2,95	29,5	33	62	3	28,4	0,54
8760296	2,96	29,6	33	62	3	28,4	0,54
8760297	2,97	29,7	33	62	3	28,4	0,54
8760298	2,98	29,8	33	62	3	28,5	0,54
8760299	2,99	29,9	33	62	3	28,5	0,54
8760300	3	30	33	62	3	28,5	0,55

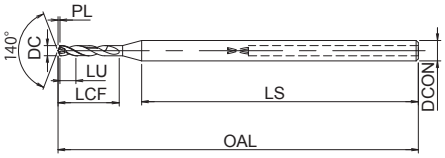
ADO-MICRO-2D

Drilling | Solid carbide | Micro drills

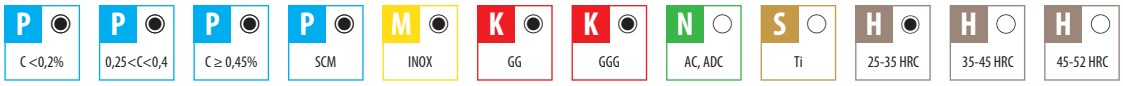
INDEX







- First choice in quality and performance
- Micro carbide drill with internal coolant, IchAda coating
- Double margin, up to 2xD
- For general purpose steels and cast iron
- 17 sizes





EDP	DC	LU	LCF	OAL	DCON	LS	PL
8732001	0,7	1,4	4,2	47	3	38,5	0,13
8732002	0,75	1,5	4,5	47	3	38,3	0,14
8732003	0,8	1,6	4,8	50	3	41,1	0,15
8732004	0,85	1,7	5,1	50	3	40,9	0,15
8732005	0,9	1,8	5,4	50	3	40,7	0,16
8732006	0,95	1,9	5,7	50	3	40,5	0,17
8732007	1	2	6	53	3	42,8	0,18
8732008	1,1	2,2	6,6	53	3	42,4	0,20
8732009	1,2	2,4	7,2	53	3	41,9	0,22
8732010	1,3	2,6	7,8	53	3	41,5	0,24
8732011	1,4	2,8	8,4	53	3	41,1	0,25
8732012	1,5	3	9	53	3	40,7	0,27
8732013	1,6	3,2	9,6	53	3	40,3	0,29
8732014	1,7	3,4	10,2	53	3	39,9	0,31
8732015	1,8	3,6	10,8	53	3	39,5	0,33
8732016	1,9	3,8	11,4	53	3	39	0,35
8732017	2	4	12	58	3	43,6	0,36

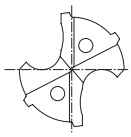
EDP	DC	LU	LCF	OAL	DCON	LS	PL

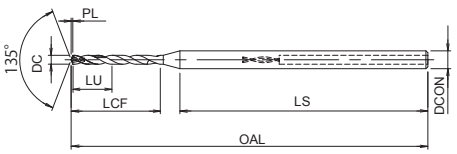
ADO-MICRO-5D

Drilling | Solid carbide | Micro drills

INDEX







- First choice in quality and performance
- Micro carbide drill with internal coolant, IchAda coating
- Double margin, up to 5xD
- For general purpose steels and cast iron
- 19 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | K GGG | N AC, ADC | S Ti | H 25-35 HRC | H 35-45 HRC | H 45-52 HRC

A | CARBIDE | IchAda | ±30° | 0~-0.009 | SHRINK FIT | 135°

B.493

EDP	DC	LU	LCF	OAL	DCON	LS	PL
8732018	0,7	3,5	7	47	3	35,7	0,14
8732019	0,75	3,8	7,5	47	3	35,3	0,16
8732020	0,8	4	8	50	3	37,9	0,17
8732021	0,85	4,3	8,5	50	3	37,5	0,18
8732022	0,9	4,5	9	50	3	37,1	0,19
8732023	0,95	4,8	9,5	50	3	36,7	0,20
8732024	1	5	10	55	3	40,8	0,21
8732025	1,1	5,5	11	55	3	40	0,23
8732026	1,2	6	12	60	3	44,1	0,25
8732027	1,3	6,5	13	60	3	43,3	0,27
8732028	1,4	7	14	60	3	42,5	0,29
8732029	1,5	7,5	15	60	3	41,7	0,31
48337155	1,55	7,8	15,5	60	3	41,3	0,32
8732030	1,6	8	16	60	3	40,9	0,33
8732031	1,7	8,5	17	60	3	40,1	0,35
8732032	1,8	9	18	65	3	44,3	0,37
48337184	1,84	9,2	18,4	65	3	43,9	0,38
8732033	1,9	9,5	19	65	3	43,4	0,39
8732034	2	10	20	65	3	42,6	0,41

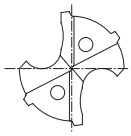
EDP	DC	LU	LCF	OAL	DCON	LS	PL

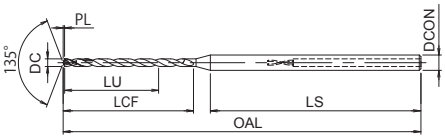
ADO-MICRO-12D

Drilling | Solid carbide | Micro drills

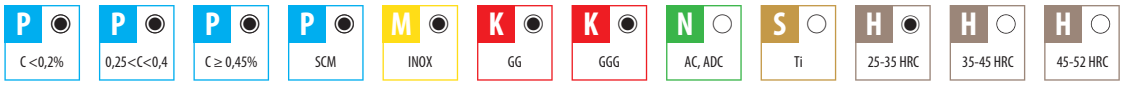
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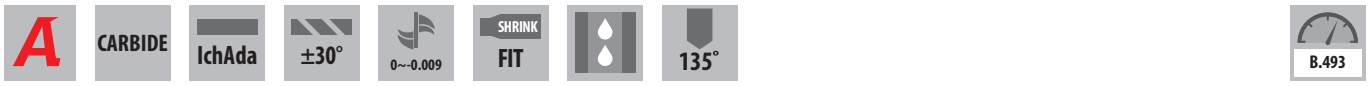






- First choice in quality and performance
- Micro carbide drill with internal coolant, IchAda coating
- Double margin, up to 12xD
- For general purpose steels and cast iron
- 11 sizes





EDP	DC	LU	LCF	OAL	DCON	LS	PL
8732035	1	12	17	60	3	38,8	0,21
8732036	1,1	13,2	18,7	65	3	42,3	0,23
8732037	1,2	14,4	20,4	65	3	40,7	0,25
8732038	1,3	15,6	22,1	65	3	39,2	0,27
8732039	1,4	16,8	23,8	70	3	42,7	0,29
8732040	1,5	18	25,5	70	3	41,2	0,31
8732041	1,6	19,2	27,2	70	3	39,7	0,33
8732042	1,7	20,4	28,9	73	3	41,2	0,35
8732043	1,8	21,6	30,6	73	3	39,7	0,37
8732044	1,9	22,8	32,3	73	3	38,1	0,39
8732045	2	24	34	77	3	40,6	0,41

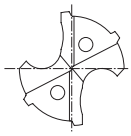
EDP	DC	LU	LCF	OAL	DCON	LS	PL

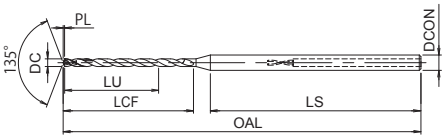
ADO-MICRO-15D

Drilling | Solid carbide | Micro drills

INDEX







- First choice in quality and performance
- Micro carbide drill with internal coolant, IchAda coating
- Double margin, up to 15xD
- For general purpose steels and cast iron

P	P	P	P	M	K	K	N	S	H	H	H
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	INOX	GG	GGG	AC, ADC	Ti	25-35 HRC	35-45 HRC	45-52 HRC

A	CARBIDE	IchAda	±30°	0~-0.009	SHRINK FIT		135°	B.493

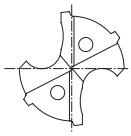
EDP	DC	LU	LCF	OAL	DCON	LS	PL
48337120	2	30	40	77	3	34,6	0,41

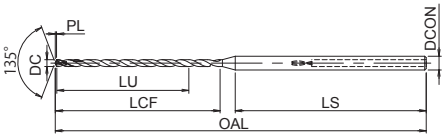
EDP	DC	LU	LCF	OAL	DCON	LS	PL

ADO-MICRO-20D

Drilling | Solid carbide | Micro drills







- First choice in quality and performance
- Micro carbide drill with internal coolant, IchAda coating
- Double margin, up to 20xD
- For general purpose steels and cast iron

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | K GGG | N AC, ADC | S Ti | H 25-35 HRC | H 35-45 HRC | H 45-52 HRC

A | CARBIDE | IchAda | ±30° | 0~-0.009 | SHRINK FIT | 135°

B.493

EDP	DC	LU	LCF	OAL	DCON	LS	PL
8732046	1	20	24	68	3	39,8	0,21
8732047	1,1	22	26,4	75	3	44,6	0,23
8732048	1,2	24	28,8	75	3	42,3	0,25
8732049	1,3	26	31,2	75	3	40,1	0,27
8732050	1,4	28	33,6	81	3	43,9	0,29
8732051	1,5	30	36	81	3	41,7	0,31
8732052	1,6	32	38,4	81	3	39,5	0,33
8732053	1,7	34	40,8	88	3	44,3	0,35
8732054	1,8	36	43,2	88	3	42,1	0,37
8732055	1,9	38	45,6	88	3	39,8	0,39
8732056	2	40	48	95	3	44,6	0,41

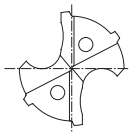
EDP	DC	LU	LCF	OAL	DCON	LS	PL

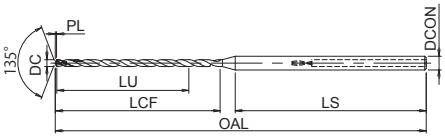
ADO-MICRO-25D

Drilling | Solid carbide | Micro drills

INDEX







- First choice in quality and performance
- Micro carbide drill with internal coolant, IchAda coating
- Double margin, up to 25xD
- For general purpose steels and cast iron

P	P	P	P	M	K	K	N	S	H	H	H
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	INOX	GG	GGG	AC, ADC	Ti	25-35 HRC	35-45 HRC	45-52 HRC

A | CARBIDE | IchAda | ±30° | 0~-0.009 | SHRINK FIT | | 135°

B.493

EDP	DC	LU	LCF	OAL	DCON	LS	PL
48337320	2	50	58	105	3	44,6	0,41

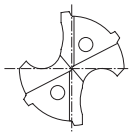
EDP	DC	LU	LCF	OAL	DCON	LS	PL

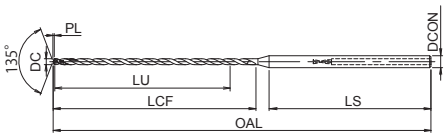
ADO-MICRO-30D

Drilling | Solid carbide | Micro drills

INDEX







- First choice in quality and performance
- Micro carbide drill with internal coolant, IchAda coating
- Double margin, up to 30xD
- For general purpose steels and cast iron
- 11 sizes

P ◉ C <0,2% | P ◉ 0,25<C<0,4 | P ◉ C ≥ 0,45% | P ◉ SCM | M ◉ INOX | K ◉ GG | K ◉ GGG | N ○ AC, ADC | S ○ Ti | H ◉ 25-35 HRC | H ○ 35-45 HRC | H ○ 45-52 HRC

A | CARBIDE | IchAda | ±30° | 0~-0.009 | SHRINK FIT | | 135° | B.493

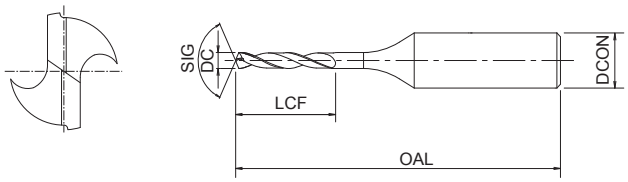
EDP	DC	LU	LCF	OAL	DCON	LS	PL
8732057	1	30	34	77	3	38,8	0,21
8732058	1,1	33	37,4	86	3	44,6	0,23
8732059	1,2	36	40,8	86	3	41,3	0,25
8732060	1,3	39	44,2	86	3	38,1	0,27
8732061	1,4	42	47,6	95	3	43,9	0,29
8732062	1,5	45	51	95	3	40,7	0,31
8732063	1,6	48	54,4	101	3	43,5	0,33
8732064	1,7	51	57,8	101	3	40,3	0,35
8732065	1,8	54	61,2	107	3	43,1	0,37
8732066	1,9	57	64,6	107	3	39,8	0,39
8732067	2	60	68	112	3	41,6	0,41

EDP	DC	LU	LCF	OAL	DCON	LS	PL

WX-MS-GDS

Drilling | Solid carbide | Micro drills





- Micro carbide drill with multilayer TiAlN coating
- Small sizes for precision operation
- 241 sizes

P ◉ C <0,2% | P ◉ 0,25<C<0,4 | P ○ C ≥ 0,45% | P ○ SCM | M ○ INOX | K ○ GG | N ◉ Al | N ○ AC, ADC | S ○ Ti

CARBIDE | WX | 26° ~32° | SHRINK FIT | D≥2,36 130° | 2≤2.35 140° | 0~-0.01

B.494

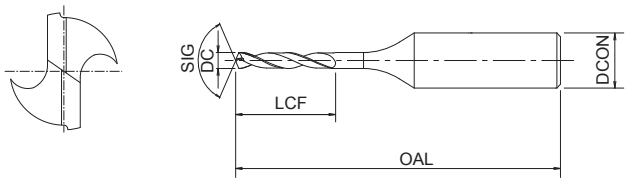
EDP	DC	LCF	OAL	DCON
3300020	0,2	1,5	38	3
3300021	0,21	1,5	38	3
3300022	0,22	1,5	38	3
3300023	0,23	1,5	38	3
3300024	0,24	1,5	38	3
3300025	0,25	1,5	38	3
3300026	0,26	1,5	38	3
3300027	0,27	1,5	38	3
3300028	0,28	1,5	38	3
3300029	0,29	1,5	38	3
3300030	0,3	1,5	38	3
3300031	0,31	2	38	3
3300032	0,32	2	38	3
3300033	0,33	2	38	3
3300034	0,34	2	38	3
3300035	0,35	2	38	3
3300036	0,36	2	38	3
3300037	0,37	2	38	3
3300038	0,38	2	38	3
3300039	0,39	2,5	38	3
3300040	0,4	2,5	38	3
3300041	0,41	2,5	38	3
3300042	0,42	2,5	38	3
3300043	0,43	2,5	38	3
3300044	0,44	2,5	38	3
3300045	0,45	2,5	38	3
3300046	0,46	2,5	38	3
3300047	0,47	2,5	38	3
3300048	0,48	2,5	38	3
3300049	0,49	3	38	3
3300050	0,5	3	38	3
3300051	0,51	3	38	3
3300052	0,52	3	38	3
3300053	0,53	3	38	3
3300054	0,54	3,5	38	3
3300055	0,55	3,5	38	3
3300056	0,56	3,5	38	3
3300057	0,57	3,5	38	3
3300058	0,58	3,5	38	3
3300059	0,59	3,5	38	3
3300060	0,6	3,5	38	3
3300061	0,61	4	38	3
3300062	0,62	4	38	3
3300063	0,63	4	38	3
3300064	0,64	4	38	3
3300065	0,65	4	38	3

EDP	DC	LCF	OAL	DCON
3300066	0,66	4	38	3
3300067	0,67	4	38	3
3300068	0,68	4,5	38	3
3300069	0,69	4,5	38	3
3300070	0,7	4,5	38	3
3300071	0,71	4,5	38	3
3300072	0,72	4,5	38	3
3300073	0,73	4,5	38	3
3300074	0,74	4,5	38	3
3300075	0,75	4,5	38	3
3300076	0,76	5	38	3
3300077	0,77	5	38	3
3300078	0,78	5	38	3
3300079	0,79	5	38	3
3300080	0,8	5	38	3
3300081	0,81	5	38	3
3300082	0,82	5	38	3
3300083	0,83	5	38	3
3300084	0,84	5	38	3
3300085	0,85	5	38	3
3300086	0,86	5,5	38	3
3300087	0,87	5,5	38	3
3300088	0,88	5,5	38	3
3300089	0,89	5,5	38	3
3300090	0,9	5,5	38	3
3300091	0,91	5,5	38	3
3300092	0,92	5,5	38	3
3300093	0,93	5,5	38	3
3300094	0,94	5,5	38	3
3300095	0,95	5,5	38	3
3300096	0,96	6	38	3
3300097	0,97	6	38	3
3300098	0,98	6	38	3
3300099	0,99	6	38	3
3300100	1	6	38	3
3300101	1,01	6	38	3
3300102	1,02	6	38	3
3300103	1,03	6	38	3
3300104	1,04	6	38	3
3300105	1,05	6	38	3
3300106	1,06	6	38	3
3300107	1,07	7	42	3
3300108	1,08	7	42	3
3300109	1,09	7	42	3

WX-MS-GDS

Drilling | Solid carbide | Micro drills





- Micro carbide drill with multilayer TiAlN coating
- Small sizes for precision operation
- 241 sizes

P ◉ C <0,2% | P ◉ 0,25<C<0,4 | P ○ C ≥ 0,45% | P ○ SCM | M ○ INOX | K ○ GG | N ◉ Al | N ○ AC, ADC | S ○ Ti

CARBIDE | WX | 26° ~32° | SHRINK FIT | D≥2,36 130° | 2≤2.35 140° | 0~-0.01

B.494

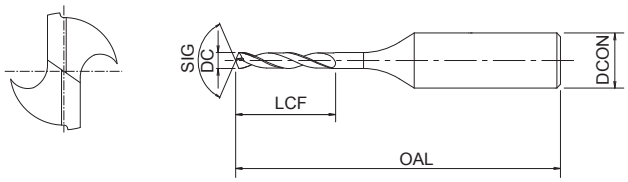
EDP	DC	LCF	OAL	DCON
3300110	1,1	7	42	3
3300111	1,11	7	42	3
3300112	1,12	7	42	3
3300113	1,13	7	42	3
3300114	1,14	7	42	3
3300115	1,15	7	42	3
3300116	1,16	7	42	3
3300117	1,17	7	42	3
3300118	1,18	7	42	3
3300119	1,19	8	42	3
3300120	1,2	8	42	3
3300121	1,21	8	42	3
3300122	1,22	8	42	3
3300123	1,23	8	42	3
3300124	1,24	8	42	3
3300125	1,25	8	42	3
3300126	1,26	8	42	3
3300127	1,27	8	42	3
3300128	1,28	8	42	3
3300129	1,29	8	42	3
3300130	1,3	8	42	3
3300131	1,31	8	42	3
3300132	1,32	8	42	3
3300133	1,33	9	42	3
3300134	1,34	9	42	3
3300135	1,35	9	42	3
3300136	1,36	9	42	3
3300137	1,37	9	42	3
3300138	1,38	9	42	3
3300139	1,39	9	42	3
3300140	1,4	9	42	3
3300141	1,41	9	42	3
3300142	1,42	9	42	3
3300143	1,43	9	42	3
3300144	1,44	9	42	3
3300145	1,45	9	42	3
3300146	1,46	9	42	3
3300147	1,47	9	42	3
3300148	1,48	9	42	3
3300149	1,49	9	42	3
3300150	1,5	9	42	3
3300151	1,51	10	42	3
3300152	1,52	10	42	3
3300153	1,53	10	42	3
3300154	1,54	10	42	3
3300155	1,55	10	42	3

EDP	DC	LCF	OAL	DCON
3300156	1,56	10	42	3
3300157	1,57	10	42	3
3300158	1,58	10	42	3
3300159	1,59	10	42	3
3300160	1,6	10	42	3
3300161	1,61	10	42	3
3300162	1,62	10	42	3
3300163	1,63	10	42	3
3300164	1,64	10	42	3
3300165	1,65	10	42	3
3300166	1,66	10	42	3
3300167	1,67	10	42	3
3300168	1,68	10	42	3
3300169	1,69	10	42	3
3300170	1,7	10	42	3
3300171	1,71	11	42	3
3300172	1,72	11	42	3
3300173	1,73	11	42	3
3300174	1,74	11	42	3
3300175	1,75	11	42	3
3300176	1,76	11	42	3
3300177	1,77	11	42	3
3300178	1,78	11	42	3
3300179	1,79	11	42	3
3300180	1,8	11	42	3
3300181	1,81	11	42	3
3300182	1,82	11	42	3
3300183	1,83	11	42	3
3300184	1,84	11	42	3
3300185	1,85	11	42	3
3300186	1,86	11	42	3
3300187	1,87	11	42	3
3300188	1,88	11	42	3
3300189	1,89	11	42	3
3300190	1,9	11	42	3
3300191	1,91	12	50	3
3300192	1,92	12	50	3
3300193	1,93	12	50	3
3300194	1,94	12	50	3
3300195	1,95	12	50	3
3300196	1,96	12	50	3
3300197	1,97	12	50	3
3300198	1,98	12	50	3
3300199	1,99	12	50	3

WX-MS-GDS

Drilling | Solid carbide | Micro drills





- Micro carbide drill with multilayer TiAlN coating
- Small sizes for precision operation
- 241 sizes

P ◉ C <0,2% | P ◉ 0,25<C<0,4 | P ○ C ≥ 0,45% | P ○ SCM | M ○ INOX | K ○ GG | N ◉ Al | N ○ AC, ADC | S ○ Ti

CARBIDE | WX | 26°~32° | SHRINK FIT | D≥2,36 130° | 2≤2.35 140° | 0~-0.01

B.494

EDP	DC	LCF	OAL	DCON
3300200	2	12	50	3
3300205	2,05	12	50	3
3300210	2,1	12	50	3
3300215	2,15	13	50	3
3300220	2,2	13	50	3
3300225	2,25	13	50	3
3300230	2,3	13	50	3
3300235	2,35	13	50	3
3300240	2,4	14	50	3
3300245	2,45	14	50	3
3300250	2,5	14	50	3
3300255	2,55	14	50	3
3300260	2,6	14	50	3
3300265	2,65	14	50	3
3300270	2,7	16	50	3
3300275	2,75	16	50	3
3300280	2,8	16	50	3
3300285	2,85	16	50	3
3300290	2,9	16	50	3
3300295	2,95	16	50	3
3300300	3	16	50	3
3300305	3,05	18	56	4
3300310	3,1	18	56	4
3300315	3,15	18	56	4
3300320	3,2	18	56	4
3300325	3,25	18	56	4
3300330	3,3	18	56	4
3300335	3,35	18	56	4
3300340	3,4	20	56	4
3300345	3,45	20	56	4
3300350	3,5	20	56	4
3300355	3,55	20	56	4
3300360	3,6	20	56	4
3300365	3,65	20	56	4
3300370	3,7	20	56	4
3300375	3,75	20	56	4
3300380	3,8	22	56	4
3300385	3,85	22	56	4
3300390	3,9	22	56	4
3300395	3,95	22	56	4
3300400	4	22	56	4
3300405	4,05	22	64	5
3300410	4,1	22	64	5
3300415	4,15	22	64	5
3300420	4,2	22	64	5
3300425	4,25	22	64	5

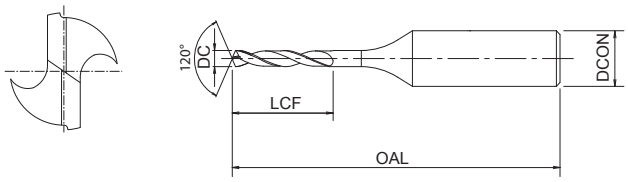
EDP	DC	LCF	OAL	DCON
3300430	4,3	24	64	5
3300435	4,35	24	64	5
3300440	4,4	24	64	5
3300445	4,45	24	64	5
3300450	4,5	24	64	5
3300455	4,55	24	64	5
3300460	4,6	24	64	5
3300465	4,65	24	64	5
3300470	4,7	24	64	5
3300475	4,75	24	64	5
3300480	4,8	26	64	5
3300485	4,85	26	64	5
3300490	4,9	26	64	5
3300495	4,95	26	64	5
3300500	5	26	64	5

MRS-GDL

Drilling | Solid carbide | Micro drills

WHILE STOCK LASTS





- Micro carbide drill with SC coating
- For deep micro drilling in stainless steel
- 75 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX

CARBIDE | SC | 30° | SHRINK FIT | 120° | 0~-0.008

B.494

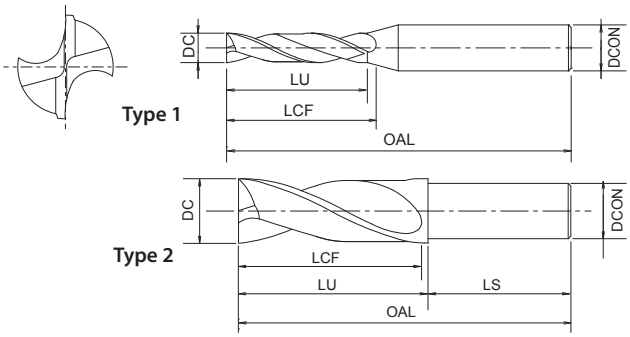
EDP	DC	LCF	OAL	DCON
8577050	0,5	6	42	3
8577054	0,54	6,6	42	3
8577055	0,55	6,6	42	3
8577056	0,56	7,2	42	3
8577060	0,6	7,2	42	3
8577063	0,63	7,8	46	3
8577064	0,64	7,8	46	3
8577065	0,65	7,8	46	3
8577070	0,7	8,4	46	3
8577071	0,71	9	46	3
8577072	0,72	9	46	3
8577073	0,73	9	46	3
8577074	0,74	9	46	3
8577075	0,75	9	46	3
8577080	0,8	9,6	46	3
8577081	0,81	10,2	46	3
8577082	0,82	10,2	46	3
8577090	0,9	10,8	46	3
8577091	0,91	11,4	46	3
8577092	0,92	11,4	46	3
8577100	1	12	46	3
8577110	1,1	13,2	50	3
8577111	1,11	13,8	50	3
8577112	1,12	13,8	50	3
8577115	1,15	13,8	50	3
8577120	1,2	14,4	50	3
8577127	1,27	15,6	50	3
8577128	1,28	15,6	50	3
8577129	1,29	15,6	50	3
8577130	1,3	15,6	50	3
8577140	1,4	16,8	54	3
8577145	1,45	17,4	54	3
8577146	1,46	18	54	3
8577147	1,47	18	54	3
8577150	1,5	18	54	3
8577151	1,51	18,6	54	3
8577152	1,52	18,6	54	3
8577153	1,53	18,6	54	3
8577155	1,55	18,6	54	3
8577156	1,56	19,2	54	3
8577157	1,57	19,2	54	3
8577160	1,6	19,2	54	3
8577170	1,7	20,4	58	3
8577180	1,8	21,6	58	3
8577181	1,81	22,2	58	3
8577182	1,82	22,2	58	3

EDP	DC	LCF	OAL	DCON
8577183	1,83	22,2	58	3
8577190	1,9	22,8	58	3
8577198	1,98	24	58	3
8577199	1,99	24	58	3
8577200	2	24	58	3
8577210	2,1	25,2	62	3
8577212	2,12	25,8	62	3
8577213	2,13	25,8	62	3
8577214	2,14	25,8	62	3
8577220	2,2	26,4	62	3
8577229	2,29	27,6	62	3
8577230	2,3	27,6	62	3
8577231	2,31	28,2	62	3
8577239	2,39	28,8	62	3
8577240	2,4	28,8	62	3
8577241	2,41	29,4	66	3
8577242	2,42	29,4	66	3
8577250	2,5	30	66	3
8577255	2,55	30,6	66	3
8577256	2,56	31,2	66	3
8577257	2,57	31,2	66	3
8577260	2,6	31,2	66	3
8577270	2,7	32,4	66	3
8577277	2,77	33,6	66	3
8577278	2,78	33,6	66	3
8577279	2,79	33,6	66	3
8577280	2,8	33,6	66	3
8577290	2,9	34,8	66	3
8577300	3	36	66	3

ADF-2D

Drilling | Solid carbide | Flat drills





- First choice in quality and performance
- Carbide drill with EgiAs coating
- Up to 2xD
- Flat drilling application
- 253 sizes

P ◉ C <0,2% | P ◉ 0,25<C<0,4 | P ◉ C ≥ 0,45% | P ◉ SCM | K ◉ GG | K ◉ GGG | N ○ Al | N ○ AC, ADC | H ◉ 25-35 HRC | H ○ 35-45 HRC | H ○ 45-52 HRC

A | CARBIDE | EgiAs D≥2 | IchAda D<2 | h8 D≥2 | 0~-0.009 D<2 | 20° | SHRINK FIT | B.495

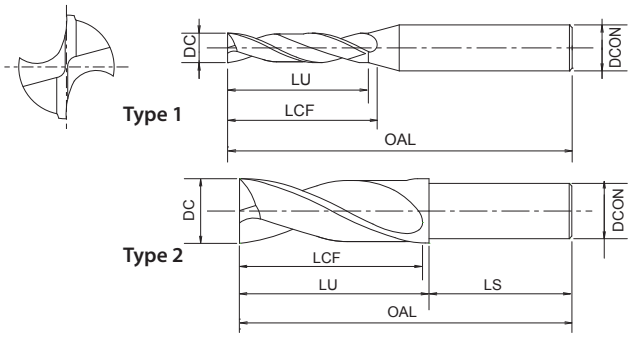
EDP	DC	LU	LCF	OAL	DCON	Type
3330020	0,2	0,4	0,7	40	3	1
3330025	0,25	0,5	0,9	40	3	1
3330030	0,3	0,6	1	40	3	1
3330035	0,35	0,7	1,2	40	3	1
48315037	0,37	0,8	1,4	40	3	1
3330040	0,4	0,8	1,3	40	3	1
3330045	0,45	0,9	1,5	40	3	1
48315046	0,46	1	1,7	40	3	1
3330050	0,5	1	1,9	40	3	1
3330055	0,55	1,1	2,1	40	3	1
3330060	0,6	1,2	2,2	40	3	1
48315062	0,62	1,3	2,3	40	3	1
3330065	0,65	1,3	2,4	40	3	1
3330070	0,7	1,4	2,6	40	3	1
3330071	0,71	1,5	2,6	40	3	1
3330072	0,72	1,5	2,6	40	3	1
3330074	0,74	1,5	2,7	40	3	1
3330075	0,75	1,5	2,8	40	3	1
3330080	0,8	1,6	2,9	40	3	1
3330081	0,81	1,7	3	40	3	1
3330085	0,85	1,7	3,1	40	3	1
48315087	0,87	1,8	3,2	40	3	1
48315088	0,88	1,8	3,2	40	3	1
3330089	0,89	1,8	3,2	40	3	1
3330090	0,9	1,8	3,3	40	3	1
3330091	0,91	1,9	3,3	40	3	1
3330092	0,92	1,9	3,3	40	3	1
3330095	0,95	1,9	3,4	40	3	1
3330100	1	2	4,3	45	3	1
48315104	1,04	2,1	4,2	45	3	1
48315105	1,05	2,1	4,2	45	3	1
3330109	1,09	2,2	4,7	45	3	1
3330110	1,1	2,2	4,7	45	3	1
3330111	1,11	2,3	4,7	45	3	1
3330112	1,12	2,3	4,8	45	3	1
48315115	1,15	2,3	4,9	45	3	1
48315116	1,16	2,4	4,6	45	3	1
3330120	1,2	2,4	5,1	45	3	1
3330125	1,25	2,5	5,3	45	3	1
3330126	1,26	2,6	5,3	45	3	1
3330127	1,27	2,6	5,4	45	3	1
3330128	1,28	2,6	5,4	45	3	1
3330129	1,29	2,6	5,5	45	3	1
3330130	1,3	2,6	5,5	45	3	1
48315132	1,32	2,7	5,3	45	3	1
48315133	1,33	2,7	5,3	45	3	1

EDP	DC	LU	LCF	OAL	DCON	Type
3330135	1,35	2,7	5,7	45	3	1
3330140	1,4	2,8	5,9	45	3	1
48315143	1,43	2,9	5,7	45	3	1
3330144	1,44	2,9	6,1	45	3	1
3330145	1,45	2,9	6,1	45	3	1
3330146	1,46	3	6,1	45	3	1
3330147	1,47	3	6,2	45	3	1
3330148	1,48	3	6,2	45	3	1
3330150	1,5	3	6,3	45	3	1
48315152	1,52	3,1	6,4	45	3	1
3330153	1,53	3,1	6,4	45	3	1
3330154	1,54	3,1	6,5	45	3	1
3330155	1,55	3,1	6,5	45	3	1
3330156	1,56	3,2	6,5	45	3	1
3330157	1,57	3,2	6,6	45	3	1
3330158	1,58	3,2	6,6	45	3	1
3330160	1,6	3,2	6,7	45	3	1
48315165	1,65	3,3	6,9	45	3	1
48315167	1,67	3,4	7	45	3	1
48315168	1,68	3,4	7	45	3	1
3330170	1,7	3,4	7,1	45	3	1
3330175	1,75	3,5	7,3	45	3	1
3330180	1,8	3,6	7,5	45	3	1
3330182	1,82	3,7	7,6	45	3	1
3330183	1,83	3,7	7,6	45	3	1
3330184	1,84	3,7	7,7	45	3	1
3330185	1,85	3,7	7,7	45	3	1
3330186	1,86	3,8	7,7	45	3	1
3330190	1,9	3,8	7,9	45	3	1
3330195	1,95	3,9	8,1	45	3	1
48315199	1,99	4	8,3	45	3	1
3330200	2	4	10,3	50	4	1
3330210	2,1	4,2	10,5	50	4	1
3330220	2,2	4,4	11	50	4	1
3330230	2,3	4,6	11	50	4	1
3330232	2,32	4,7	11	50	4	1
3330240	2,4	4,8	12	50	4	1
3330242	2,42	4,9	12	50	4	1
3330250	2,5	5	12	50	4	1
3330254	2,54	5,1	12	50	4	1
3330258	2,58	5,2	12	50	4	1
3330260	2,6	5,2	13	50	4	1
3330270	2,7	5,4	13	50	4	1
3330276	2,76	5,6	14	50	4	1
3330278	2,78	5,6	14	50	4	1
3330280	2,8	5,6	14	50	4	1

ADF-2D

Drilling | Solid carbide | Flat drills





- First choice in quality and performance
- Carbide drill with EgiAs coating
- Up to 2xD
- Flat drilling application
- 253 sizes

P ◉ C <0,2% | P ◉ 0,25<C<0,4 | P ◉ C ≥ 0,45% | P ◉ SCM | K ◉ GG | K ◉ GGG | N ○ Al | N ○ AC, ADC | H ◉ 25-35 HRC | H ○ 35-45 HRC | H ○ 45-52 HRC

A | CARBIDE | EgiAs D≥2 | IchAda D<2 | h8 D≥2 | 0~-0.009 D<2 | 20° | SHRINK FIT | B.495

EDP	DC	LU	LCF	OAL	DCON	Type
3330290	2,9	5,8	14	50	4	1
3330300	3	6	15	55	6	1
3330303	3,03	11,5	15	55	6	1
3330310	3,1	11,6	15	55	6	1
3330315	3,15	11,7	15	55	6	1
3330320	3,2	11,8	15	55	6	1
3330330	3,3	12	15	55	6	1
3330340	3,4	12,1	16	55	6	1
3330350	3,5	12,3	16	55	6	1
3330353	3,53	12,4	16	55	6	1
3330360	3,6	12,5	16	55	6	1
3330366	3,66	12,6	16	55	6	1
3330368	3,68	12,7	16	55	6	1
3330370	3,7	12,7	16	55	6	1
3330380	3,8	17,9	19	60	6	1
3330390	3,9	18,1	19	60	6	1
3330400	4	18,3	19	60	6	1
3330403	4,03	18,3	19	60	6	1
3330410	4,1	18,5	19	60	6	1
3330420	4,2	18,6	21	60	6	1
3330430	4,3	18,8	21	60	6	1
3330440	4,4	19	21	60	6	1
3330450	4,5	19,2	21	60	6	1
3330453	4,53	19,3	21	60	6	1
3330460	4,6	19,4	21	60	6	1
3330462	4,62	19,4	21	60	6	1
3330464	4,64	19,5	21	60	6	1
3330470	4,7	19,6	21	60	6	1
3330480	4,8	24	24,8	65	6	1
3330490	4,9	24	24,9	65	6	1
3330500	5	24	25,1	65	6	1
3330503	5,03	24	25,2	65	6	1
3330510	5,1	24	25,3	65	6	1
3330520	5,2	24	25,5	65	6	1
3330530	5,3	24	25,7	65	6	1
3330540	5,4	25,9	27	65	6	1
3330550	5,5	26,1	27	65	6	1
3330552	5,52	26,1	27	65	6	1
3330554	5,54	26,1	27	65	6	1
3330560	5,6	26,3	27	65	6	1
3330570	5,7	26,4	27	65	6	1
3330580	5,8	26,6	27	65	6	1
3330590	5,9	26,8	27	65	6	1
3330600	6	27	27	65	6	2
3330603	6,03	32	30	70	6	2
3330610	6,1	32	30	70	6	2

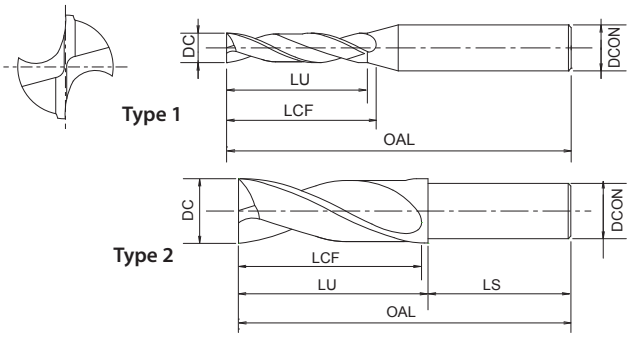
EDP	DC	LU	LCF	OAL	DCON	Type
3330620	6,2	32	30	70	6	2
3330630	6,3	32	30	70	6	2
3330640	6,4	32	30	70	6	2
3330650	6,5	32	30	70	6	2
3330653	6,53	32	30	70	6	2
3330660	6,6	32	30	70	6	2
3330670	6,7	32	30	70	6	2
3330680	6,8	32	30	70	6	2
3330690	6,9	32	30	70	6	2
3330700	7	32	30	70	6	2
3330703	7,03	36	34	75	6	2
3330710	7,1	36	34	75	6	2
3330720	7,2	36	34	75	6	2
3330730	7,3	36	34	75	6	2
3330740	7,4	36	34	75	6	2
3330750	7,5	36	34	75	6	2
3330760	7,6	36	34	75	6	2
3330770	7,7	36	34	75	6	2
3330780	7,8	36	34	75	6	2
3330790	7,9	36	34	75	6	2
3330800	8	36	34	75	8	2
3330803	8,03	40	38	80	8	2
3330810	8,1	40	38	80	8	2
3330820	8,2	40	38	80	8	2
3330830	8,3	40	38	80	8	2
3330840	8,4	40	38	80	8	2
3330850	8,5	40	38	80	8	2
3330853	8,53	40	38	80	8	2
3330860	8,6	40	38	80	8	2
3330870	8,7	40	38	80	8	2
3330880	8,8	40	38	80	8	2
3330890	8,9	40	38	80	8	2
3330900	9	40	38	80	8	2
3330903	9,03	44	42	85	8	2
3330910	9,1	44	42	85	8	2
3330920	9,2	44	42	85	8	2
3330930	9,3	44	42	85	8	2
3330940	9,4	44	42	85	8	2
3330950	9,5	44	42	85	8	2
3330960	9,6	44	42	85	8	2
3330970	9,7	44	42	85	8	2
3330980	9,8	44	42	85	8	2
3330990	9,9	44	42	85	8	2
3331000	10	44	42	85	10	2
3331003	10,03	48	46	90	10	2
3331010	10,1	48	46	90	10	2

ADF-2D

Drilling | Solid carbide | Flat drills

INDEX





- First choice in quality and performance
- Carbide drill with EgiAs coating
- Up to 2xD
- Flat drilling application
- 253 sizes

P	P	P	P	K	K	N	N	H	H	H
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	GG	GGG	Al	AC, ADC	25-35 HRC	35-45 HRC	45-52 HRC

A	CARBIDE	EgiAs	IchAda	h8	0~-0.009	20°	SHRINK FIT
		D≥2	D<2	D≥2	D<2		

B.495

EDP	DC	LU	LCF	OAL	DCON	Type
3331020	10,2	48	46	90	10	2
3331030	10,3	48	46	90	10	2
3331040	10,4	48	46	90	10	2
3331050	10,5	48	46	90	10	2
3331060	10,6	48	46	90	10	2
3331070	10,7	48	46	90	10	2
3331080	10,8	48	46	90	10	2
3331090	10,9	48	46	90	10	2
3331100	11	48	46	90	10	2
3331103	11,03	52	50	95	10	2
3331110	11,1	52	50	95	10	2
3331120	11,2	52	50	95	10	2
3331130	11,3	52	50	95	10	2
3331140	11,4	52	50	95	10	2
3331150	11,5	52	50	95	10	2
3331160	11,6	52	50	95	10	2
3331170	11,7	52	50	95	10	2
3331180	11,8	52	50	95	10	2
3331190	11,9	52	50	95	10	2
3331200	12	52	50	95	12	2
3331203	12,03	58	56	100	12	2
3331210	12,1	58	56	100	12	2
3331220	12,2	58	56	100	12	2
3331230	12,3	58	56	100	12	2
3331240	12,4	58	56	100	12	2
3331250	12,5	58	56	100	12	2
3331260	12,6	58	56	100	12	2
3331270	12,7	58	56	100	12	2
3331280	12,8	58	56	100	12	2
3331290	12,9	58	56	100	12	2
3331300	13	58	56	100	12	2
3331310	13,1	62	60	105	12	2
3331320	13,2	62	60	105	12	2
3331330	13,3	62	60	105	12	2
3331340	13,4	62	60	105	12	2
3331350	13,5	62	60	105	12	2
3331360	13,6	62	60	105	12	2
3331370	13,7	62	60	105	12	2
3331380	13,8	62	60	105	12	2
3331390	13,9	62	60	105	12	2
3331400	14	62	60	105	12	2
3331410	14,1	66	64	110	12	2
3331420	14,2	66	64	110	12	2
3331430	14,3	66	64	110	12	2
3331440	14,4	66	64	110	12	2
3331450	14,5	66	64	110	12	2

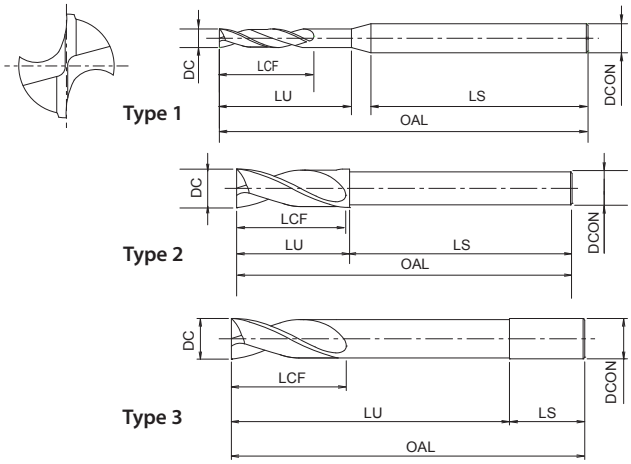
EDP	DC	LU	LCF	OAL	DCON	Type
3331460	14,6	66	64	110	12	2
3331470	14,7	66	64	110	12	2
3331480	14,8	66	64	110	12	2
3331490	14,9	66	64	110	12	2
3331500	15	66	64	110	12	2
3331510	15,1	70	68	115	12	2
3331520	15,2	70	68	115	12	2
3331530	15,3	70	68	115	12	2
3331540	15,4	70	68	115	12	2
3331550	15,5	70	68	115	12	2
3331560	15,6	70	68	115	12	2
3331570	15,7	70	68	115	12	2
3331580	15,8	70	68	115	12	2
3331590	15,9	70	68	115	12	2
3331600	16	70	68	115	16	2
3331650	16,5	76	74	125	16	2
3331700	17	76	74	125	16	2
3331750	17,5	80	78	130	16	2
3331800	18	80	78	130	16	2
3331850	18,5	86	84	135	16	2
3331900	19	86	84	135	16	2
3331950	19,5	90	88	140	16	2
3332000	20	90	88	140	20	2

ADFLS-2D

Drilling | Solid carbide | Flat drills

INDEX





- First choice in quality and performance
- Carbide drill with EgiAs coating
- Up to 2xD
- For deep reach flat drilling application
- 78 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | K GG | K GGG | N Al | H 25-35 HRC | H 35-45 HRC

A | CARBIDE | EgiAs | 20° | h8 | SHRINK FIT

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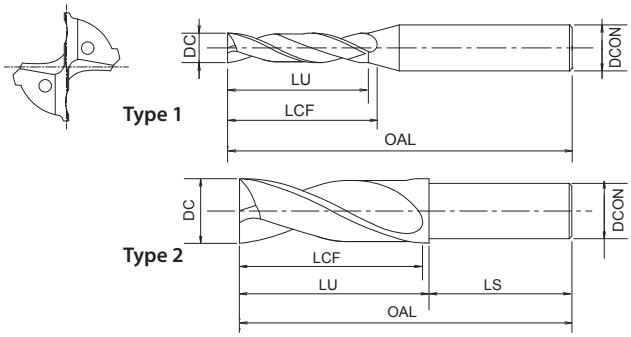
EDP	DC	LU	LCF	OAL	DCON	LS	Type
3332300	3	6	15	100	6	64,4	1
3332310	3,1	31	15	100	6	63,6	1
3332320	3,2	32	15	100	6	62,8	1
3332330	3,3	33	15	100	6	62	1
3332340	3,4	34	16	100	6	61,1	1
3332350	3,5	35	16	100	6	60,3	1
3332360	3,6	36	16	100	6	59,5	1
3332370	3,7	37	16	100	6	58,7	1
3332380	3,8	38	19	100	6	57,9	1
3332390	3,9	39	19	100	6	57,1	1
3332400	4	40	19	100	6	56,3	1
3332410	4,1	41	19	100	6	55,5	1
3332420	4,2	42	21	100	6	54,6	1
3332430	4,3	43	21	100	6	53,8	1
3332440	4,4	44	21	100	6	53	1
3332450	4,5	45	21	100	6	52,2	1
3332460	4,6	46	21	100	6	51,4	1
3332470	4,7	47	21	100	6	50,6	1
3332480	4,8	48	24	100	6	49,8	1
3332490	4,9	49	24	100	6	48,9	1
3332500	5	50	24	110	6	58,1	1
3332510	5,1	51	24	110	6	57,3	1
3332520	5,2	52	24	110	6	56,5	1
3332530	5,3	53	24	110	6	55,7	1
3332540	5,4	54	27	110	6	54,9	1
3332550	5,5	55	27	110	6	54,1	1
3332560	5,6	56	27	110	6	53,3	1
3332570	5,7	57	27	110	6	52,4	1
3332580	5,8	58	27	110	6	51,6	1
3332590	5,9	59	27	110	6	50,8	1
3332600	6	29	27	110	6	81	2
3334060	6	60	27	110	6	50	3
3332650	6,5	32	30	120	6	88	2
3332680	6,8	32	30	120	6	88	2
3332690	6,9	32	30	120	6	88	2
3332700	7	32	30	120	6	88	2
3332740	7,4	36	34	130	6	94	2
3332750	7,5	36	34	130	6	94	2
3332780	7,8	36	34	130	6	94	2
3332800	8	36	34	130	8	94	2
3334080	8	80	34	130	8	50	3
3332850	8,5	40	38	140	8	100	2
3332860	8,6	40	38	140	8	100	2
3332880	8,8	40	38	140	8	100	2
3332900	9	40	38	140	8	100	2
3332920	9,2	44	42	150	8	106	2

EDP	DC	LU	LCF	OAL	DCON	LS	Type
3332950	9,5	44	42	150	8	106	2
3332980	9,8	44	42	150	8	106	2
3333000	10	44	42	150	10	106	2
3334100	10	100	42	150	10	50	3
3333030	10,3	48	46	160	10	112	2
3333040	10,4	48	46	160	10	112	2
3333050	10,5	48	46	160	10	112	2
3333080	10,8	48	46	160	10	112	2
3333100	11	48	46	160	10	112	2
3333110	11,1	52	50	170	10	118	2
3333150	11,5	52	50	170	10	118	2
3333180	11,8	52	50	170	10	118	2
3333200	12	52	50	170	12	118	2
3334120	12	120	50	170	12	50	3
3333250	12,5	58	56	180	12	122	2
3333300	13	58	56	180	12	122	2
3333350	13,5	62	60	190	12	128	2
3333400	14	62	60	190	12	128	2
3333450	14,5	66	64	200	12	134	2
3333500	15	66	64	200	12	134	2
3333550	15,5	70	68	210	12	140	2
3333600	16	70	68	210	16	140	2
3334160	16	160	68	210	16	50	3
3333650	16,5	76	74	220	16	144	2
3333700	17	76	74	220	16	144	2
3333750	17,5	80	78	230	16	150	2
3333800	18	80	78	230	16	150	2
3333850	18,5	86	84	240	16	154	2
3333900	19	86	84	240	16	154	2
3333950	19,5	90	88	250	16	160	2
3334000	20	90	88	250	20	160	2
3334200	20	200	88	250	20	50	3

ADFO-3D

Drilling | Solid carbide | Flat drills





- First choice in quality and performance
- Carbide drill with internal coolant, EgiAs coating
- Up to 3xD
- Flat drilling application
- 160 sizes

P ◉	P ◉	P ◉	P ◉	M ◉	K ◉	K ◉	N ○	N ○	H ◉	H ○	H ○
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	INOX	GG	GGG	AI	AC, ADC	25-35 HRC	35-45 HRC	45-52 HRC

A | CARBIDE | EgiAs | 20° | SHRINK FIT | | h8

B.497

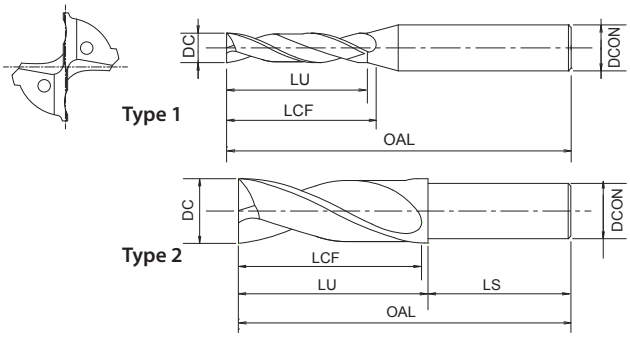
EDP	DC	LU	LCF	OAL	DCON	Type
3334300	3	9	16	55	4	1
3334301	3,03	15	16	55	4	1
3334302	3,1	15	16	55	4	1
3334303	3,15	15	16	55	4	1
3334304	3,2	15	16	55	4	1
3334305	3,3	15	16	55	4	1
3334306	3,4	16	17	55	4	1
3334307	3,5	16	17	55	4	1
3334308	3,53	16	17	55	4	1
3334309	3,6	16	17	55	4	1
3334310	3,66	16	17	55	4	1
3334311	3,68	16	17	55	4	1
3334312	3,7	16	17	55	4	1
3334313	3,8	19	20	60	4	1
3334314	3,9	19	20	60	4	1
3334315	4	19	20	60	4	2
3334316	4,03	21	22	60	6	1
3334317	4,1	21	22	60	6	1
3334318	4,2	21	22	60	6	1
3334319	4,3	21	22	60	6	1
3334320	4,4	21	22	60	6	1
3334321	4,5	21	22	60	6	1
3334322	4,53	21	21	60	6	1
3334323	4,6	21	21	60	6	1
3334324	4,62	21	21	60	6	1
3334325	4,64	21	21	60	6	1
3334326	4,7	21	21	60	6	1
3334327	4,8	24	24	65	6	1
3334328	4,9	24	24	65	6	1
3334329	5	24	24	65	6	1
3334330	5,03	24	24	65	6	1
3334331	5,1	24	24	65	6	1
3334332	5,2	24	24	65	6	1
3334333	5,3	24	24	65	6	1
3334334	5,4	27	27	65	6	1
3334335	5,5	27	27	65	6	1
3334336	5,52	27	27	65	6	1
3334337	5,54	27	27	65	6	1
3334338	5,6	27	27	65	6	1
3334339	5,7	27	27	65	6	1
3334340	5,8	27	27	65	6	1
3334341	5,9	27	27	65	6	1
3334342	6	27	27	65	6	2
3334343	6,03	30	30	70	8	1
3334344	6,1	30	30	70	8	1
3334345	6,2	30	31	70	8	1

EDP	DC	LU	LCF	OAL	DCON	Type
3334346	6,3	30	31	70	8	1
3334347	6,4	30	31	70	8	1
3334348	6,5	30	31	70	8	1
3334349	6,53	30	31	70	8	1
3334350	6,6	30	31	70	8	1
3334351	6,7	30	31	70	8	1
3334352	6,8	30	31	70	8	1
3334353	6,9	30	31	70	8	1
3334354	7	30	31	70	8	1
3334355	7,03	30	31	70	8	1
3334356	7,1	34	35	75	8	1
3334357	7,2	34	35	75	8	1
3334358	7,3	34	35	75	8	1
3334359	7,4	34	35	75	8	1
3334360	7,5	34	35	75	8	1
3334361	7,6	34	35	75	8	1
3334362	7,7	34	35	75	8	1
3334363	7,8	34	35	75	8	1
3334364	7,9	34	35	75	8	1
3334365	8	34	35	75	8	2
3334366	8,03	38	39	80	10	1
3334367	8,1	38	39	80	10	1
3334368	8,2	38	39	80	10	1
3334369	8,3	38	39	80	10	1
3334370	8,4	38	39	80	10	1
3334371	8,5	38	39	80	10	1
3334372	8,53	38	39	80	10	1
3334373	8,6	38	39	80	10	1
3334374	8,7	38	39	80	10	1
3334375	8,8	38	39	80	10	1
3334376	8,9	38	39	80	10	1
3334377	9	38	39	80	10	1
3334378	9,03	38	39	80	10	1
3334379	9,1	42	43	85	10	1
3334380	9,2	42	43	85	10	1
3334381	9,3	42	43	85	10	1
3334382	9,4	42	43	85	10	1
3334383	9,5	42	43	85	10	1
3334384	9,6	42	43	85	10	1
3334385	9,7	42	43	85	10	1
3334386	9,8	42	43	85	10	1
3334387	9,9	42	43	85	10	1
3334388	10	42	43	85	10	2
3334389	10,03	46	47	90	12	1
3334390	10,1	46	47	90	12	1
3334391	10,2	46	47	90	12	1

ADFO-3D

Drilling | Solid carbide | Flat drills





- First choice in quality and performance
- Carbide drill with internal coolant, EgiAs coating
- Up to 3xD
- Flat drilling application
- 160 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | K GGG | N Al | N AC, ADC | H 25-35 HRC | H 35-45 HRC | H 45-52 HRC

A | CARBIDE | EgiAs | 20° | SHRINK FIT | h8

B.497

EDP	DC	LU	LCF	OAL	DCON	Type
3334392	10,3	46	47	90	12	1
3334393	10,4	46	47	90	12	1
3334394	10,5	46	47	90	12	1
3334395	10,6	46	47	90	12	1
3334396	10,7	46	47	90	12	1
3334397	10,8	46	47	90	12	1
3334398	10,9	46	47	90	12	1
3334399	11	46	47	90	12	1
3334400	11,03	46	47	90	12	1
3334401	11,1	50	51	95	12	1
3334402	11,2	50	51	95	12	1
3334403	11,3	50	51	95	12	1
3334404	11,4	50	51	95	12	1
3334405	11,5	50	51	95	12	1
3334406	11,6	50	51	95	12	1
3334407	11,7	50	51	95	12	1
3334408	11,8	50	51	95	12	1
3334409	11,9	50	51	95	12	1
3334410	12	50	51	95	12	2
3334411	12,03	56	57	100	14	1
3334412	12,1	56	57	100	14	1
3334413	12,2	56	57	100	14	1
3334414	12,3	56	57	100	14	1
3334415	12,4	56	57	100	14	1
3334416	12,5	56	57	100	14	1
3334417	12,6	56	57	100	14	1
3334418	12,7	56	57	100	14	1
3334419	12,8	56	57	100	14	1
3334420	12,9	56	57	100	14	1
3334421	13	56	57	100	14	1
3334422	13,1	60	61	105	14	1
3334423	13,2	60	61	105	14	1
3334424	13,3	60	61	105	14	1
3334425	13,4	60	61	105	14	1
3334426	13,5	60	61	105	14	1
3334427	13,6	60	61	105	14	1
3334428	13,7	60	61	105	14	1
3334429	13,8	60	61	105	14	1
3334430	13,9	60	61	105	14	1
3334431	14	60	61	105	14	2
3334432	14,1	64	65	110	16	1
3334433	14,2	64	65	110	16	1
3334434	14,3	64	65	110	16	1
3334435	14,4	64	65	110	16	1
3334436	14,5	64	65	110	16	1
3334437	14,6	65	65	110	16	1

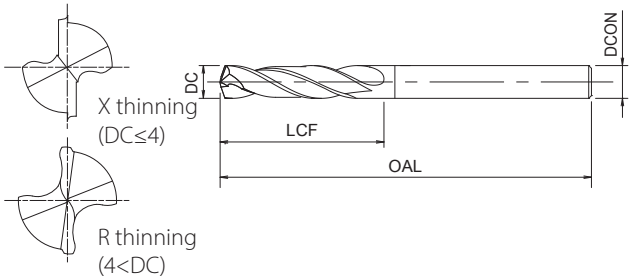
EDP	DC	LU	LCF	OAL	DCON	Type
3334438	14,7	65	65	110	16	1
3334439	14,8	65	65	110	16	1
3334440	14,9	65	65	110	16	1
3334441	15	65	65	110	16	1
3334442	15,1	69	69	115	16	1
3334443	15,2	69	69	115	16	1
3334444	15,3	69	69	115	16	1
3334445	15,4	69	69	115	16	1
3334446	15,5	69	69	115	16	1
3334447	15,6	69	69	115	16	1
3334448	15,7	69	69	115	16	1
3334449	15,8	69	69	115	16	1
3334450	15,9	69	69	115	16	1
3334451	16	69	69	115	16	2
3334452	16,5	75	75	125	18	1
3334453	17	75	75	125	18	1
3334454	17,5	79	79	130	18	1
3334455	18	79	79	130	18	2
3334456	18,5	85	85	135	20	1
3334457	19	85	85	135	20	1
3334458	19,5	88	89	140	20	1
3334459	20	88	89	140	20	2

AD-2D

Drilling | Solid carbide | 2xD

INDEX





- First choice in quality and performance
- Carbide drill with EgiAs coating
- Up to 2xD
- For general purpose steels and cast iron
- 160 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | K GG | K GGG | N Al | N AC, ADC | H 25-35 HRC | H 35-45 HRC | H 45-52 HRC

A | CARBIDE | EgiAs | 30° | SHRINK FIT | 140° | h8

B.497

EDP	DC	LCF	OAL	DCON
8670200	2	14	62	4
8670210	2,1	14	62	4
8670220	2,2	14	62	4
8670230	2,3	14	62	4
8670240	2,4	14	62	4
8670250	2,5	14	62	4
8670260	2,6	14	62	4
8670270	2,7	14	62	4
8670276	2,76	14	62	4
8670278	2,78	14	62	4
8670280	2,8	14	62	4
8670290	2,9	14	62	4
8670300	3	20	66	4
8670310	3,1	20	66	4
8670320	3,2	20	66	4
8670330	3,3	20	66	4
8670340	3,4	20	66	4
8670350	3,5	20	66	4
8670360	3,6	20	66	4
8670366	3,66	20	66	4
8670368	3,68	20	66	4
8670370	3,7	20	66	4
8670380	3,8	24	66	4
8670390	3,9	24	66	4
8670400	4	24	66	4
8670410	4,1	24	66	6
8670420	4,2	24	66	6
8670430	4,3	24	66	6
8670440	4,4	24	66	6
8670450	4,5	24	66	6
8670460	4,6	24	66	6
8670462	4,62	24	66	6
8670464	4,64	24	66	6
8670470	4,7	24	66	6
8670480	4,8	28	66	6
8670490	4,9	28	66	6
8670500	5	28	66	6
8670510	5,1	28	66	6
8670520	5,2	28	66	6
8670530	5,3	28	66	6
8670540	5,4	28	66	6
8670550	5,5	28	66	6
8670552	5,52	28	66	6
8670554	5,54	28	66	6
8670560	5,6	28	66	6
8670570	5,7	28	66	6

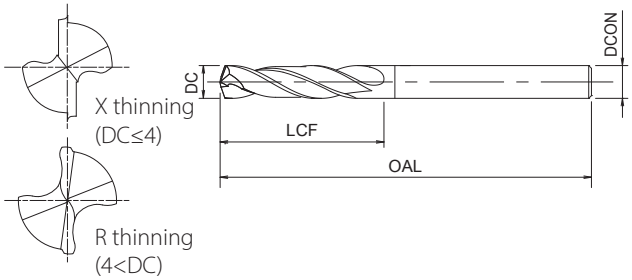
EDP	DC	LCF	OAL	DCON
8670580	5,8	28	66	6
8670590	5,9	28	66	6
8670600	6	28	66	6
8670610	6,1	34	79	8
8670620	6,2	34	79	8
8670630	6,3	34	79	8
8670640	6,4	34	79	8
8670650	6,5	34	79	8
8670660	6,6	34	79	8
8670670	6,7	34	79	8
8670680	6,8	34	79	8
8670690	6,9	34	79	8
8670700	7	34	79	8
8670710	7,1	41	79	8
8670720	7,2	41	79	8
8670730	7,3	41	79	8
8670736	7,36	41	79	8
8670738	7,38	41	79	8
8670740	7,4	41	79	8
8670750	7,5	41	79	8
8670754	7,54	41	79	8
8670760	7,6	41	79	8
8670770	7,7	41	79	8
8670780	7,8	41	79	8
8670790	7,9	41	79	8
8670800	8	41	79	8
8670810	8,1	47	89	10
8670820	8,2	47	89	10
8670830	8,3	47	89	10
8670840	8,4	47	89	10
8670850	8,5	47	89	10
8670860	8,6	47	89	10
8670870	8,7	47	89	10
8670880	8,8	47	89	10
8670890	8,9	47	89	10
8670900	9	47	89	10
8670910	9,1	47	89	10
8670920	9,2	47	89	10
8670930	9,3	47	89	10
8670940	9,4	47	89	10
8670950	9,5	47	89	10
8670960	9,6	47	89	10
8670970	9,7	47	89	10
8670980	9,8	47	89	10
8670990	9,9	47	89	10
8671000	10	47	89	10

AD-2D

Drilling | Solid carbide | 2xD

INDEX





- First choice in quality and performance
- Carbide drill with EgiAs coating
- Up to 2xD
- For general purpose steels and cast iron
- 160 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | K GG | K GGG | N Al | N AC, ADC | H 25-35 HRC | H 35-45 HRC | H 45-52 HRC

A | CARBIDE | EgiAs | 30° | SHRINK FIT | 140° | h8

B.497

EDP	DC	LCF	OAL	DCON
8671010	10,1	55	102	12
8671020	10,2	55	102	12
8671030	10,3	55	102	12
8671040	10,4	55	102	12
8671050	10,5	55	102	12
8671060	10,6	55	102	12
8671070	10,7	55	102	12
8671080	10,8	55	102	12
8671090	10,9	55	102	12
8671100	11	55	102	12
8671110	11,1	55	102	12
8671120	11,2	55	102	12
8671130	11,3	55	102	12
8671140	11,4	55	102	12
8671150	11,5	55	102	12
8671160	11,6	55	102	12
8671170	11,7	55	102	12
8671180	11,8	55	102	12
8671190	11,9	55	102	12
8671200	12	55	102	12
8671210	12,1	60	107	14
8671220	12,2	60	107	14
8671230	12,3	60	107	14
8671240	12,4	60	107	14
8671250	12,5	60	107	14
8671260	12,6	60	107	14
8671270	12,7	60	107	14
8671280	12,8	60	107	14
8671290	12,9	60	107	14
8671300	13	60	107	14
8671310	13,1	60	107	14
8671320	13,2	60	107	14
8671330	13,3	60	107	14
8671340	13,4	60	107	14
8671350	13,5	60	107	14
8671360	13,6	60	107	14
8671370	13,7	60	107	14
8671380	13,8	60	107	14
8671390	13,9	60	107	14
8671400	14	60	107	14
8671410	14,1	65	115	16
8671420	14,2	65	115	16
8671430	14,3	65	115	16
8671440	14,4	65	115	16
8671450	14,5	65	115	16
8671460	14,6	65	115	16

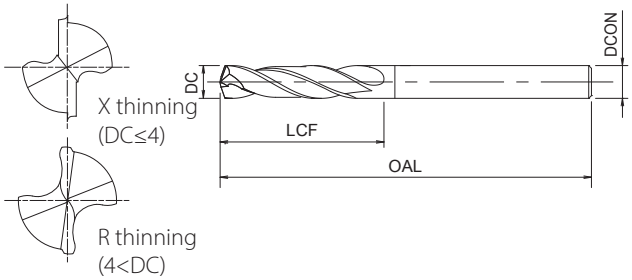
EDP	DC	LCF	OAL	DCON
8671470	14,7	65	115	16
8671480	14,8	65	115	16
8671490	14,9	65	115	16
8671500	15	65	115	16
8671510	15,1	65	115	16
8671520	15,2	65	115	16
8671530	15,3	65	115	16
8671540	15,4	65	115	16
8671550	15,5	65	115	16
8671560	15,6	65	115	16
8671570	15,7	65	115	16
8671580	15,8	65	115	16
8671590	15,9	65	115	16
8671600	16	65	115	16
8671650	16,5	73	123	18
8671700	17	73	123	18
8671750	17,5	73	123	18
8671800	18	73	123	18
8671850	18,5	79	131	20
8671900	19	79	131	20
8671950	19,5	79	131	20
8672000	20	79	131	20

AD-4D

Drilling | Solid carbide | 4xD

INDEX





- First choice in quality and performance
- Carbide drill with EgiAs coating
- Up to 4xD
- For general purpose steels and cast iron
- 149 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | K GG | K GGG | N Al | N AC, ADC | H 25-35 HRC | H 35-45 HRC

A | CARBIDE | EgiAs | 30° | SHRINK FIT | 140° | h8

B.497

EDP	DC	LCF	OAL	DCON
8672200	2	20	66	4
8672210	2,1	20	66	4
8672220	2,2	20	66	4
8672230	2,3	20	66	4
8672240	2,4	20	66	4
8672250	2,5	20	66	4
8672260	2,6	20	66	4
8672270	2,7	20	66	4
8672280	2,8	20	66	4
8672290	2,9	20	66	4
8672300	3	28	74	4
8672310	3,1	28	74	4
8672320	3,2	28	74	4
8672330	3,3	28	74	4
8672340	3,4	28	74	4
8672350	3,5	28	74	4
8672360	3,6	28	74	4
8672370	3,7	28	74	4
8672380	3,8	36	74	4
8672390	3,9	36	74	4
8672400	4	36	74	4
8672410	4,1	36	74	6
8672420	4,2	36	74	6
8672430	4,3	36	74	6
8672440	4,4	36	74	6
8672450	4,5	36	74	6
8672460	4,6	36	74	6
8672470	4,7	36	74	6
8672480	4,8	44	82	6
8672490	4,9	44	82	6
8672500	5	44	82	6
8672510	5,1	44	82	6
8672520	5,2	44	82	6
8672530	5,3	44	82	6
8672540	5,4	44	82	6
8672550	5,5	44	82	6
8672560	5,6	44	82	6
8672570	5,7	44	82	6
8672580	5,8	44	82	6
8672590	5,9	44	82	6
8672600	6	44	82	6
8672610	6,1	53	91	8
8672620	6,2	53	91	8
8672630	6,3	53	91	8
8672640	6,4	53	91	8
8672650	6,5	53	91	8

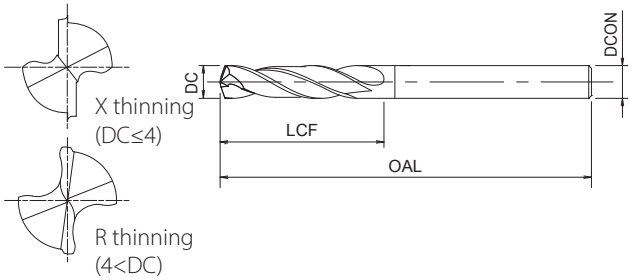
EDP	DC	LCF	OAL	DCON
8672660	6,6	53	91	8
8672670	6,7	53	91	8
8672680	6,8	53	91	8
8672690	6,9	53	91	8
8672700	7	53	91	8
8672710	7,1	53	91	8
8672720	7,2	53	91	8
8672730	7,3	53	91	8
8672740	7,4	53	91	8
8672750	7,5	53	91	8
8672760	7,6	53	91	8
8672770	7,7	53	91	8
8672780	7,8	53	91	8
8672790	7,9	53	91	8
8672800	8	53	91	8
8672810	8,1	61	103	10
8672820	8,2	61	103	10
8672830	8,3	61	103	10
8672840	8,4	61	103	10
8672850	8,5	61	103	10
8672860	8,6	61	103	10
8672870	8,7	61	103	10
8672880	8,8	61	103	10
8672890	8,9	61	103	10
8672900	9	61	103	10
8672910	9,1	61	103	10
8672920	9,2	61	103	10
8672930	9,3	61	103	10
8672940	9,4	61	103	10
8672950	9,5	61	103	10
8672960	9,6	61	103	10
8672970	9,7	61	103	10
8672980	9,8	61	103	10
8673010	10,1	71	118	12
8673020	10,2	71	118	12
8673030	10,3	71	118	12
8673040	10,4	71	118	12
8673050	10,5	71	118	12
8673060	10,6	71	118	12
8673070	10,7	71	118	12
8673080	10,8	71	118	12
8673090	10,9	71	118	12

AD-4D

Drilling | Solid carbide | 4xD

INDEX





- First choice in quality and performance
- Carbide drill with EgiAs coating
- Up to 4xD
- For general purpose steels and cast iron
- 149 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | K GG | K GGG | N Al | N AC, ADC | H 25-35 HRC | H 35-45 HRC

A | CARBIDE | EgiAs | 30° | SHRINK FIT | 140° | h8

B.497

EDP	DC	LCF	OAL	DCON
8673100	11	71	118	12
8673110	11,1	71	118	12
8673120	11,2	71	118	12
8673130	11,3	71	118	12
8673140	11,4	71	118	12
8673150	11,5	71	118	12
8673160	11,6	71	118	12
8673170	11,7	71	118	12
8673180	11,8	71	118	12
8673190	11,9	71	118	12
8673200	12	71	118	12
8673210	12,1	77	124	14
8673220	12,2	77	124	14
8673230	12,3	77	124	14
8673240	12,4	77	124	14
8673250	12,5	77	124	14
8673260	12,6	77	124	14
8673270	12,7	77	124	14
8673280	12,8	77	124	14
8673290	12,9	77	124	14
8673300	13	77	124	14
8673310	13,1	77	124	14
8673320	13,2	77	124	14
8673330	13,3	77	124	14
8673340	13,4	77	124	14
8673350	13,5	77	124	14
8673360	13,6	77	124	14
8673370	13,7	77	124	14
8673380	13,8	77	124	14
8673390	13,9	77	124	14
8673400	14	77	124	14
8673410	14,1	83	133	16
8673420	14,2	83	133	16
8673430	14,3	83	133	16
8673440	14,4	83	133	16
8673450	14,5	83	133	16
8673460	14,6	83	133	16
8673470	14,7	83	133	16
8673480	14,8	83	133	16
8673490	14,9	83	133	16
8673500	15	83	133	16
8673510	15,1	83	133	16
8673520	15,2	83	133	16
8673530	15,3	83	133	16
8673540	15,4	83	133	16
8673550	15,5	83	133	16

EDP	DC	LCF	OAL	DCON
8673560	15,6	83	133	16
8673570	15,7	83	133	16
8673580	15,8	83	133	16
8673590	15,9	83	133	16
8673600	16	83	133	16
8673650	16,5	93	143	18
8673700	17	93	143	18
8673750	17,5	93	143	18
8673800	18	93	143	18
8673850	18,5	101	153	20
8673900	19	101	153	20
8673950	19,5	101	153	20
8674000	20	101	153	20

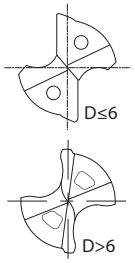
ADO-SUS-3D

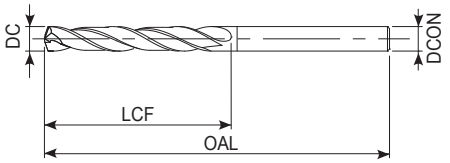
Drilling | Solid carbide | 3xD

INDEX

NEW SIZES







- First choice in quality and performance
- Carbide drill with internal coolant, WXL coating
- Up to 3xD
- Designed for stainless steel and titanium alloys
- 185 sizes





B.498

EDP	DC	LCF	OAL	DCON
8665200	2	12	66	3
8665210	2,1	13	66	3
8665220	2,2	14	66	3
8665230	2,3	14	66	3
8665240	2,4	15	66	3
8665250	2,5	15	66	3
8665260	2,6	16	66	3
8665270	2,7	17	66	3
8665280	2,8	17	66	3
8665283	2,83	17	66	3
8665287	2,87	18	66	3
8665290	2,9	18	66	3
8665300	3	18	66	3
8665310	3,1	19	74	4
8665315	3,15	19	74	4
8665320	3,2	20	74	4
8665326	3,26	20	74	4
8665330	3,3	20	74	4
8665340	3,4	21	74	4
8665350	3,5	21	74	4
8665360	3,6	22	74	4
8665370	3,7	23	74	4
8665373	3,73	23	74	4
8665375	3,75	23	74	4
8665380	3,8	23	74	4
8665390	3,9	24	74	4
8665400	4	24	74	4
8680410	4,1	25	80	6
8680420	4,2	26	80	6
8680430	4,3	26	80	6
8680440	4,4	27	80	6
8680445	4,45	27	80	6
8680450	4,5	27	80	6
8680460	4,6	28	80	6
8680465	4,65	28	80	6
8680470	4,7	29	80	6
8680480	4,8	29	80	6
8665485	4,85	29	80	6
8680490	4,9	30	80	6
8680500	5	25	80	6
8665510	5,1	26	82	6
8665520	5,2	26	82	6
8665525	5,25	27	82	6
8665530	5,3	27	82	6
8665540	5,4	27	82	6
8665550	5,5	28	82	6

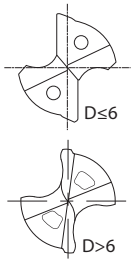
EDP	DC	LCF	OAL	DCON
8680555	5,55	28	82	6
8665560	5,6	28	82	6
8665570	5,7	29	82	6
8665580	5,8	29	82	6
8665590	5,9	30	82	6
8665600	6	30	82	6
8680610	6,1	31	88	8
8680620	6,2	31	88	8
8680630	6,3	32	88	8
8680640	6,4	32	88	8
8680650	6,5	33	88	8
8680660	6,6	33	88	8
8680670	6,7	34	88	8
8680680	6,8	34	88	8
8680690	6,9	35	88	8
8680700	7	35	88	8
8665710	7,1	36	94	8
8665720	7,2	36	94	8
8665725	7,25	37	94	8
8665730	7,3	37	94	8
8665740	7,4	37	94	8
8680745	7,45	38	94	8
8665750	7,5	38	94	8
8680755	7,55	38	94	8
8665760	7,6	38	94	8
8665770	7,7	39	94	8
8665775	7,75	39	94	8
8665780	7,8	39	94	8
8665790	7,9	40	94	8
8665800	8	40	94	8
8680810	8,1	41	101	10
8680820	8,2	41	101	10
8680830	8,3	42	101	10
8680840	8,4	42	101	10
8680850	8,5	43	101	10
8680860	8,6	43	101	10
8680870	8,7	44	101	10
8680880	8,8	44	101	10
8680890	8,9	45	101	10
8680900	9	45	101	10
8665910	9,1	46	106	10
8665920	9,2	46	106	10
8665925	9,25	47	106	10
8665930	9,3	47	106	10
8665940	9,4	47	106	10
8665950	9,5	48	106	10

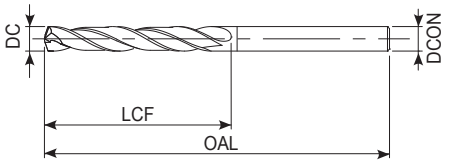
ADO-SUS-3D

Drilling | Solid carbide | 3xD

NEW SIZES







- First choice in quality and performance
- Carbide drill with internal coolant, WXL coating
- Up to 3xD
- Designed for stainless steel and titanium alloys
- 185 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | K GGG | N Al | N AC, ADC | S Ti | H 25-35 HRC | H 35-45 HRC | H 45-52 HRC

A | CARBIDE | WXL | 30° | SHRINK FIT | 140° | h8

B.498

EDP	DC	LCF	OAL	DCON
8680955	9,55	48	106	10
8665960	9,6	48	106	10
8665970	9,7	49	106	10
8665975	9,75	49	106	10
8665980	9,8	49	106	10
8665990	9,9	50	106	10
8666000	10	50	106	10
8681010	10,1	51	113	12
8681020	10,2	51	113	12
8681030	10,3	52	113	12
8681040	10,4	52	113	12
8681050	10,5	53	113	12
8681060	10,6	53	113	12
8681070	10,7	54	113	12
8681080	10,8	54	113	12
8681090	10,9	55	113	12
8681100	11	55	113	12
8666110	11,1	56	120	12
8666120	11,2	56	120	12
8666130	11,3	57	120	12
48350135 NEW	11,35	57	120	12
8666140	11,4	57	120	12
8666150	11,5	58	120	12
8666160	11,6	58	120	12
8666170	11,7	59	120	12
8666180	11,8	59	120	12
8666190	11,9	60	120	12
8666200	12	60	120	12
8681210	12,1	61	128	14
8681220	12,2	61	128	14
8681230	12,3	62	128	14
8681240	12,4	62	128	14
8681250	12,5	63	128	14
8681260	12,6	63	128	14
8681270	12,7	64	128	14
8681280	12,8	64	128	14
8681290	12,9	65	128	14
8681300	13	65	128	14
8666310	13,1	66	134	14
8666320	13,2	67	134	14
8666330	13,3	68	134	14
48350335 NEW	13,35	67	134	14
8666340	13,4	67	134	14
8681343	13,43	68	134	14
8666350	13,5	68	134	14
8681355	13,55	68	134	14

EDP	DC	LCF	OAL	DCON
8666360	13,6	68	134	14
8666370	13,7	69	134	14
8666380	13,8	69	134	14
8666390	13,9	70	134	14
8666400	14	70	134	14
8681410	14,1	71	140	16
8681420	14,2	71	140	16
8681430	14,3	72	140	16
8681440	14,4	72	140	16
8681450	14,5	73	140	16
8681460	14,6	73	140	16
8681470	14,7	74	140	16
8681480	14,8	74	140	16
8681490	14,9	75	140	16
8681500	15	75	140	16
8666510	15,1	76	145	16
8666520	15,2	76	145	16
8666530	15,3	77	145	16
48350535 NEW	15,35	77	145	16
8666540	15,4	77	145	16
8666550	15,5	78	145	16
8681555	15,55	78	145	16
8666560	15,6	78	145	16
8666570	15,7	79	145	16
8666580	15,8	79	145	16
8666590	15,9	80	145	16
8666600	16	80	145	16
48350161	16,1	80	145	18
8681650	16,5	83	150	18
8681670	16,7	84	150	18
8681700	17	85	150	18
8681730	17,3	87	155	18
48350735 NEW	17,35	87	155	18
8666750	17,5	88	155	18
8681755	17,55	88	155	18
48350178 NEW	17,8	90	155	18
8666800	18	90	155	18
48350181	18,1	90	155	20
8681850	18,5	93	160	20
8681870	18,7	94	160	20
48350188 NEW	18,8	94	160	20
8681900	19	95	160	20
8681930	19,3	97	165	20
48350935 NEW	19,35	97	165	20
8666950	19,5	98	165	20
8681955	19,55	98	165	20

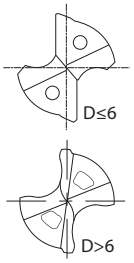
ADO-SUS-3D

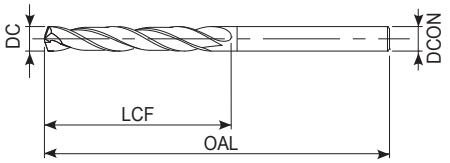
Drilling | Solid carbide | 3xD

INDEX

NEW SIZES







- First choice in quality and performance
- Carbide drill with internal coolant, WXL coating
- Up to 3xD
- Designed for stainless steel and titanium alloys
- 179 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | K GGG | N Al | N AC, ADC | S Ti | H 25-35 HRC | H 35-45 HRC | H 45-52 HRC

A | CARBIDE | WXL | 30° | SHRINK FIT | 140° | h8

B.498

EDP	DC	LCF	OAL	DCON
8667000	20	100	165	20

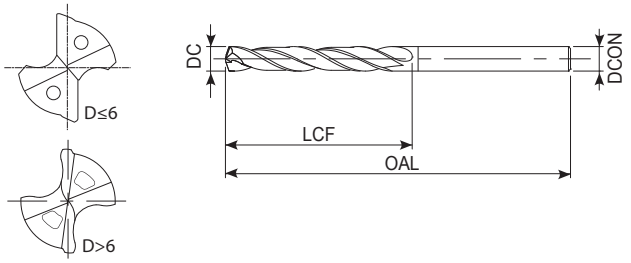
EDP	DC	LCF	OAL	DCON

ADO-SUS-5D

Drilling | Solid carbide | 5xD

INDEX





- First choice in quality and performance
- Carbide drill with internal coolant, WXL coating
- Up to 5xD
- Designed for stainless steel and titanium alloys
- 198 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | K GGG | N Al | N AC, ADC | S Ti | H 25-35 HRC | H 35-45 HRC | H 45-52 HRC

A | CARBIDE | WXL | 30° | SHRINK FIT | 140° | h8

B.498

EDP	DC	LCF	OAL	DCON
8667200	2	18	70	3
8667210	2,1	19	70	3
48349215	2,15	20	70	3
8667220	2,2	20	70	3
48349225	2,25	21	70	3
8667230	2,3	21	70	3
48349235	2,35	22	70	3
8667240	2,4	22	70	3
8667250	2,5	23	70	3
48349255	2,55	24	70	3
8667260	2,6	24	78	3
8667270	2,7	25	78	3
8667276	2,76	25	78	3
8667278	2,78	26	78	3
8667280	2,8	26	78	3
8667283	2,83	26	78	3
8667287	2,87	26	78	3
8667290	2,9	27	78	3
8667300	3	27	78	3
8667310	3,1	28	86	4
8667315	3,15	29	86	4
8667320	3,2	29	86	4
8667326	3,26	29	86	4
8667330	3,3	30	86	4
48349335	3,35	31	86	4
8667340	3,4	31	86	4
8667350	3,5	32	86	4
8667360	3,6	33	86	4
8667366	3,66	33	86	4
8667368	3,68	34	86	4
8667370	3,7	34	86	4
8667373	3,73	34	86	4
8667375	3,75	34	86	4
8667380	3,8	35	86	4
8667390	3,9	36	86	4
8667400	4	36	86	4
8682410	4,1	37	95	6
8682420	4,2	38	95	6
8682430	4,3	39	95	6
8682440	4,4	40	95	6
8682445	4,45	41	95	6
8682450	4,5	41	95	6
8682460	4,6	42	95	6
8682464	4,64	42	95	6
8682470	4,7	43	95	6
8682480	4,8	44	95	6

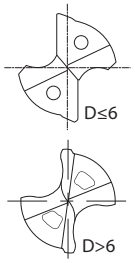
EDP	DC	LCF	OAL	DCON
8682490	4,9	45	95	6
8682500	5	45	95	6
8667510	5,1	41	100	6
8667520	5,2	42	100	6
8667530	5,3	43	100	6
8667540	5,4	44	100	6
8667550	5,5	44	100	6
8667552	5,52	45	100	6
8667554	5,54	45	100	6
8667560	5,6	45	100	6
8667570	5,7	46	100	6
8667580	5,8	47	100	6
8667590	5,9	48	100	6
8667600	6	48	100	6
8682610	6,1	49	109	8
8682620	6,2	50	109	8
8682630	6,3	51	109	8
8682640	6,4	52	109	8
8682650	6,5	52	109	8
8682660	6,6	53	109	8
8682670	6,7	54	109	8
8682680	6,8	55	109	8
8682690	6,9	56	109	8
8682700	7	56	109	8
8667710	7,1	57	118	8
8667720	7,2	58	118	8
8667725	7,25	58	118	8
8667730	7,3	59	118	8
8667736	7,36	59	118	8
8667738	7,38	60	118	8
8667740	7,4	60	118	8
8682745	7,45	60	118	8
8667750	7,5	60	118	8
8667752	7,52	61	118	8
8667754	7,54	61	118	8
8667760	7,6	61	118	8
8667770	7,7	62	118	8
8667775	7,75	62	118	8
8667780	7,8	63	118	8
8667790	7,9	64	118	8
8667800	8	64	118	8
8682810	8,1	65	128	10
8682820	8,2	66	128	10
8682830	8,3	67	128	10
8682840	8,4	68	128	10
8682850	8,5	68	128	10

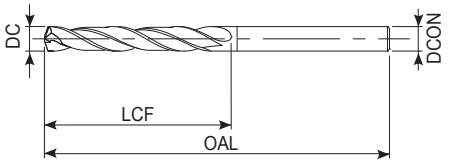
ADO-SUS-5D

Drilling | Solid carbide | 5xD

INDEX







- First choice in quality and performance
- Carbide drill with internal coolant, WXL coating
- Up to 5xD
- Designed for stainless steel and titanium alloys
- 198 sizes





B.498

EDP	DC	LCF	OAL	DCON
8682860	8,6	69	128	10
8682870	8,7	70	128	10
8682880	8,8	71	128	10
8682890	8,9	72	128	10
8682900	9	72	128	10
8667910	9,1	73	136	10
8667920	9,2	74	136	10
8667924	9,24	74	136	10
8667925	9,25	74	136	10
8667926	9,26	75	136	10
8667930	9,3	75	136	10
8667936	9,36	75	136	10
8667938	9,38	76	136	10
8667940	9,4	76	136	10
8667950	9,5	76	136	10
8667952	9,52	77	136	10
8667954	9,54	77	136	10
8667960	9,6	77	136	10
8667970	9,7	78	136	10
8667975	9,75	78	136	10
8667980	9,8	79	136	10
8667990	9,9	80	136	10
8668000	10	80	136	10
8683010	10,1	81	146	12
8683020	10,2	82	146	12
8683030	10,3	83	146	12
8683040	10,4	84	146	12
8683050	10,5	84	146	12
8683060	10,6	85	146	12
8683070	10,7	86	146	12
8683080	10,8	87	146	12
8683090	10,9	88	146	12
8683100	11	88	146	12
8668110	11,1	89	156	12
8668120	11,2	90	156	12
8668122	11,22	90	156	12
8668124	11,24	90	156	12
8668130	11,3	91	156	12
8668136	11,36	91	156	12
8668138	11,38	92	156	12
8668140	11,4	92	156	12
8668150	11,5	92	156	12
8668160	11,6	93	156	12
8668170	11,7	94	156	12
8668180	11,8	95	156	12
8668190	11,9	96	156	12

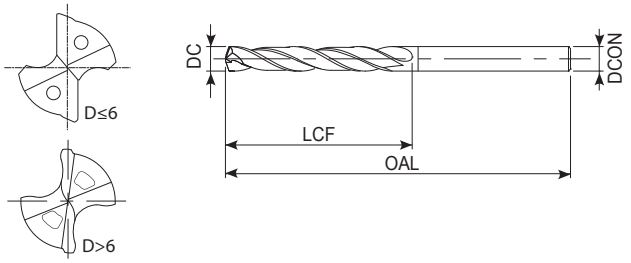
EDP	DC	LCF	OAL	DCON
8668200	12	96	156	12
8683210	12,1	97	167	14
8683220	12,2	98	167	14
8683230	12,3	99	167	14
8683240	12,4	100	167	14
8683250	12,5	100	167	14
8683260	12,6	101	167	14
8683270	12,7	102	167	14
8683280	12,8	103	167	14
8683290	12,9	104	167	14
8683300	13	104	167	14
8668310	13,1	105	176	14
8668320	13,2	106	176	14
8668325	13,25	106	176	14
8668330	13,3	107	176	14
8668340	13,4	108	176	14
8683343	13,43	108	176	14
8668350	13,5	108	176	14
8683355	13,55	109	176	14
8668360	13,6	109	176	14
8668370	13,7	110	176	14
8668380	13,8	111	176	14
8668390	13,9	112	176	14
8668400	14	112	176	14
8683410	14,1	113	185	16
8683420	14,2	114	185	16
8683430	14,3	115	185	16
8683440	14,4	116	185	16
8683450	14,5	116	185	16
8683460	14,6	117	185	16
8683470	14,7	118	185	16
8683480	14,8	119	185	16
8683490	14,9	120	185	16
8683500	15	120	185	16
8668510	15,1	121	193	16
8668520	15,2	122	193	16
8668525	15,25	122	193	16
8668530	15,3	123	193	16
8668540	15,4	124	193	16
8668550	15,5	124	193	16
8683555	15,55	125	193	16
8668560	15,6	125	193	16
8668570	15,7	126	193	16
8668580	15,8	127	193	16
8668590	15,9	128	193	16
8668600	16	128	193	16

ADO-SUS-5D

Drilling | Solid carbide | 5xD

INDEX





- First choice in quality and performance
- Carbide drill with internal coolant, WXL coating
- Up to 5xD
- Designed for stainless steel and titanium alloys
- 198 sizes

P	P	P	P	M	K	K	N	N	S	H	H	H
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	INOX	GG	GGG	AI	AC, ADC	Ti	25-35 HRC	35-45 HRC	45-52 HRC

A | CARBIDE | WXL | 30° | SHRINK FIT | 140° | h8

B.498

EDP	DC	LCF	OAL	DCON
8683650	16,5	113	184	18
8683670	16,7	117	184	18
8683700	17	114	184	18
8683730	17,3	122	191	18
8668750	17,5	123	191	18
8683755	17,55	123	191	18
8668800	18	126	191	18
8683850	18,5	130	198	20
8683870	18,7	131	198	20
8683900	19	133	198	20
8683930	19,3	136	205	20
8668950	19,5	137	205	20
8683955	19,55	137	205	20
8669000	20	140	205	20

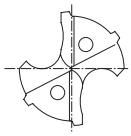
EDP	DC	LCF	OAL	DCON

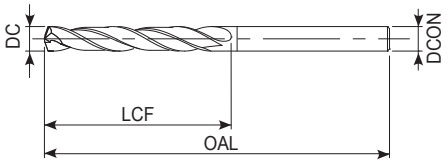
ADO-SUS-8D

Drilling | Solid carbide | 8xD

INDEX







- First choice in quality and performance
- Carbide drill with internal coolant, WXL coating
- Up to 8xD
- Designed for stainless steel and titanium alloys
- 101 sizes





B.498

EDP	DC	LCF	OAL	DCON
8686200	2	22	75	3
8686210	2,1	24	75	3
8686220	2,2	25	75	3
8686230	2,3	26	75	3
8686240	2,4	27	75	3
8686250	2,5	28	75	3
8686260	2,6	29	80	3
8686270	2,7	30	80	3
8686280	2,8	31	80	3
8686290	2,9	32	80	3
8686300	3	33	80	3
8684310	3,1	34	95	4
8684320	3,2	35	95	4
8684330	3,3	36	95	4
8684340	3,4	37	95	4
8684350	3,5	39	95	4
8684360	3,6	40	95	4
8684370	3,7	41	95	4
8684380	3,8	42	95	4
8684390	3,9	43	95	4
8684400	4	44	95	4
8684410	4,1	45	105	6
8684420	4,2	46	105	6
8684430	4,3	47	105	6
8684440	4,4	48	105	6
8684450	4,5	50	105	6
8684460	4,6	51	105	6
8684470	4,7	52	105	6
8684480	4,8	53	105	6
8684490	4,9	54	105	6
8684500	5	55	105	6
8684510	5,1	56	115	6
8684520	5,2	57	115	6
8684530	5,3	58	115	6
8684540	5,4	59	115	6
8684550	5,5	61	115	6
8684560	5,6	62	115	6
8684570	5,7	63	115	6
8684580	5,8	64	115	6
8684590	5,9	65	115	6
8684600	6	66	115	6
8684610	6,1	67	125	8
8684620	6,2	68	125	8
8684630	6,3	69	125	8
8684640	6,4	70	125	8
8684650	6,5	72	125	8

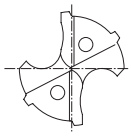
EDP	DC	LCF	OAL	DCON
8684660	6,6	73	125	8
8684670	6,7	74	125	8
8684680	6,8	75	125	8
8684690	6,9	76	125	8
8684700	7	77	125	8
8684710	7,1	78	140	8
8684720	7,2	79	140	8
8684730	7,3	80	140	8
8684740	7,4	81	140	8
8684750	7,5	83	140	8
8684760	7,6	84	140	8
8684770	7,7	85	140	8
8684780	7,8	86	140	8
8684790	7,9	87	140	8
8684800	8	88	140	8
8684810	8,1	89	150	10
8684820	8,2	90	150	10
8684830	8,3	91	150	10
8684840	8,4	92	150	10
8684850	8,5	94	150	10
8684860	8,6	95	150	10
8684870	8,7	96	150	10
8684880	8,8	97	150	10
8684890	8,9	98	150	10
8684900	9	99	150	10
8684910	9,1	100	160	10
8684920	9,2	101	160	10
8684930	9,3	102	160	10
8684940	9,4	103	160	10
8684950	9,5	105	160	10
8684960	9,6	106	160	10
8684970	9,7	107	160	10
8684980	9,8	108	160	10
8684990	9,9	109	160	10
8685000	10	110	160	10
8685010	10,1	111	182	12
8685020	10,2	112	182	12
8685030	10,3	113	182	12
8685040	10,4	114	182	12
8685050	10,5	116	182	12
8685060	10,6	117	182	12
8685070	10,7	118	182	12
8685080	10,8	119	182	12
8685090	10,9	120	182	12
8685100	11	121	182	12
8685110	11,1	122	194	12

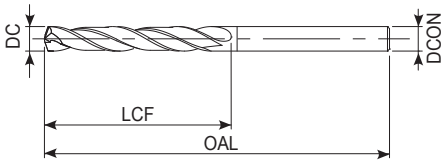
ADO-SUS-8D

Drilling | Solid carbide | 8xD

INDEX







- First choice in quality and performance
- Carbide drill with internal coolant, WXL coating
- Up to 8xD
- Designed for stainless steel and titanium alloys
- 101 sizes





EDP	DC	LCF	OAL	DCON
8685120	11,2	123	194	12
8685130	11,3	124	194	12
8685140	11,4	125	194	12
8685150	11,5	127	194	12
8685160	11,6	128	194	12
8685170	11,7	129	194	12
8685180	11,8	130	194	12
8685190	11,9	131	194	12
8685200	12	132	194	12

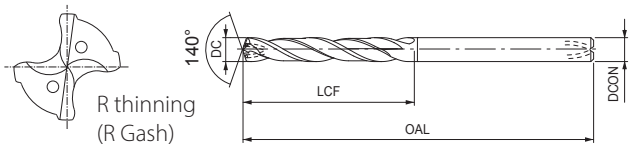
EDP	DC	LCF	OAL	DCON

ADO-3D

Drilling | Solid carbide | 3xD

INDEX





- First choice in quality and performance
- Carbide drill with internal coolant, EgiAs coating
- Up to 3xD
- For general purpose steels and cast iron
- 167 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | K GGG | N Al | N AC, ADC | S Ti | H 25-35 HRC | H 35-45 HRC | H 45-52 HRC

A | CARBIDE | EgiAs | 30° | SHRINK FIT | 140° | h8

B.498

EDP	DC	LCF	OAL	DCON
8690200	2	12	66	3
8690210	2,1	13	66	3
8690220	2,2	14	66	3
8690230	2,3	14	66	3
8690240	2,4	15	66	3
8690250	2,5	15	66	3
8690260	2,6	16	66	3
8690265	2,65	16	66	3
8690270	2,7	17	66	3
8690280	2,8	17	66	3
8690290	2,9	18	66	3
8690300	3	18	66	3
8690310	3,1	19	74	4
8690315	3,15	19	74	4
8690320	3,2	20	74	4
8690330	3,3	20	74	4
8690340	3,4	21	74	4
8690350	3,5	21	74	4
8690360	3,6	22	74	4
8690370	3,7	23	74	4
8690375	3,75	23	74	4
8690380	3,8	23	74	4
8690390	3,9	24	74	4
8690400	4	24	74	4
8690410	4,1	25	80	5
8700410	4,1	25	80	6
8690420	4,2	26	80	5
8700420	4,2	26	80	6
8690430	4,3	26	80	5
8700430	4,3	26	80	6
8690440	4,4	27	80	5
8700440	4,4	27	80	6
8690450	4,5	27	80	5
8700450	4,5	27	80	6
8690460	4,6	28	80	5
8700460	4,6	28	80	6
8690470	4,7	29	80	5
8700470	4,7	29	80	6
8690480	4,8	29	80	5
8700480	4,8	29	80	6
8690490	4,9	30	80	5
8700490	4,9	30	80	6
8690500	5	25	80	5
8700500	5	25	80	6
8690510	5,1	26	82	6
8690520	5,2	26	82	6

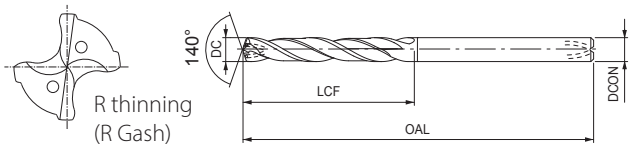
EDP	DC	LCF	OAL	DCON
8690525	5,25	27	82	6
8690530	5,3	27	82	6
8690540	5,4	27	82	6
8690550	5,5	28	82	6
8690560	5,6	28	82	6
8690570	5,7	29	82	6
8690580	5,8	29	82	6
8690590	5,9	30	82	6
8690600	6	30	82	6
8700610	6,1	31	88	8
8700620	6,2	31	88	8
8700630	6,3	32	88	8
8700640	6,4	32	88	8
8700650	6,5	33	88	8
8700660	6,6	33	88	8
8700670	6,7	34	88	8
8700680	6,8	34	88	8
8700690	6,9	35	88	8
8700700	7	35	88	8
8690710	7,1	36	94	8
8690720	7,2	36	94	8
8690725	7,25	37	94	8
8690730	7,3	37	94	8
8690740	7,4	37	94	8
8690750	7,5	38	94	8
8690760	7,6	38	94	8
8690770	7,7	39	94	8
8690775	7,75	39	94	8
8690780	7,8	39	94	8
8690790	7,9	40	94	8
8690800	8	40	94	8
8700810	8,1	41	101	10
8700820	8,2	41	101	10
8700830	8,3	42	101	10
8700840	8,4	42	101	10
8700850	8,5	43	101	10
8700860	8,6	43	101	10
8700870	8,7	43	101	10
8700880	8,8	44	101	10
8700890	8,9	45	101	10
8700900	9	45	101	10
8690910	9,1	46	106	10
8690920	9,2	46	106	10
8690925	9,25	47	106	10
8690930	9,3	47	106	10
8690940	9,4	47	106	10

ADO-3D

Drilling | Solid carbide | 3xD

INDEX





- First choice in quality and performance
- Carbide drill with internal coolant, EgiAs coating
- Up to 3xD
- For general purpose steels and cast iron
- 167 sizes

P ◉ C <0,2% | P ◉ 0,25<C<0,4 | P ◉ C ≥ 0,45% | P ◉ SCM | M ○ INOX | K ◉ GG | K ◉ GGG | N ○ Al | N ○ AC, ADC | S ○ Ti | H ◉ 25-35 HRC | H ○ 35-45 HRC | H ○ 45-52 HRC

A | CARBIDE | EgiAs | 30° | SHRINK FIT | | 140° | h8

B.498

EDP	DC	LCF	OAL	DCON
8690950	9,5	48	106	10
8690960	9,6	48	106	10
8690970	9,7	49	106	10
8690975	9,75	49	106	10
8690980	9,8	49	106	10
8690990	9,9	50	106	10
8691000	10	50	106	10
8701010	10,1	51	113	12
8701020	10,2	51	113	12
8701030	10,3	52	113	12
8701040	10,4	52	113	12
8701050	10,5	53	113	12
8701060	10,6	53	113	12
8701070	10,7	54	113	12
8701080	10,8	54	113	12
8701090	10,9	55	113	12
8701100	11	55	113	12
8691110	11,1	56	120	12
8691120	11,2	56	120	12
8691130	11,3	57	120	12
8691140	11,4	57	120	12
8691150	11,5	58	120	12
8691160	11,6	58	120	12
8691170	11,7	59	120	12
8691180	11,8	59	120	12
8691190	11,9	60	120	12
8691200	12	60	120	12
8701210	12,1	61	128	14
8701220	12,2	61	128	14
8701230	12,3	62	128	14
8701240	12,4	62	128	14
8701250	12,5	63	128	14
8701260	12,6	63	128	14
8701270	12,7	64	128	14
8701280	12,8	64	128	14
8701290	12,9	65	128	14
8701300	13	65	128	14
8691310	13,1	66	134	14
8691320	13,2	66	134	14
8691330	13,3	67	134	14
8691340	13,4	67	134	14
8691350	13,5	68	134	14
8691360	13,6	68	134	14
8691370	13,7	69	134	14
8691380	13,8	69	134	14
8691390	13,9	70	134	14

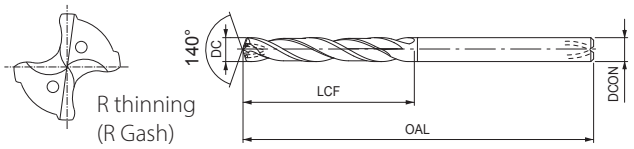
EDP	DC	LCF	OAL	DCON
8691400	14	70	134	14
8701410	14,1	71	140	16
8701420	14,2	71	140	16
8701430	14,3	72	140	16
8701440	14,4	72	140	16
8701450	14,5	73	140	16
8701460	14,6	73	140	16
8701470	14,7	74	140	16
8701480	14,8	74	140	16
8701490	14,9	75	140	16
8701500	15	75	140	16
8691510	15,1	76	145	16
8691520	15,2	76	145	16
8691530	15,3	77	145	16
8691540	15,4	77	145	16
8691550	15,5	78	145	16
8691560	15,6	78	145	16
8691570	15,7	79	145	16
8691580	15,8	79	145	16
8691590	15,9	80	145	16
8691600	16	80	145	16
8701650	16,5	83	150	18
8701700	17	85	150	18
8691750	17,5	88	155	18
8691800	18	90	155	18
8701850	18,5	93	160	20
8701900	19	95	160	20
8691950	19,5	98	165	20
8692000	20	100	165	20

ADO-5D

Drilling | Solid carbide | 5xD

INDEX





- First choice in quality and performance
- Carbide drill with internal coolant, EgiAs coating
- Up to 5xD
- For general purpose steels and cast iron
- 191 sizes





B.498

EDP	DC	LCF	OAL	DCON
8692200	2	18	70	3
8692210	2,1	19	70	3
8692220	2,2	20	70	3
8692230	2,3	21	70	3
8692240	2,4	22	70	3
8692250	2,5	23	70	3
8692260	2,6	24	78	3
8692265	2,65	24	78	3
8692270	2,7	25	78	3
8692276	2,76	25	78	3
8692278	2,78	26	78	3
8692280	2,8	26	78	3
8692290	2,9	27	78	3
8692300	3	27	78	3
8692310	3,1	28	86	4
8692315	3,15	29	86	4
8692320	3,2	29	86	4
8692330	3,3	30	86	4
8692340	3,4	31	86	4
8692350	3,5	32	86	4
8692360	3,6	33	86	4
8692366	3,66	33	86	4
8692368	3,68	34	86	4
8692370	3,7	34	86	4
8692375	3,75	34	86	4
8692380	3,8	35	86	4
8692390	3,9	36	86	4
8692400	4	36	86	4
8692410	4,1	37	95	5
8702410	4,1	37	95	6
8692420	4,2	38	95	5
8702420	4,2	38	95	6
8692430	4,3	39	95	5
8702430	4,3	39	95	6
8692440	4,4	40	95	5
8702440	4,4	40	95	6
8692450	4,5	41	95	5
8702450	4,5	41	95	6
8692460	4,6	42	95	5
8702460	4,6	42	95	6
8692462	4,62	42	95	5
8692464	4,64	42	95	5
8692470	4,7	43	95	5
8702470	4,7	43	95	6
8692480	4,8	44	95	5
8702480	4,8	44	95	6

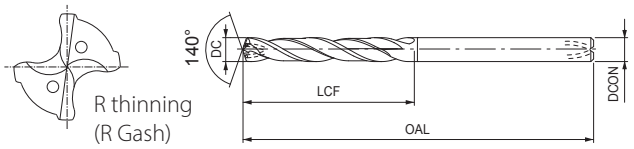
EDP	DC	LCF	OAL	DCON
8692490	4,9	45	95	5
8702490	4,9	45	95	6
8692500	5	45	95	5
8702500	5	45	95	6
8692510	5,1	41	100	6
8692520	5,2	42	100	6
8692525	5,25	42	100	6
8692530	5,3	43	100	6
8692540	5,4	44	100	6
8692550	5,5	44	100	6
8692552	5,52	45	100	6
8692554	5,54	45	100	6
8692560	5,6	45	100	6
8692570	5,7	46	100	6
8692580	5,8	47	100	6
8692590	5,9	48	100	6
8692600	6	48	100	6
8702610	6,1	49	109	8
8702620	6,2	50	109	8
8702630	6,3	51	109	8
8702640	6,4	52	109	8
8702650	6,5	52	109	8
8702660	6,6	53	109	8
8702670	6,7	54	109	8
8702680	6,8	55	109	8
8702690	6,9	56	109	8
8702700	7	56	109	8
8692710	7,1	57	118	8
8692720	7,2	58	118	8
8692725	7,25	58	118	8
8692730	7,3	59	118	8
8692736	7,36	59	118	8
8692738	7,38	60	118	8
8692740	7,4	60	118	8
8692750	7,5	60	118	8
8692752	7,52	61	118	8
8692754	7,54	61	118	8
8692760	7,6	61	118	8
8692770	7,7	62	118	8
8692775	7,75	62	118	8
8692780	7,8	63	118	8
8692790	7,9	64	118	8
8692800	8	64	118	8
8702810	8,1	65	128	10
8702820	8,2	66	128	10
8702830	8,3	67	128	10

ADO-5D

Drilling | Solid carbide | 5xD

INDEX





- First choice in quality and performance
- Carbide drill with internal coolant, EgiAs coating
- Up to 5xD
- For general purpose steels and cast iron
- 191 sizes

P ◉ C <0,2% | P ◉ 0,25<C<0,4 | P ◉ C ≥ 0,45% | P ◉ SCM | M ○ INOX | K ◉ GG | K ◉ GGG | N ○ Al | N ○ AC, ADC | S ○ Ti | H ◉ 25-35 HRC | H ○ 35-45 HRC | H ○ 45-52 HRC

A | CARBIDE | EgiAs | 30° | SHRINK FIT | 140° | h8 | B.498

EDP	DC	LCF	OAL	DCON
8702840	8,4	68	128	10
8702850	8,5	68	128	10
8702860	8,6	69	128	10
8702870	8,7	70	128	10
8702880	8,8	71	128	10
8702890	8,9	72	128	10
8702900	9	72	128	10
8692910	9,1	73	136	10
8692920	9,2	74	136	10
8692924	9,24	74	136	10
8692925	9,25	74	136	10
8692926	9,26	75	136	10
8692930	9,3	75	136	10
8692936	9,36	75	136	10
8692938	9,38	76	136	10
8692940	9,4	76	136	10
8692950	9,5	76	136	10
8692952	9,52	77	136	10
8692954	9,54	77	136	10
8692960	9,6	77	136	10
8692970	9,7	78	136	10
8692975	9,75	78	136	10
8692980	9,8	79	136	10
8692990	9,9	80	136	10
8693000	10	80	136	10
8703010	10,1	81	146	12
8703020	10,2	82	146	12
8703030	10,3	83	146	12
8703040	10,4	84	146	12
8703050	10,5	84	146	12
8703060	10,6	85	146	12
8703070	10,7	86	146	12
8703080	10,8	87	146	12
8703090	10,9	88	146	12
8703100	11	88	146	12
8693110	11,1	89	156	12
8693120	11,2	90	156	12
8693122	11,22	90	156	12
8693124	11,24	90	156	12
8693130	11,3	91	156	12
8693136	11,36	91	156	12
8693138	11,38	92	156	12
8693140	11,4	92	156	12
8693150	11,5	92	156	12
8693160	11,6	93	156	12
8693170	11,7	94	156	12

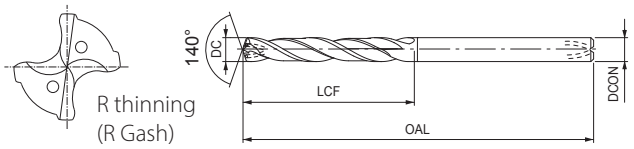
EDP	DC	LCF	OAL	DCON
8693180	11,8	95	156	12
8693190	11,9	96	156	12
8693200	12	96	156	12
8703210	12,1	97	167	14
8703220	12,2	98	167	14
8703230	12,3	99	167	14
8703240	12,4	100	167	14
8703250	12,5	100	167	14
8703260	12,6	101	167	14
8703270	12,7	102	167	14
8703280	12,8	103	167	14
8703290	12,9	104	167	14
8703300	13	104	167	14
8693310	13,1	105	176	14
8693320	13,2	106	176	14
8693325	13,25	106	176	14
8693330	13,3	107	176	14
8693340	13,4	108	176	14
8693350	13,5	108	176	14
8693360	13,6	109	176	14
8693370	13,7	110	176	14
8693380	13,8	111	176	14
8693390	13,9	112	176	14
8693400	14	112	176	14
8703410	14,1	113	185	16
8703420	14,2	114	185	16
8703430	14,3	115	185	16
8703440	14,4	116	185	16
8703450	14,5	116	185	16
8703460	14,6	117	185	16
8703470	14,7	118	185	16
8703480	14,8	119	185	16
8703490	14,9	120	185	16
8703500	15	120	185	16
8693510	15,1	121	193	16
8693520	15,2	122	193	16
8693525	15,25	122	193	16
8693530	15,3	123	193	16
8693540	15,4	124	193	16
8693550	15,5	124	193	16
8693560	15,6	125	193	16
8693570	15,7	126	193	16
8693580	15,8	127	193	16
8693590	15,9	128	193	16
8693600	16	128	193	16
8703650	16,5	132	201	18

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Drilling | Solid carbide | 5xD

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- First choice in quality and performance
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- 191 sizes

P	P	P	P	M	K	K	N	N	S	H	H	H
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	INOX	GG	GGG	Al	AC, ADC	Ti	25-35 HRC	35-45 HRC	45-52 HRC

A	CARBIDE	EgiAs	30°	SHRINK FIT		140°	h8	B.498

EDP	DC	LCF	OAL	DCON
8703700	17	136	201	18
8693750	17,5	140	209	18
8693800	18	144	209	18
8703850	18,5	148	217	20
8703900	19	152	217	20
8693950	19,5	156	225	20
8694000	20	160	225	20

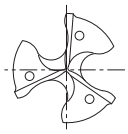
EDP	DC	LCF	OAL	DCON

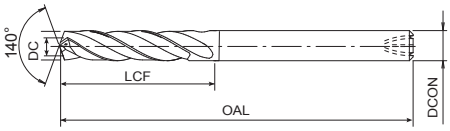
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Drilling | Solid carbide | 3xD

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- First choice in quality and performance
- 3 flute carbide drill with internal coolant, EgiAs coating
- Up to 3xD
- Allows high feed 1.000mm/min process in steel and cast iron
- 112 sizes

P ◉ C <0,2% | P ◉ 0,25<C<0,4 | P ◉ C ≥ 0,45% | P ◉ SCM | M ○ INOX | K ◉ GG | K ◉ GGG | N ○ Al | N ○ AC, ADC | S ○ Ti | H ◉ 25-35 HRC | H ○ 35-45 HRC | H ○ 45-52 HRC

A | CARBIDE | EgiAs | 30° | SHRINK FIT | 140° | h8

B.499

EDP	DC	LCF	OAL	DCON
8720300	3	18	66	3
8720330	3,3	20	74	4
8720350	3,5	21	74	4
8720366	3,66	22	74	4
8720400	4	24	74	4
8720420	4,2	26	80	6
8720450	4,5	27	80	6
8720460	4,6	28	80	6
8720500	5	25	80	6
8720510	5,1	26	82	6
8720520	5,2	26	82	6
8720530	5,3	27	82	6
8720540	5,4	27	82	6
8720550	5,5	28	82	6
48323555	5,55	28	82	6
8720560	5,6	28	82	6
8720570	5,7	29	82	6
8720580	5,8	29	82	6
8720590	5,9	30	82	6
8720600	6	30	82	6
8720610	6,1	31	88	8
8720620	6,2	31	88	8
8720630	6,3	32	88	8
8720640	6,4	32	88	8
8720650	6,5	33	88	8
8720660	6,6	33	88	8
8720670	6,7	34	88	8
8720680	6,8	34	88	8
8720690	6,9	35	88	8
8720700	7	35	88	8
8720710	7,1	36	94	8
8720720	7,2	36	94	8
8720730	7,3	37	94	8
8720738	7,38	37	94	8
8720740	7,4	37	94	8
48323745	7,45	38	94	8
8720750	7,5	38	94	8
8720760	7,6	38	94	8
8720770	7,7	39	94	8
8720780	7,8	39	94	8
8720790	7,9	40	94	8
8720800	8	40	94	8
8720810	8,1	41	101	10
8720820	8,2	41	101	10
8720830	8,3	42	101	10
8720840	8,4	42	101	10

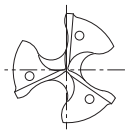
EDP	DC	LCF	OAL	DCON
8720850	8,5	43	101	10
8720860	8,6	43	101	10
8720870	8,7	44	101	10
8720880	8,8	44	101	10
8720890	8,9	45	101	10
8720900	9	45	101	10
8720910	9,1	46	106	10
8720920	9,2	46	106	10
8720925	9,25	47	106	10
8720930	9,3	47	106	10
8720938	9,38	47	106	10
8720940	9,4	47	106	10
8720950	9,5	48	106	10
8720960	9,6	48	106	10
8720970	9,7	49	106	10
8720980	9,8	49	106	10
8720990	9,9	50	106	10
8721000	10	50	106	10
8721010	10,1	51	113	12
8721020	10,2	51	113	12
8721030	10,3	52	113	12
8721040	10,4	52	113	12
8721050	10,5	53	113	12
8721060	10,6	53	113	12
8721070	10,7	54	113	12
8721080	10,8	54	113	12
8721090	10,9	55	113	12
8721100	11	55	113	12
8721110	11,1	56	120	12
8721120	11,2	56	120	12
8721125	11,25	57	120	12
8721130	11,3	57	120	12
8721138	11,38	57	120	12
8721140	11,4	57	120	12
8721150	11,5	58	120	12
8721160	11,6	58	120	12
8721170	11,7	59	120	12
8721180	11,8	59	120	12
8721190	11,9	60	120	12
8721200	12	60	120	12
8721250	12,5	63	128	14
8721300	13	65	128	14
8721325	13,25	67	134	14
8721330	13,3	67	134	14
8721338	13,38	67	134	14
8721350	13,5	68	134	14

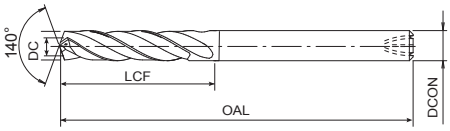
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Drilling | Solid carbide | 3xD

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- First choice in quality and performance
- 3 flute carbide drill with internal coolant, EgiAs coating
- Up to 3xD
- Allows high feed 1.000mm/min process in steel and cast iron
- 112 sizes

P	P	P	P	M	K	K	N	N	S	H	H	H
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	INOX	GG	GGG	AI	AC, ADC	Ti	25-35 HRC	35-45 HRC	45-52 HRC

A | CARBIDE | EgiAs | 30° | SHRINK FIT | 140° | h8

B.499

EDP	DC	LCF	OAL	DCON
8721400	14	70	134	14
8721410	14,1	71	140	16
8721420	14,2	71	140	16
8721430	14,3	72	140	16
8721450	14,5	73	140	16
8721500	15	75	140	16
8721520	15,2	76	145	16
8721530	15,3	77	145	16
8721550	15,5	78	145	16
8721600	16	80	145	16
8721650	16,5	83	150	18
8721700	17	85	150	18
8721725	17,25	87	155	18
8721750	17,5	88	155	18
8721800	18	90	155	18
8721850	18,5	93	160	20
8721900	19	95	160	20
8721925	19,25	97	165	20
8721950	19,5	98	165	20
8722000	20	100	165	20

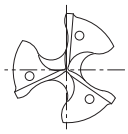
EDP	DC	LCF	OAL	DCON

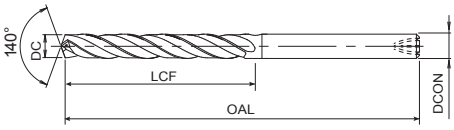
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Drilling | Solid carbide | 5xD

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- First choice in quality and performance
- 3 flute carbide drill with internal coolant, EgiAs coating
- Up to 5xD
- Allows high feed 1.000mm/min process in steel and cast iron
- 112 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | K GGG | N Al | N AC, ADC | H 25-35 HRC

A | CARBIDE | EgiAs | 30° | SHRINK FIT | 140° | h8

B.499

EDP	DC	LCF	OAL	DCON
8722300	3	27	78	3
8722330	3,3	30	86	4
8722350	3,5	32	86	4
8722366	3,66	33	86	4
8722400	4	36	86	4
8722420	4,2	38	95	6
8722450	4,5	41	95	6
8722460	4,6	42	95	6
8722500	5	45	95	6
8722510	5,1	41	100	6
8722520	5,2	42	100	6
8722530	5,3	43	100	6
8722540	5,4	44	100	6
8722550	5,5	44	100	6
48324555	5,55	45	100	6
8722560	5,6	45	100	6
8722570	5,7	46	100	6
8722580	5,8	47	100	6
8722590	5,9	48	100	6
8722600	6	48	100	6
8722610	6,1	49	109	8
8722620	6,2	50	109	8
8722630	6,3	51	109	8
8722640	6,4	52	109	8
8722650	6,5	52	109	8
8722660	6,6	53	109	8
8722670	6,7	54	109	8
8722680	6,8	55	109	8
8722690	6,9	56	109	8
8722700	7	56	109	8
8722710	7,1	57	118	8
8722720	7,2	58	118	8
8722730	7,3	59	118	8
8722738	7,38	60	118	8
8722740	7,4	60	118	8
48324745	7,45	60	118	8
8722750	7,5	60	118	8
8722760	7,6	61	118	8
8722770	7,7	62	118	8
8722780	7,8	63	118	8
8722790	7,9	64	118	8
8722800	8	64	118	8
8722810	8,1	65	128	10
8722820	8,2	66	128	10
8722830	8,3	67	128	10
8722840	8,4	68	128	10

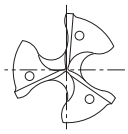
EDP	DC	LCF	OAL	DCON
8722850	8,5	68	128	10
8722860	8,6	69	128	10
8722870	8,7	70	128	10
8722880	8,8	71	128	10
8722890	8,9	72	128	10
8722900	9	72	128	10
8722910	9,1	73	136	10
8722920	9,2	74	136	10
8722925	9,25	74	136	10
8722930	9,3	75	136	10
8722938	9,38	76	136	10
8722940	9,4	76	136	10
8722950	9,5	76	136	10
8722960	9,6	77	136	10
8722970	9,7	78	136	10
8722980	9,8	79	136	10
8722990	9,9	80	136	10
8723000	10	80	136	10
8723010	10,1	81	146	12
8723020	10,2	82	146	12
8723030	10,3	83	146	12
8723040	10,4	84	146	12
8723050	10,5	84	146	12
8723060	10,6	85	146	12
8723070	10,7	86	146	12
8723080	10,8	87	146	12
8723090	10,9	88	146	12
8723100	11	88	146	12
8723110	11,1	89	156	12
8723120	11,2	90	156	12
8723125	11,25	90	156	12
8723130	11,3	91	156	12
8723138	11,38	92	156	12
8723140	11,4	92	156	12
8723150	11,5	92	156	12
8723160	11,6	93	156	12
8723170	11,7	94	156	12
8723180	11,8	95	156	12
8723190	11,9	96	156	12
8723200	12	96	156	12
8723250	12,5	100	167	14
8723300	13	104	167	14
8723325	13,25	106	176	14
8723330	13,3	107	176	14
8723338	13,38	108	176	14
8723350	13,5	108	176	14

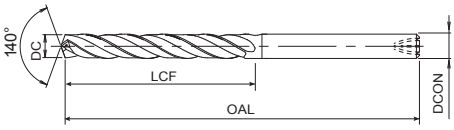
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Drilling | Solid carbide | 5xD

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- First choice in quality and performance
- 3 flute carbide drill with internal coolant, EgiAs coating
- Up to 5xD
- Allows high feed 1.000mm/min process in steel and cast iron
- 112 sizes

P	P	P	P	M	K	K	N	N	H
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	INOX	GG	GGG	AI	AC, ADC	25-35 HRC

A	CARBIDE	EgiAs	30°	SHRINK FIT		140°	h8

B.499

EDP	DC	LCF	OAL	DCON
8723400	14	112	176	14
8723410	14,1	113	185	16
8723420	14,2	114	185	16
8723430	14,3	115	185	16
8723450	14,5	116	185	16
8723500	15	120	185	16
8723520	15,2	122	193	16
8723530	15,3	123	193	16
8723550	15,5	124	193	16
8723600	16	128	193	16
8723650	16,5	132	201	18
8723700	17	136	201	18
8723725	17,25	138	209	18
8723750	17,5	140	209	18
8723800	18	144	209	18
8723850	18,5	148	217	20
8723900	19	152	217	20
8723925	19,25	154	225	20
8723950	19,5	156	225	20
8724000	20	160	225	20

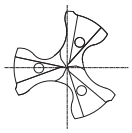
EDP	DC	LCF	OAL	DCON

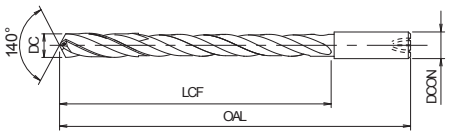
TRS-HO-10D

Drilling | Solid carbide | 10xD

INDEX







- First choice in quality and performance
- 3 flutes carbide drill with internal coolant, WDI coating
- Up to 10xD
- Allows high feed 1.000mm/min process in steel and cast iron
- 11 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | K GG | K GGG

A | CARBIDE | WDI | 30° | SHRINK FIT | 140° | h8

B.498

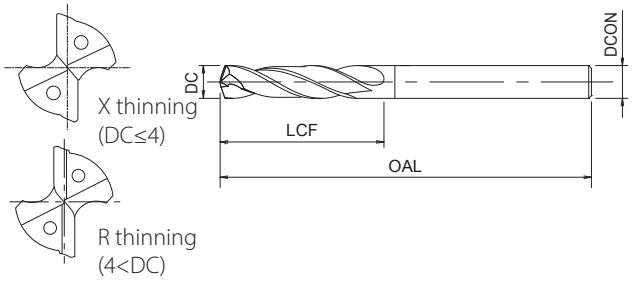
EDP	DC	LCF	OAL	DCON
48159050	5	65	115	6
8664055	5,5	78	128	6
8664060	6	78	128	6
48159065	6,5	87	140	8
48159070	7	90	140	8
8664075	7,5	100	155	8
8664080	8	105	155	8
48159085	8,5	110	165	10
48159090	9	115	165	10
8664100	10	130	190	10
8664120	12	155	215	12

EDP	DC	LCF	OAL	DCON

ADO-PLT

Drilling | Solid carbide | Pilot drills





- First choice in quality and performance
- Carbide pilot drill with internal coolant, EgiAs coating
- For general purpose steels and cast iron
- 15 sizes

P ○ C <0,2% | P ◉ 0,25<C<0,4 | P ◉ C ≥ 0,45% | P ◉ SCM | M ○ INOX | K ◉ GG | K ◉ GGG | N ○ Al | N ○ AC, ADC | H ◉ 25-35 HRC | H ◉ 35-45 HRC

A | CARBIDE | EgiAs | 30° | SHRINK FIT | 160° | h8 | B.498

EDP	DC	LU	LCF	OAL	DCON
8688903	3,03	9,1	15	65	3
8688923	3,53	11	18	70	4
8688904	4,03	12,1	20	70	4
8688924	4,53	14	23	75	5
8688905	5,03	15,1	25	75	5
8688925	5,53	17	28	80	6
8688906	6,03	18,1	30	80	6
8688926	6,53	20	33	85	7
8688907	7,03	21,1	35	85	7
8688908	8,03	24,1	40	90	8
8688928	8,53	26	43	95	9
8688909	9,03	27,1	45	95	9
8688910	10,03	30,1	50	100	10
8688911	11,03	33,1	55	115	11
8688912	12,03	36,1	60	120	12

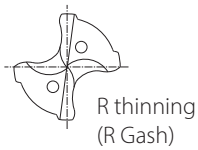
EDP	DC	LU	LCF	OAL	DCON

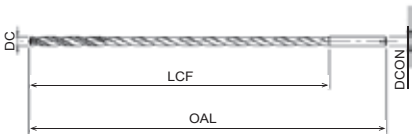
ADO-10D

Drilling | Solid carbide | 10xD

INDEX

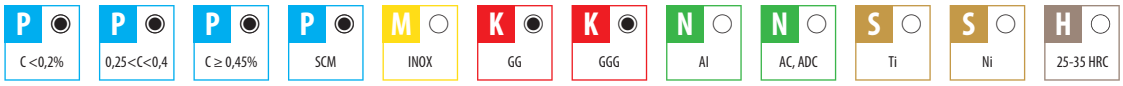






Tolerance of the point is 140° 0° -4°

- First choice in quality and performance
- Carbide drill with internal coolant, EgiAs coating
- Double margin, up to 10xD
- For general purpose steels and cast iron
- 102 sizes





EDP	DC	LCF	OAL	DCON
8696200	2	26	75	3
8696210	2,1	33	75	3
8696220	2,2	33	75	3
8696230	2,3	33	75	3
8696240	2,4	33	75	3
8696250	2,5	33	75	3
8696260	2,6	40	90	3
8696270	2,7	40	90	3
8696280	2,8	40	90	3
8696290	2,9	40	90	3
8696300	3	40	90	3
8696310	3,1	45	100	4
8696320	3,2	45	100	4
8696330	3,3	45	100	4
8696340	3,4	50	100	4
8696350	3,5	50	100	4
8696360	3,6	50	100	4
8696370	3,7	50	100	4
8696380	3,8	50	100	4
8696390	3,9	50	100	4
8696400	4	50	100	4
8710410	4,1	55	115	6
8710420	4,2	55	115	6
8710430	4,3	60	115	6
8710440	4,4	60	115	6
8710450	4,5	60	115	6
8710460	4,6	60	115	6
8710470	4,7	65	115	6
8710480	4,8	65	115	6
8710490	4,9	65	115	6
8710500	5	65	115	6
8710510	5,1	70	128	6
8710520	5,2	70	128	6
8710530	5,3	70	128	6
8710540	5,4	78	128	6
8696550	5,5	78	128	6
8710560	5,6	78	128	6
8710570	5,7	78	128	6
8710580	5,8	78	128	6
8710590	5,9	78	128	6
8696600	6	78	128	6
8710610	6,1	87	140	8
8710620	6,2	87	140	8
8710630	6,3	87	140	8
8710640	6,4	87	140	8
8710650	6,5	87	140	8

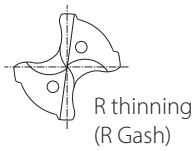
EDP	DC	LCF	OAL	DCON
8710660	6,6	87	140	8
8710670	6,7	87	140	8
8710680	6,8	90	140	8
8710690	6,9	90	140	8
8710700	7	90	140	8
8710710	7,1	100	155	8
8710720	7,2	100	155	8
8710730	7,3	100	155	8
8710740	7,4	100	155	8
8696750	7,5	100	155	8
8710760	7,6	105	155	8
8710770	7,7	105	155	8
8710780	7,8	105	155	8
8710790	7,9	105	155	8
8696800	8	105	155	8
8710810	8,1	110	165	10
8710820	8,2	110	165	10
8710830	8,3	110	165	10
8710840	8,4	110	165	10
8710850	8,5	110	165	10
8710860	8,6	115	165	10
8710870	8,7	115	165	10
8710880	8,8	115	165	10
8710890	8,9	115	165	10
8710900	9	115	165	10
8710910	9,1	125	190	10
8710920	9,2	125	190	10
8710930	9,3	125	190	10
8710940	9,4	125	190	10
8696950	9,5	125	190	10
8710960	9,6	130	190	10
8710970	9,7	130	190	10
8710980	9,8	130	190	10
8710990	9,9	130	190	10
8697000	10	130	190	10
8711010	10,1	140	205	12
8711020	10,2	140	205	12
8711030	10,3	140	205	12
8711040	10,4	140	205	12
8711050	10,5	140	205	12
8711060	10,6	140	205	12
8711070	10,7	140	205	12
8711080	10,8	145	205	12
8711090	10,9	145	205	12
8711100	11	145	205	12
8711110	11,1	155	215	12

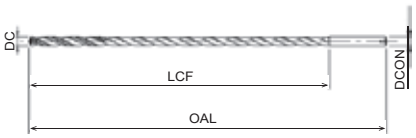
ADO-10D

Drilling | Solid carbide | 10xD

INDEX

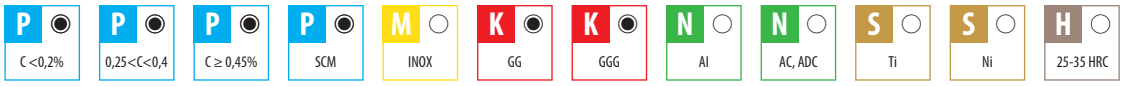






Tolerance of the point is 140° 0° -4°

- First choice in quality and performance
- Carbide drill with internal coolant, EgiAs coating
- Double margin, up to 10xD
- For general purpose steels and cast iron
- 102 sizes







EDP	DC	LCF	OAL	DCON
8711120	11,2	155	215	12
8711130	11,3	155	215	12
8711140	11,4	155	215	12
8711150	11,5	155	215	12
8711160	11,6	155	215	12
8711170	11,7	155	215	12
8711180	11,8	155	215	12
8711190	11,9	155	215	12
8697200	12	155	215	12
8711250	12,5	155	215	14

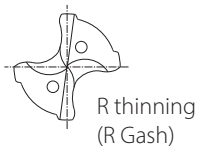
EDP	DC	LCF	OAL	DCON

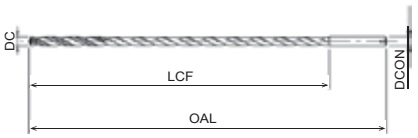
ADO-15D

Drilling | Solid carbide | 15xD

INDEX







Tolerance of the point is 140° 0° -4°

- First choice in quality and performance
- Carbide drill with internal coolant, EgiAs coating
- Double margin, up to 15xD
- For general purpose steels and cast iron
- 102 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | K GGG | N Al | N AC, ADC | S Ti | S Ni | H 25-35 HRC

A | CARBIDE | EgiAs | 30° | SHRINK FIT | 140° | e8 | B.500

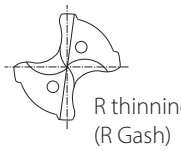
EDP	DC	LCF	OAL	DCON
48338120	2	36	90	3
48338121	2,1	38	90	3
48338122	2,2	40	90	3
48338123	2,3	42	90	3
48338124	2,4	44	90	3
48338125	2,5	45	96	3
48338126	2,6	47	96	3
48338127	2,7	49	96	3
48338128	2,8	51	96	3
48338129	2,9	53	96	3
8698300	3	55	105	3
8698310	3,1	60	125	4
8698320	3,2	60	125	4
8698330	3,3	60	125	4
8698340	3,4	65	125	4
8698350	3,5	65	125	4
8698360	3,6	65	125	4
8698370	3,7	65	125	4
8698380	3,8	75	125	4
8698390	3,9	75	125	4
8698400	4	75	125	4
8712410	4,1	75	140	6
8712420	4,2	75	140	6
8712430	4,3	85	140	6
8712440	4,4	85	140	6
8712450	4,5	85	140	6
8712460	4,6	85	140	6
8712470	4,7	85	140	6
8712480	4,8	90	140	6
8712490	4,9	90	140	6
8712500	5	90	140	6
8712510	5,1	95	160	6
8712520	5,2	95	160	6
8712530	5,3	95	160	6
8712540	5,4	110	160	6
8698550	5,5	110	160	6
8712560	5,6	110	160	6
8712570	5,7	110	160	6
8712580	5,8	110	160	6
8712590	5,9	110	160	6
8698600	6	110	160	6
8712610	6,1	120	175	8
8712620	6,2	120	175	8
8712630	6,3	120	175	8
8712640	6,4	120	175	8
8712650	6,5	120	175	8

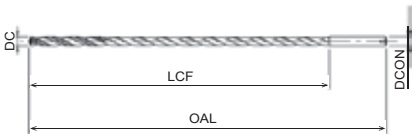
EDP	DC	LCF	OAL	DCON
8712660	6,6	120	175	8
8712670	6,7	120	175	8
8712680	6,8	125	175	8
8712690	6,9	125	175	8
8712700	7	125	175	8
8712710	7,1	135	195	8
8712720	7,2	135	195	8
8712730	7,3	135	195	8
8712740	7,4	135	195	8
8698750	7,5	135	195	8
8712760	7,6	145	195	8
8712770	7,7	145	195	8
8712780	7,8	145	195	8
8712790	7,9	145	195	8
8698800	8	145	195	8
8712810	8,1	155	210	10
8712820	8,2	155	210	10
8712830	8,3	155	210	10
8712840	8,4	155	210	10
8712850	8,5	155	210	10
8712860	8,6	160	210	10
8712870	8,7	160	210	10
8712880	8,8	160	210	10
8712890	8,9	160	210	10
8712900	9	160	210	10
8712910	9,1	170	240	10
8712920	9,2	170	240	10
8712930	9,3	170	240	10
8712940	9,4	170	240	10
8698950	9,5	170	240	10
8712960	9,6	180	240	10
8712970	9,7	180	240	10
8712980	9,8	180	240	10
8712990	9,9	180	240	10
8699000	10	180	240	10
8713010	10,1	190	260	12
8713020	10,2	190	260	12
8713030	10,3	190	260	12
8713040	10,4	190	260	12
8713050	10,5	190	260	12
8713060	10,6	190	260	12
8713070	10,7	200	260	12
8713080	10,8	200	260	12
8713090	10,9	200	260	12
8713100	11	200	260	12
8713110	11,1	210	280	12

ADO-15D

Drilling | Solid carbide | 15xD

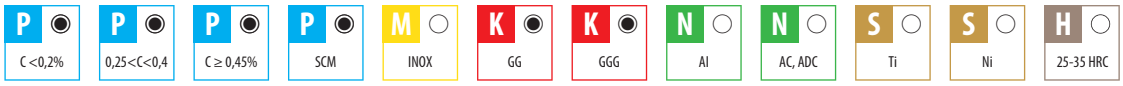






Tolerance of the point is 140° 0° -4°

- First choice in quality and performance
- Carbide drill with internal coolant, EgiAs coating
- Double margin, up to 15xD
- For general purpose steels and cast iron
- 102 sizes







EDP	DC	LCF	OAL	DCON
8713120	11,2	210	280	12
8713130	11,3	210	280	12
8713140	11,4	210	280	12
8713150	11,5	210	280	12
8713160	11,6	210	280	12
8713170	11,7	210	280	12
8713180	11,8	210	280	12
8713190	11,9	215	280	12
8699200	12	215	280	12
8713250	12,5	225	290	14

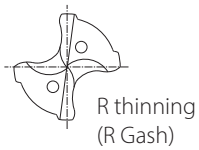
EDP	DC	LCF	OAL	DCON

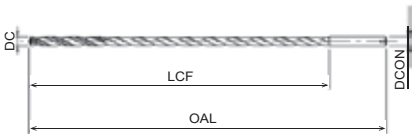
ADO-20D

Drilling | Solid carbide | 20xD

INDEX







Tolerance of the point is 140° 0° -4°

- First choice in quality and performance
- Carbide drill with internal coolant, EgiAs coating
- Double margin, up to 20xD
- For general purpose steels and cast iron
- 102 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | K GGG | N Al | N AC, ADC | S Ti | S Ni | H 25-35 HRC

A | CARBIDE | EgiAs | 30° | SHRINK FIT | 140° | e8 | B.500

EDP	DC	LCF	OAL	DCON
48338220	2	46	100	3
48338221	2,1	49	100	3
48338222	2,2	51	100	3
48338223	2,3	53	100	3
48338224	2,4	56	100	3
48338225	2,5	58	109	3
48338226	2,6	60	109	3
48338227	2,7	63	109	3
48338228	2,8	65	109	3
48338229	2,9	67	109	3
8706300	3	70	120	3
8706310	3,1	80	140	4
8706320	3,2	80	140	4
8706330	3,3	80	140	4
8706340	3,4	85	140	4
8706350	3,5	85	140	4
8706360	3,6	85	140	4
8706370	3,7	85	140	4
8706380	3,8	90	140	4
8706390	3,9	90	140	4
8706400	4	90	140	4
8714410	4,1	100	165	6
8714420	4,2	100	165	6
8714430	4,3	110	165	6
8714440	4,4	110	165	6
8714450	4,5	110	165	6
8714460	4,6	110	165	6
8714470	4,7	110	165	6
8714480	4,8	115	165	6
8714490	4,9	115	165	6
8714500	5	115	165	6
8714510	5,1	120	190	6
8714520	5,2	120	190	6
8714530	5,3	120	190	6
8714540	5,4	140	190	6
8706550	5,5	140	190	6
8714560	5,6	140	190	6
8714570	5,7	140	190	6
8714580	5,8	140	190	6
8714590	5,9	140	190	6
8706600	6	140	190	6
8714610	6,1	155	210	8
8714620	6,2	155	210	8
8714630	6,3	155	210	8
8714640	6,4	155	210	8
8714650	6,5	155	210	8

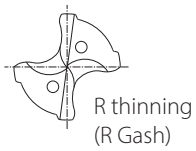
EDP	DC	LCF	OAL	DCON
8714660	6,6	155	210	8
8714670	6,7	155	210	8
8714680	6,8	160	210	8
8714690	6,9	160	210	8
8714700	7	160	210	8
8714710	7,1	170	230	8
8714720	7,2	170	230	8
8714730	7,3	170	230	8
8714740	7,4	170	230	8
8706750	7,5	170	230	8
8714760	7,6	180	230	8
8714770	7,7	180	230	8
8714780	7,8	180	230	8
8714790	7,9	180	230	8
8706800	8	180	230	8
8714810	8,1	195	260	10
8714820	8,2	195	260	10
8714830	8,3	195	260	10
8714840	8,4	195	260	10
8714850	8,5	195	260	10
8714860	8,6	210	260	10
8714870	8,7	210	260	10
8714880	8,8	210	260	10
8714890	8,9	210	260	10
8714900	9	210	260	10
8714910	9,1	220	290	10
8714920	9,2	220	290	10
8714930	9,3	220	290	10
8714940	9,4	220	290	10
8706950	9,5	220	290	10
8714960	9,6	230	290	10
8714970	9,7	230	290	10
8714980	9,8	230	290	10
8714990	9,9	230	290	10
8707000	10	230	290	10
8715010	10,1	250	310	12
8715020	10,2	250	310	12
8715030	10,3	250	310	12
8715040	10,4	250	310	12
8715050	10,5	250	310	12
8715060	10,6	250	310	12
8715070	10,7	250	310	12
8715080	10,8	250	310	12
8715090	10,9	250	310	12
8715100	11	250	310	12
8715110	11,1	270	330	12

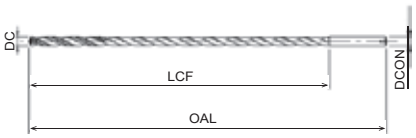
ADO-20D

Drilling | Solid carbide | 20xD

INDEX







Tolerance of the point is 140° 0° -4°

- First choice in quality and performance
- Carbide drill with internal coolant, EgiAs coating
- Double margin, up to 20xD
- For general purpose steels and cast iron
- 102 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | K GGG | N Al | N AC, ADC | S Ti | S Ni | H 25-35 HRC

A | CARBIDE | EgiAs | 30° | SHRINK FIT | 140° | e8 | B.500

EDP	DC	LCF	OAL	DCON
8715120	11,2	270	330	12
8715130	11,3	270	330	12
8715140	11,4	270	330	12
8715150	11,5	270	330	12
8715160	11,6	270	330	12
8715170	11,7	270	330	12
8715180	11,8	270	330	12
8715190	11,9	270	330	12
8707200	12	270	330	12
8715250	12,5	280	330	14

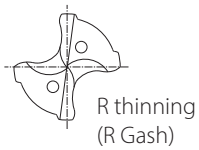
EDP	DC	LCF	OAL	DCON

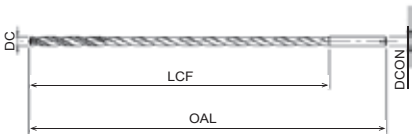
ADO-25D

Drilling | Solid carbide | 25xD

INDEX

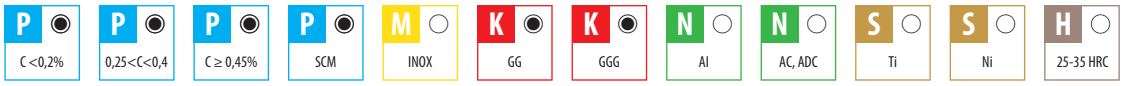






Tolerance of the point is 140° 0° -4°

- First choice in quality and performance
- Carbide drill with internal coolant, EgiAs coating
- Double margin, up to 25xD
- For general purpose steels and cast iron
- 92 sizes





EDP	DC	LCF	OAL	DCON
48338325	2,5	70	121	3
8726300	3	85	135	3
8724310	3,1	95	165	4
8724320	3,2	95	165	4
8724330	3,3	95	165	4
8724340	3,4	105	165	4
8724350	3,5	105	165	4
8724360	3,6	105	165	4
8724370	3,7	105	165	4
8724380	3,8	115	165	4
8724390	3,9	115	165	4
8724400	4	115	165	4
8724410	4,1	120	190	6
8724420	4,2	120	190	6
8724430	4,3	135	190	6
8724440	4,4	135	190	6
8724450	4,5	135	190	6
8724460	4,6	135	190	6
8724470	4,7	135	190	6
8724480	4,8	140	190	6
8724490	4,9	140	190	6
8724500	5	140	190	6
8724510	5,1	150	220	6
8724520	5,2	150	220	6
8724530	5,3	150	220	6
8724540	5,4	170	220	6
8724550	5,5	170	220	6
8724560	5,6	170	220	6
8724570	5,7	170	220	6
8724580	5,8	170	220	6
8724590	5,9	170	220	6
8724600	6	170	220	6
8724610	6,1	190	250	8
8724620	6,2	190	250	8
8724630	6,3	190	250	8
8724640	6,4	190	250	8
8724650	6,5	190	250	8
8724660	6,6	190	250	8
8724670	6,7	190	250	8
8724680	6,8	200	250	8
8724690	6,9	200	250	8
8724700	7	200	250	8
8724710	7,1	210	275	8
8724720	7,2	210	275	8
8724730	7,3	210	275	8
8724740	7,4	210	275	8

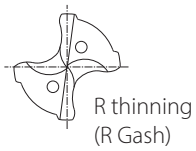
EDP	DC	LCF	OAL	DCON
8724750	7,5	210	275	8
8724760	7,6	225	275	8
8724770	7,7	225	275	8
8724780	7,8	225	275	8
8724790	7,9	225	275	8
8724800	8	225	275	8
8724810	8,1	240	305	10
8724820	8,2	240	305	10
8724830	8,3	240	305	10
8724840	8,4	240	305	10
8724850	8,5	240	305	10
8724860	8,6	255	305	10
8724870	8,7	255	305	10
8724880	8,8	255	305	10
8724890	8,9	255	305	10
8724900	9	255	305	10
8724910	9,1	270	340	10
8724920	9,2	270	340	10
8724930	9,3	270	340	10
8724940	9,4	270	340	10
8724950	9,5	270	340	10
8724960	9,6	280	340	10
8724970	9,7	280	340	10
8724980	9,8	280	340	10
8724990	9,9	280	340	10
8725000	10	280	340	10
8725010	10,1	310	370	12
8725020	10,2	310	370	12
8725030	10,3	310	370	12
8725040	10,4	310	370	12
8725050	10,5	310	370	12
8725060	10,6	310	370	12
8725070	10,7	310	370	12
8725080	10,8	310	370	12
8725090	10,9	310	370	12
8725100	11	310	370	12
8725110	11,1	340	400	12
8725120	11,2	340	400	12
8725130	11,3	340	400	12
8725140	11,4	340	400	12
8725150	11,5	340	400	12
8725160	11,6	340	400	12
8725170	11,7	340	400	12
8725180	11,8	340	400	12
8725190	11,9	340	400	12
8725200	12	340	400	12

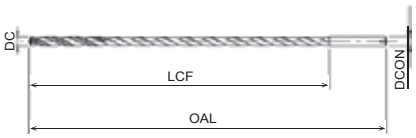
ADO-30D

INDEX

Drilling | Solid carbide | 30xD

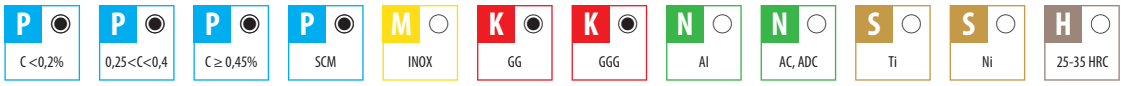






Tolerance of the point is 140° 0° -4°

- First choice in quality and performance
- Carbide drill with internal coolant, EgiAs coating
- Double margin, up to 30xD
- For general purpose steels and cast iron
- 81 sizes







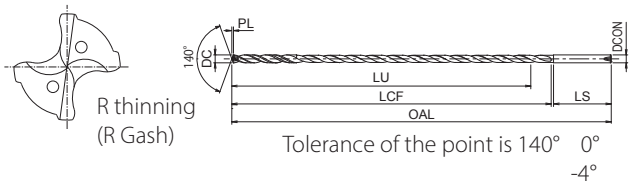
EDP	DC	LCF	OAL	DCON
48338420	2	66	120	3
48338421	2,1	70	120	3
48338422	2,2	73	120	3
48338423	2,3	76	120	3
48338424	2,4	80	120	3
48338425	2,5	83	134	3
48338426	2,6	86	134	3
48338427	2,7	90	134	3
48338428	2,8	93	134	3
48338429	2,9	96	134	3
8708300	3	100	150	3
8708310	3,1	102	185	4
8708320	3,2	105	185	4
8708330	3,3	109	185	4
8708340	3,4	112	185	4
8708350	3,5	116	185	4
8708360	3,6	116	185	4
8708370	3,7	116	185	4
8708380	3,8	132	185	4
8708390	3,9	132	185	4
8708400	4	132	185	4
8716410	4,1	140	215	6
8716420	4,2	140	215	6
8716430	4,3	150	215	6
8716440	4,4	150	215	6
8716450	4,5	150	215	6
8716460	4,6	150	215	6
8716470	4,7	150	215	6
8716480	4,8	165	215	6
8716490	4,9	165	215	6
8716500	5	165	215	6
8716510	5,1	180	250	6
8716520	5,2	180	250	6
8716530	5,3	180	250	6
8716540	5,4	200	250	6
8708550	5,5	200	250	6
8716560	5,6	200	250	6
8716570	5,7	200	250	6
8716580	5,8	200	250	6
8716590	5,9	200	250	6
8708600	6	200	250	6
8716610	6,1	215	280	8
8716620	6,2	215	280	8
8716630	6,3	215	280	8
8716640	6,4	215	280	8
8716650	6,5	215	280	8

EDP	DC	LCF	OAL	DCON
8716660	6,6	215	280	8
8716670	6,7	215	280	8
8716680	6,8	230	280	8
8716690	6,9	230	280	8
8716700	7	230	280	8
8716710	7,1	250	315	8
8716720	7,2	250	315	8
8716730	7,3	250	315	8
8716740	7,4	250	315	8
8708750	7,5	250	315	8
8716760	7,6	265	315	8
8716770	7,7	265	315	8
8716780	7,8	265	315	8
8716790	7,9	265	315	8
8708800	8	265	315	8
8716810	8,1	280	350	10
8716820	8,2	280	350	10
8716830	8,3	280	350	10
8716840	8,4	280	350	10
8716850	8,5	280	350	10
8716860	8,6	300	350	10
8716870	8,7	300	350	10
8716880	8,8	300	350	10
8716890	8,9	300	350	10
8716900	9	300	350	10
8716910	9,1	315	390	10
8716920	9,2	315	390	10
8716930	9,3	315	390	10
8716940	9,4	315	390	10
8708950	9,5	315	390	10
8716960	9,6	330	390	10
8716970	9,7	330	390	10
8716980	9,8	330	390	10
8716990	9,9	330	390	10
8709000	10	330	390	10

ADO-40D

Drilling | Solid carbide | 40xD

INDEX



- First choice in quality and performance
- Carbide drill with internal coolant, EgiAs coating
- Double margin, up to 40xD
- For general purpose steels and cast iron
- 23 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | K GGG | N Al | N AC, ADC | S Ti | S Ni | H 25-35 HRC

A | CARBIDE | EgiAs | ±25° | SHRINK FIT | 140° | e8 -0.01 | B.500

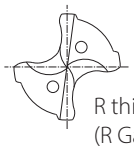
EDP	DC	LU	LCF	OAL	DCON
8717300	3	120	129	179	3
8717320	3,2	128	138	188	4
8717350	3,5	140	151	210	4
8717400	4	160	172	222	4
8717450	4,5	180	194	256	6
8717480	4,8	192	207	265	6
8717500	5	200	215	265	5
8719501	5	200	215	265	6
8717550	5,5	220	237	296	6
8717600	6	240	258	308	6
8717630	6,3	252	271	329	8
8717635	6,35	254	274	329	8
8717650	6,5	260	280	342	8
8717680	6,8	272	293	351	8
8717700	7	280	301	351	8
8717750	7,5	300	323	382	8
8717790	7,9	316	340	394	8
8717800	8	320	344	394	8
8717820	8,2	328	353	408	10
8717830	8,3	332	357	417	10
8717850	8,5	340	366	430	10
8717900	9	360	387	442	10
8718000	10	400	430	490	10

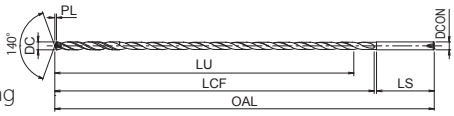
EDP	DC	LU	LCF	OAL	DCON

ADO-50D

Drilling | Solid carbide | 50xD

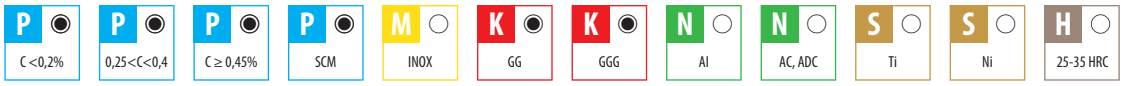
INDEX





Tolerance of the point is 140° 0° -4°

- First choice in quality and performance
- Carbide drill with internal coolant, EgiAs coating
- Double margin, up to 50xD
- For general purpose steels and cast iron
- 26 sizes







EDP	DC	LU	LCF	OAL	DCON
8718300	3	150	159	209	3
8718301	3,175	159	169	220	4
8718320	3,2	160	170	220	4
8718350	3,5	175	186	247	4
8718400	4	200	212	262	4
8718450	4,5	225	239	303	6
8718500	5	250	265	315	5
8718501	5	250	265	315	6
8718540	5,4	270	287	337	6
8718550	5,5	275	292	353	6
8718570	5,7	285	303	353	6
8718600	6	300	318	368	6
8718620	6,2	310	329	382	8
8718630	6,3	315	334	393	8
8718635	6,35	318	337	393	8
8718640	6,4	320	340	393	8
8718650	6,5	325	345	409	8
8718680	6,8	340	361	421	8
8718700	7	350	371	421	8
8718750	7,5	375	398	459	8
8718770	7,7	385	409	459	8
8718800	8	400	424	474	8
8718820	8,2	410	435	490	10
8718830	8,3	415	440	500	10
8718840	8,4	420	446	500	10
8718850	8,5	425	450	500	10

EDP	DC	LU	LCF	OAL	DCON

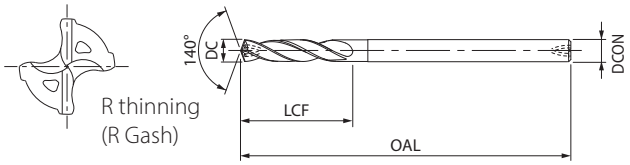
ADOX-3D

Drilling | Solid carbide | 3xD

INDEX

NEW





- First choice in quality and performance
- Carbide drill with internal coolant, EgiAs coating
- For general purpose steels and cast iron
- Mega Cooler oil hole for optimized coolant flow

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | K GGG | N AC, ADC | S Ti | H 25-35 HRC | H 35-45 HRC | H 45-52 HRC

A | CARBIDE | EgiAs | 30° | SHRINK FIT | 140° | h8

B.515

EDP	DC	LCF	OAL	DCON
8733200	2	12	66	3
8733230	2,3	14	66	3
8733250	2,5	15	66	3
8733260	2,6	16	66	3
8733276	2,76	17	66	3
8733278	2,78	17	66	3
8733280	2,8	17	66	3
8733290	2,9	18	66	3
8733300	3	18	66	3
8733320	3,2	20	74	4
8733330	3,3	20	74	4
8733340	3,4	21	74	4
8733350	3,5	21	74	4
8733360	3,6	22	74	4
8733366	3,66	22	74	4
8733368	3,68	23	74	4
8733370	3,7	23	74	4
8733375	3,75	23	74	4
8733390	3,9	24	74	4
8733420	4,2	26	80	6
8733430	4,3	26	80	6
8733450	4,5	27	80	6
8733460	4,6	28	80	6
8733462	4,62	28	80	6
8733464	4,64	28	80	6
8733490	4,9	30	80	6
8733500	5	25	80	6
8733510	5,1	26	82	6
8733520	5,2	26	82	6
8733525	5,25	27	82	6
8733552	5,52	28	82	6
8733554	5,54	28	82	6
8733560	5,6	28	82	6
8733600	6	30	82	6

EDP	DC	LCF	OAL	DCON

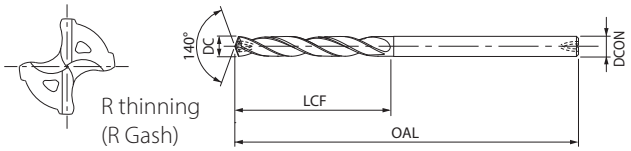
ADOX-5D

Drilling | Solid carbide | 5xD

INDEX

NEW





- First choice in quality and performance
- Carbide drill with internal coolant, EgiAs coating
- For general purpose steels and cast iron
- Mega Cooler oil hole for optimized coolant flow

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | K GGG | N AC, ADC | S Ti | H 25-35 HRC | H 35-45 HRC | H 45-52 HRC

A | CARBIDE | EgiAs | 30° | SHRINK FIT | 140° | h8 | B.515

EDP	DC	LCF	OAL	DCON
8734200	2	18	70	3
8734230	2,3	21	70	3
8734250	2,5	23	70	3
8734260	2,6	24	78	3
8734270	2,7	25	78	3
8734280	2,8	26	78	3
8734290	2,9	27	78	3
8734300	3	27	78	3
8734320	3,2	29	86	4
8734330	3,3	30	86	4
8734340	3,4	31	86	4
8734350	3,5	32	86	4
8734360	3,6	33	86	4
8734380	3,8	35	86	4
8734390	3,9	36	86	4
8734400	4	36	86	4
8734410	4,1	37	95	6
8734420	4,2	38	95	6
8734430	4,3	39	95	6
8734450	4,5	41	95	6
8734460	4,6	42	95	6
8734480	4,8	44	95	6
8734490	4,9	45	95	6
8734500	5	45	95	6
8734510	5,1	41	100	6
8734520	5,2	42	100	6
8734530	5,3	43	100	6
8734550	5,5	44	100	6
8734560	5,6	45	100	6
8734580	5,8	47	100	6
8734600	6	48	100	6

EDP	DC	LCF	OAL	DCON

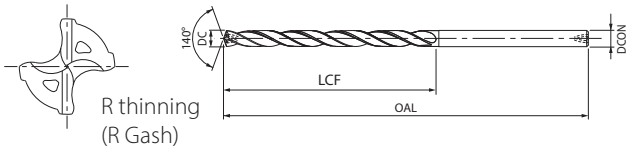
ADOX-8D

Drilling | Solid carbide | 8xD

INDEX

NEW





- First choice in quality and performance
- Carbide drill with internal coolant, EgiAs coating
- For general purpose steels and cast iron
- Double margin
- Mega Cooler oil hole for optimized coolant flow

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | K GGG | N AC, ADC | S Ti | H 25-35 HRC | H 35-45 HRC | H 45-52 HRC

A | CARBIDE | EgiAs | 30° | SHRINK FIT | 140° | h8 | B.515

EDP	DC	LCF	OAL	DCON
8735200	2	22	75	3
8735210	2,1	24	75	3
8735220	2,2	25	75	3
8735230	2,3	26	75	3
8735280	2,8	31	80	3
8735300	3	33	80	3
8735330	3,3	36	95	4
8735340	3,4	37	95	4
8735380	3,8	42	95	4
8735500	5	55	105	6
8735540	5,4	59	115	6
8735550	5,5	61	115	6
8735600	6	66	115	6

EDP	DC	LCF	OAL	DCON

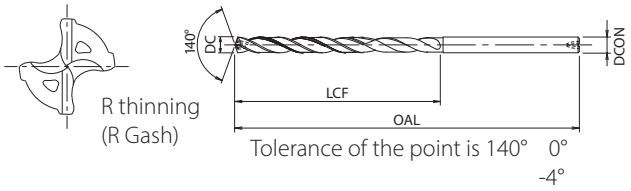
ADOX-10D

Drilling | Solid carbide | 10xD

INDEX

NEW





- First choice in quality and performance
- Carbide drill with internal coolant, EgiAs coating
- For general purpose steels and cast iron
- Double margin
- Mega Cooler oil hole for optimized coolant flow

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | K GGG | N Al | N AC, ADC | S Ti | S Ni | H 25-35 HRC

A | CARBIDE | EgiAs | 30° | SHRINK FIT | 140° | e8 | B.515

EDP	DC	LCF	OAL	DCON
8736240	2,4	33	75	3
8736250	2,5	33	75	3
8736260	2,6	40	90	3
8736280	2,8	40	90	3
8736290	2,9	40	90	3
8736300	3	40	90	3
8736310	3,1	45	100	4
8736320	3,2	45	100	4
8736330	3,3	45	100	4
8736340	3,4	50	100	4
8736370	3,7	50	100	4
8736380	3,8	50	100	4
8736400	4	50	100	4
8736420	4,2	55	115	6
8736430	4,3	60	115	6
8736440	4,4	60	115	6
8736470	4,7	65	115	6
8736480	4,8	65	115	6
8736500	5	65	115	6
8736530	5,3	70	128	6
8736560	5,6	78	128	6
8736600	6	78	128	6

EDP	DC	LCF	OAL	DCON

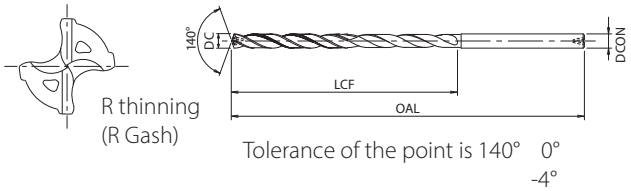
ADOX-15D

Drilling | Solid carbide | 15xD

INDEX

NEW





- First choice in quality and performance
- Carbide drill with internal coolant, EgiAs coating
- For general purpose steels and cast iron
- Double margin
- Mega Cooler oil hole for optimized coolant flow

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | K GGG | N Al | N AC, ADC | S Ti | S Ni | H 25-35 HRC

A | CARBIDE | EgiAs | 30° | SHRINK FIT | 140° | e8 | B.515

EDP	DC	LCF	OAL	DCON
8737230	2,3	42	90	3
8737240	2,4	44	90	3
8737250	2,5	45	96	3
8737260	2,6	47	96	3
8737270	2,7	49	96	3
8737280	2,8	51	96	3
8737290	2,9	53	96	3
8737300	3	55	105	3
8737310	3,1	60	125	4
8737320	3,2	60	125	4
8737330	3,3	60	125	4
8737350	3,5	65	125	4
8737360	3,6	65	125	4
8737400	4	75	125	4
8737420	4,2	75	140	6
8737430	4,3	85	140	6
8737470	4,7	85	140	6
8737480	4,8	90	140	6
8737490	4,9	90	140	6
8737510	5,1	95	160	6
8737520	5,2	95	160	6
8737550	5,5	110	160	6
8737580	5,8	110	160	6
8737600	6	110	160	6

EDP	DC	LCF	OAL	DCON

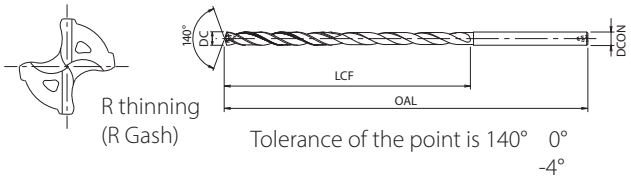
ADOX-20D

Drilling | Solid carbide | 20xD

INDEX

NEW





- First choice in quality and performance
- Carbide drill with internal coolant, EgiAs coating
- For general purpose steels and cast iron
- Double margin
- Mega Cooler oil hole for optimized coolant flow

P ◉ C <0,2% | P ◉ 0,25<C<0,4 | P ◉ C ≥ 0,45% | P ◉ SCM | M ○ INOX | K ◉ GG | K ◉ GGG | N ○ Al | N ○ AC, ADC | S ○ Ti | S ○ Ni | H ○ 25-35 HRC

A | CARBIDE | EgiAs | 30° | SHRINK FIT | 140° | e8 | B.515

EDP	DC	LCF	OAL	DCON
8738230	2,3	53	100	3
8738240	2,4	56	100	3
8738250	2,5	58	109	3
8738260	2,6	60	109	3
8738270	2,7	63	109	3
8738280	2,8	65	109	3
8738290	2,9	67	109	3
8738300	3	70	120	3
8738310	3,1	80	140	4
8738320	3,2	80	140	4
8738330	3,3	80	140	4
8738340	3,4	85	140	4
8738350	3,5	85	140	4
8738400	4	90	140	4
8738420	4,2	100	165	6
8738450	4,5	110	165	6
8738480	4,8	115	165	6
8738500	5	115	165	6
8738510	5,1	120	190	6
8738560	5,6	140	190	6
8738570	5,7	140	190	6
8738600	6	140	190	6

EDP	DC	LCF	OAL	DCON

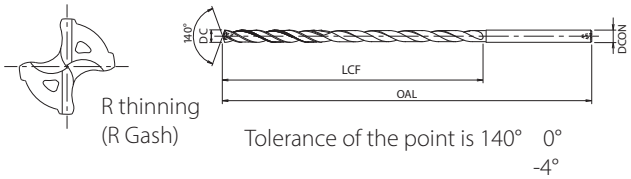
ADOX-25D

Drilling | Solid carbide | 25xD

INDEX

NEW





- First choice in quality and performance
- Carbide drill with internal coolant, EgiAs coating
- For general purpose steels and cast iron
- Double margin
- Mega Cooler oil hole for optimized coolant flow

P ◉ C <0,2% | P ◉ 0,25<C<0,4 | P ◉ C ≥ 0,45% | P ◉ SCM | M ○ INOX | K ◉ GG | K ◉ GGG | N ○ Al | N ○ AC, ADC | S ○ Ti | S ○ Ni | H ○ 25-35 HRC

A | CARBIDE | EgiAs | 30° | SHRINK FIT | 140° | e8 | B.515

EDP	DC	LCF	OAL	DCON
8739230	2,3	65	110	3
8739240	2,4	68	110	3
8739250	2,5	70	122	3
8739260	2,6	73	122	3
8739270	2,7	76	122	3
8739280	2,8	79	122	3
8739290	2,9	82	122	3
8739300	3	85	135	3
8739340	3,4	105	165	4
8739500	5	140	190	6
8739600	6	170	220	6

EDP	DC	LCF	OAL	DCON

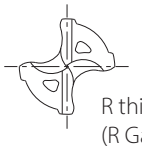
ADOX-30D

Drilling | Solid carbide | 30xD

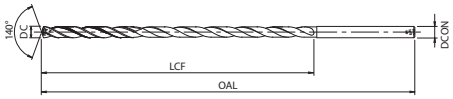
INDEX

NEW





R thinning
(R Gash)



Tolerance of the point is 140° 0°
-4°

- First choice in quality and performance
- Carbide drill with internal coolant, EgiAs coating
- For general purpose steels and cast iron
- Double margin
- Mega Cooler oil hole for optimized coolant flow

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | K GGG | N Al | N AC, ADC | S Ti | S Ni | H 25-35 HRC

A | CARBIDE | EgiAs | 30° | SHRINK FIT | 140° | e8

B.515

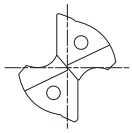
EDP	DC	LCF	OAL	DCON
8740230	2,3	76	120	3
8740240	2,4	80	120	3
8740250	2,5	83	134	3
8740260	2,6	86	134	3
8740270	2,7	90	134	3
8740280	2,8	93	134	3
8740290	2,9	96	134	3
8740300	3	100	150	3
8740310	3,1	102	185	4
8740320	3,2	105	185	4
8740350	3,5	116	185	4
8740370	3,7	116	185	4
8740400	4	132	185	4
8740420	4,2	140	215	6
8740480	4,8	165	215	6
8740500	5	165	215	6
8740600	6	200	250	6

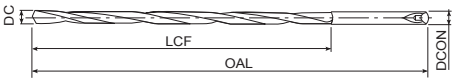
EDP	DC	LCF	OAL	DCON

CAO-GDXL

Drilling | Solid carbide | 15xD / 20xD / 30xD







- Carbide drill with internal coolant, bright finish
- Up to 15xD, 20xD and 30xD
- For aluminium and cast aluminium
- 23 sizes







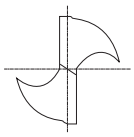
EDP	DC	LCF	OAL	DCON
8567130	3	55	105	3
8567140	4	75	125	4
8567340	4	90	140	4
8567345	4,5	110	165	5
8567150	5	90	140	5
8567350	5	115	165	5
8567450	5	165	215	5
8567355	5,5	140	190	6
8567455	5,5	200	250	6
8567160	6	110	160	6
8567360	6	140	190	6
8567460	6	200	250	6
8567165	6,5	120	175	7
8567170	7	125	175	7
8567370	7	160	210	7
8567470	7	230	280	7
8567180	8	145	195	8
8567380	8	180	230	8
8567480	8	265	315	8
8567190	9	160	210	9
8567390	9	210	260	9
8567200	10	180	240	10
8567400	10	230	290	10

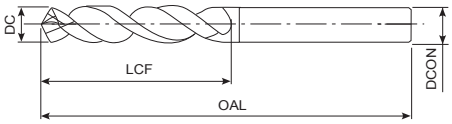
EDP	DC	LCF	OAL	DCON

HYP-HP-3D

Drilling | Solid carbide | 3xD







- Carbide drill with EgiAs coating
- Up to 3xD
- General purpose
- 154 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | K GGG | N Al | N AC, ADC | H 25-35 HRC | H 35-45 HRC | H 45-52 HRC

HYPRO | CARBIDE | EgiAs | 30° | SHRINK FIT | 140° | m7

B.501

EDP	DC	DC Inch	LCF	OAL	DCON
30200100	1	-	7	35	3
30200110	1,1	-	7	35	3
30200120	1,2	-	8	35	3
30200130	1,3	-	8	35	3
30200140	1,4	-	9	35	3
30200150	1,5	-	9	40	3
30200160	1,6	-	10	40	3
30200170	1,7	-	10	40	3
30200180	1,8	-	11	40	3
30200190	1,9	-	11	40	3
30200200	2	-	13	45	3
30200210	2,1	-	13	45	3
30200220	2,2	-	13	45	3
30200230	2,3	-	13	45	3
30200240	2,4	-	15	45	3
30200250	2,5	-	15	50	3
30200260	2,6	-	15	50	3
30200270	2,7	-	17	50	3
30200280	2,8	-	17	50	3
30200290	2,9	-	17	50	3
30200300	3	-	20	62	6
30200310	3,1	-	20	62	6
30200317	3,17	1/8	20	62	6
30200320	3,2	-	20	62	6
30200330	3,3	-	20	62	6
30200340	3,4	-	20	62	6
30200350	3,5	-	20	62	6
30200357	3,57	9/64	20	62	6
30200360	3,6	-	20	62	6
30200370	3,7	-	20	62	6
30200380	3,8	-	24	66	6
30200390	3,9	-	24	66	6
30200397	3,97	5/32	24	66	6
30200400	4	-	24	66	6
30200410	4,1	-	24	66	6
30200420	4,2	-	24	66	6
30200430	4,3	-	24	66	6
30200437	4,37	11/64	24	66	6
30200440	4,4	-	24	66	6
30200450	4,5	-	24	66	6
30200460	4,6	-	24	66	6
30200470	4,7	-	24	66	6
30200476	4,76	3/16	24	66	6
30200480	4,8	-	28	66	6
30200490	4,9	-	28	66	6
30200500	5	-	28	66	6

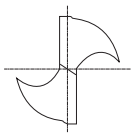
EDP	DC	DC Inch	LCF	OAL	DCON
30200510	5,1	-	28	66	6
30200516	5,16	13/64	28	66	6
30200520	5,2	-	28	66	6
30200530	5,3	-	28	66	6
30200540	5,4	-	28	66	6
30200550	5,5	-	28	66	6
30200556	5,56	7/32	28	66	6
30200560	5,6	-	28	66	6
30200570	5,7	-	28	66	6
30200580	5,8	-	28	66	6
30200590	5,9	-	28	66	6
30200595	5,95	15/64	28	66	6
30200600	6	-	28	66	6
30200610	6,1	-	34	79	8
30200620	6,2	-	34	79	8
30200630	6,3	-	34	79	8
30200635	6,35	1/4	34	79	8
30200640	6,4	-	34	79	8
30200650	6,5	-	34	79	8
30200660	6,6	-	34	79	8
30200670	6,7	-	34	79	8
30200675	6,75	17/64	34	79	8
30200680	6,8	-	34	79	8
30200690	6,9	-	34	79	8
30200700	7	-	34	79	8
30200710	7,1	-	41	79	8
30200714	7,14	9/32	41	79	8
30200720	7,2	-	41	79	8
30200730	7,3	-	41	79	8
30200740	7,4	-	41	79	8
30200750	7,5	-	41	79	8
30200754	7,54	19/64	41	79	8
30200760	7,6	-	41	79	8
30200770	7,7	-	41	79	8
30200780	7,8	-	41	79	8
30200790	7,9	-	41	79	8
30200794	7,94	5/16	41	79	8
30200800	8	-	41	79	8
30200810	8,1	-	47	89	10
30200820	8,2	-	47	89	10
30200830	8,3	-	47	89	10
30200833	8,33	21/64	47	89	10
30200840	8,4	-	47	89	10
30200850	8,5	-	47	89	10
30200860	8,6	-	47	89	10
30200870	8,7	-	47	89	10

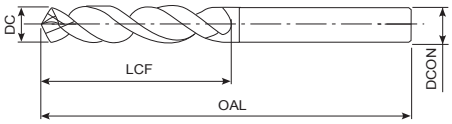
HYP-HP-3D

INDEX

Drilling | Solid carbide | 3xD







- Carbide drill with EgiAs coating
- Up to 3xD
- General purpose
- 154 sizes

P ○ C <0,2% | P ◉ 0,25<C<0,4 | P ◉ C ≥ 0,45% | P ◉ SCM | M ○ INOX | K ◉ GG | K ◉ GGG | N ○ Al | N ○ AC, ADC | H ◉ 25-35 HRC | H ○ 35-45 HRC | H ○ 45-52 HRC

HYPRO | CARBIDE | EgiAs | 30° | SHRINK FIT | 140° | m7

B.501

EDP	DC	DC Inch	LCF	OAL	DCON
30200873	8,73	11/32	47	89	10
30200880	8,8	-	47	89	10
30200890	8,9	-	47	89	10
30200900	9	-	47	89	10
30200910	9,1	-	47	89	10
30200913	9,13	23/64	47	89	10
30200920	9,2	-	47	89	10
30200930	9,3	-	47	89	10
30200940	9,4	-	47	89	10
30200950	9,5	-	47	89	10
30200952	9,52	3/8	47	89	10
30200960	9,6	-	47	89	10
30200970	9,7	-	47	89	10
30200980	9,8	-	47	89	10
30200990	9,9	-	47	89	10
30200992	9,92	25/64	47	89	10
30201000	10	-	47	89	10
30201010	10,1	-	55	102	12
30201020	10,2	-	55	102	12
30201030	10,3	-	55	102	12
30201032	10,32	13/32	55	102	12
30201040	10,4	-	55	102	12
30201050	10,5	-	55	102	12
30201060	10,6	-	55	102	12
30201070	10,7	-	55	102	12
30201072	10,72	27/64	55	102	12
30201080	10,8	-	55	102	12
30201090	10,9	-	55	102	12
30201100	11	-	55	102	12
30201110	11,1	-	55	102	12
30201111	11,11	7/16	55	102	12
30201120	11,2	-	55	102	12
30201130	11,3	-	55	102	12
30201140	11,4	-	55	102	12
30201150	11,5	-	55	102	12
30201151	11,51	29/64	55	102	12
30201160	11,6	-	55	102	12
30201170	11,7	-	55	102	12
30201180	11,8	-	55	102	12
30201190	11,9	-	55	102	12
30201191	11,91	15/32	55	102	12
30201200	12	-	55	102	12
30201230	12,3	31/64	60	107	14
30201250	12,5	-	60	107	14
30201270	12,7	1/2	60	107	14
30201300	13	-	60	107	14

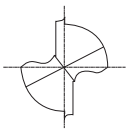
EDP	DC	DC Inch	LCF	OAL	DCON
30201350	13,5	-	60	107	14
30201400	14	-	60	107	14
30201429	14,29	9/16	65	115	16
30201450	14,5	-	65	115	16
30201500	15	-	65	115	16
30201550	15,5	-	65	115	16
30201587	15,87	5/8	65	115	16
30201600	16	-	65	115	16
30201650	16,5	-	73	123	18
30201700	17	-	73	123	18
30201750	17,5	-	73	123	18
30201800	18	-	73	123	18
30201850	18,5	-	79	131	20
30201900	19	-	79	131	20
30201950	19,5	-	79	131	20
30202000	20	-	79	131	20

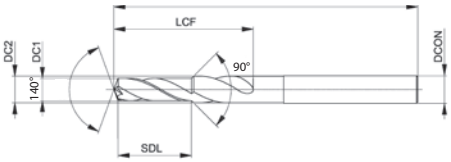
HYP-HP-SC-3D

INDEX

Drilling | Solid carbide | 3xD







- Carbide step drill with EgiAs coating
- 3xD step length
- General purpose
- For tap drill holes

P ○	P ◉	P ◉	P ◉	M ○	K ◉	K ◉	N ○	N ○	H ◉	H ○	H ○
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	INOX	GG	GGG	Al	AC, ADC	25-35 HRC	35-45 HRC	45-52 HRC

HYPRO | CARBIDE | EgiAs | ±25° | SHRINK FIT | 140° | h8

B.501

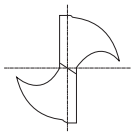
EDP	Thread	DC1	DC2	DCON	SDL	LCF	OAL
EP0201138	M3x0,5	2,5	6	6	9	13	66
EP0201144	M4x0,7	3,3	6	6	12	16	66
EP0201149	M5x0,8	4,2	6	6	15	18	66
EP0201155	M6x1	5	8	8	18	23	79
EP0201161	M8x1,25	6,8	10	10	24	29	89
EP0201169	M10x1,5	8,5	12	12	30	35	89
EP0201179	M12x1,75	10,2	14	14	36	41	112

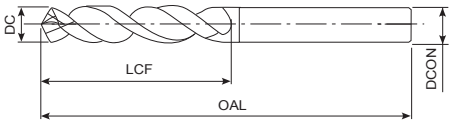
EDP	DC1	DC2	DCON	SDL	LCF	OAL

HYP-HP-5D

Drilling | Solid carbide | 5xD







- Carbide drill with EgiAs coating
- Up to 5xD
- General purpose
- 154 sizes

P ○ C <0,2% | P ◉ 0,25<C<0,4 | P ◉ C ≥ 0,45% | P ◉ SCM | M ○ INOX | K ◉ GG | K ◉ GGG | N ○ AI | N ○ AC, ADC | H ◉ 25-35 HRC | H ○ 35-45 HRC | H ○ 45-52 HRC

HYPRO | CARBIDE | EgiAs | 30° | SHRINK FIT | 140° | m7

B.501

EDP	DC	DC Inch	LCF	OAL	DCON
31200100	1	-	9	38	3
31200110	1,1	-	9	38	3
31200120	1,2	-	11	38	3
31200130	1,3	-	11	38	3
31200140	1,4	-	12	38	3
31200150	1,5	-	12	45	3
31200160	1,6	-	14	45	3
31200170	1,7	-	14	45	3
31200180	1,8	-	16	45	3
31200190	1,9	-	16	45	3
31200200	2	-	18	52	3
31200210	2,1	-	18	52	3
31200220	2,2	-	20	52	3
31200230	2,3	-	20	52	3
31200240	2,4	-	22	52	3
31200250	2,5	-	22	56	3
31200260	2,6	-	22	56	3
31200270	2,7	-	23	56	3
31200280	2,8	-	23	56	3
31200290	2,9	-	23	56	3
31200300	3	-	28	66	6
31200310	3,1	-	28	66	6
31200317	3,17	1/8	28	66	6
31200320	3,2	-	28	66	6
31200330	3,3	-	28	66	6
31200340	3,4	-	28	66	6
31200350	3,5	-	28	66	6
31200357	3,57	9/64	28	66	6
31200360	3,6	-	28	66	6
31200370	3,7	-	28	66	6
31200380	3,8	-	36	74	6
31200390	3,9	-	36	74	6
31200397	3,97	5/32	36	74	6
31200400	4	-	36	74	6
31200410	4,1	-	36	74	6
31200420	4,2	-	36	74	6
31200430	4,3	-	36	74	6
31200437	4,37	11/64	36	74	6
31200440	4,4	-	36	74	6
31200450	4,5	-	36	74	6
31200460	4,6	-	36	74	6
31200470	4,7	-	36	74	6
31200476	4,76	3/16	44	82	6
31200480	4,8	-	44	82	6
31200490	4,9	-	44	82	6
31200500	5	-	44	82	6

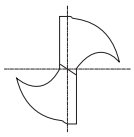
EDP	DC	DC Inch	LCF	OAL	DCON
31200510	5,1	-	44	82	6
31200516	5,16	13/64	44	82	6
31200520	5,2	-	44	82	6
31200530	5,3	-	44	82	6
31200540	5,4	-	44	82	6
31200550	5,5	-	44	82	6
31200556	5,56	7/32	44	82	6
31200560	5,6	-	44	82	6
31200570	5,7	-	44	82	6
31200580	5,8	-	44	82	6
31200590	5,9	-	44	82	6
31200595	5,95	15/64	44	82	6
31200600	6	-	44	82	6
31200610	6,1	-	53	91	8
31200620	6,2	-	53	91	8
31200630	6,3	-	53	91	8
31200635	6,35	1/4	53	91	8
31200640	6,4	-	53	91	8
31200650	6,5	-	53	91	8
31200660	6,6	-	53	91	8
31200670	6,7	-	53	91	8
31200675	6,75	17/64	53	91	8
31200680	6,8	-	53	91	8
31200690	6,9	-	53	91	8
31200700	7	-	53	91	8
31200710	7,1	-	53	91	8
31200714	7,14	9/32	53	91	8
31200720	7,2	-	53	91	8
31200730	7,3	-	53	91	8
31200740	7,4	-	53	91	8
31200750	7,5	-	53	91	8
31200754	7,54	19/64	53	91	8
31200760	7,6	-	53	91	8
31200770	7,7	-	53	91	8
31200780	7,8	-	53	91	8
31200790	7,9	-	53	91	8
31200794	7,94	5/16	53	91	8
31200800	8	-	53	91	8
31200810	8,1	-	61	103	10
31200820	8,2	-	61	103	10
31200830	8,3	-	61	103	10
31200833	8,33	21/64	61	103	10
31200840	8,4	-	61	103	10
31200850	8,5	-	61	103	10
31200860	8,6	-	61	103	10
31200870	8,7	-	61	103	10

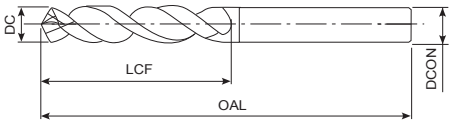
HYP-HP-5D

INDEX

Drilling | Solid carbide | 5xD







- Carbide drill with EgiAs coating
- Up to 5xD
- General purpose
- 154 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | K GGG | N Al | N AC, ADC | H 25-35 HRC | H 35-45 HRC | H 45-52 HRC

HYPRO | CARBIDE | EgiAs | 30° | SHRINK FIT | 140° | m7

B.501

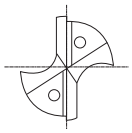
EDP	DC	DC Inch	LCF	OAL	DCON
31200873	8,73	11/32	61	103	10
31200880	8,8	-	61	103	10
31200890	8,9	-	61	103	10
31200900	9	-	61	103	10
31200910	9,1	-	61	103	10
31200913	9,13	23/64	61	103	10
31200920	9,2	-	61	103	10
31200930	9,3	-	61	103	10
31200940	9,4	-	61	103	10
31200950	9,5	-	61	103	10
31200952	9,52	3/8	61	103	10
31200960	9,6	-	61	103	10
31200970	9,7	-	61	103	10
31200980	9,8	-	61	103	10
31200990	9,9	-	61	103	10
31200992	9,92	25/64	61	103	10
31201000	10	-	61	103	10
31201010	10,1	-	71	118	12
31201020	10,2	-	71	118	12
31201030	10,3	-	71	118	12
31201032	10,32	13/32	71	118	12
31201040	10,4	-	71	118	12
31201050	10,5	-	71	118	12
31201060	10,6	-	71	118	12
31201070	10,7	-	71	118	12
31201072	10,72	27/64	71	118	12
31201080	10,8	-	71	118	12
31201090	10,9	-	71	118	12
31201100	11	-	71	118	12
31201110	11,1	-	71	118	12
31201111	11,11	7/16	71	118	12
31201120	11,2	-	71	118	12
31201130	11,3	-	71	118	12
31201140	11,4	-	71	118	12
31201150	11,5	-	71	118	12
31201151	11,51	29/64	71	118	12
31201160	11,6	-	71	118	12
31201170	11,7	-	71	118	12
31201180	11,8	-	71	118	12
31201190	11,9	-	71	118	12
31201191	11,91	15/32	71	118	12
31201200	12	-	71	118	12
31201230	12,3	31/64	77	124	14
31201250	12,5	-	77	124	14
31201270	12,7	1/2	77	124	14
31201300	13	-	77	124	14

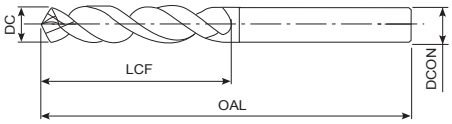
EDP	DC	DC Inch	LCF	OAL	DCON
31201350	13,5	-	77	124	14
31201400	14	-	77	124	14
31201429	14,29	9/16	83	133	16
31201450	14,5	-	83	133	16
31201500	15	-	83	133	16
31201550	15,5	-	83	133	16
31201587	15,87	5/8	83	133	16
31201600	16	-	83	133	16
31201650	16,5	-	93	143	18
31201700	17	-	93	143	18
31201750	17,5	-	93	143	18
31201800	18	-	93	143	18
31201850	18,5	-	101	153	20
31201900	19	-	101	153	20
31201950	19,5	-	101	153	20
31202000	20	-	101	153	20

HYP-HPO-3D

Drilling | Solid carbide | 3xD







- Carbide drill with internal coolant, EgiAs coating
- Up to 3xD
- General purpose
- 136 sizes

P ○ C <0,2% | P ◉ 0,25<C<0,4 | P ◉ C ≥ 0,45% | P ◉ SCM | M ○ INOX | K ◉ GG | K ◉ GGG | N ○ Al | N ○ AC, ADC | H ◉ 25-35 HRC | H ○ 35-45 HRC | H ○ 45-52 HRC

HYPRO | CARBIDE | EgiAs | 30° | SHRINK FIT | 140° | m7 | B.501

EDP	DC	DC Inch	LCF	OAL	DCON
30210300	3	-	20	62	6
30210310	3,1	-	20	62	6
30210317	3,17	1/8	20	62	6
30210320	3,2	-	20	62	6
30210330	3,3	-	20	62	6
30210340	3,4	-	20	62	6
30210350	3,5	-	20	62	6
30210357	3,57	9/64	20	62	6
30210360	3,6	-	20	62	6
30210370	3,7	-	20	62	6
30210380	3,8	-	24	66	6
30210390	3,9	-	24	66	6
30210397	3,97	5/32	24	66	6
30210400	4	-	24	66	6
30210410	4,1	-	24	66	6
30210420	4,2	-	24	66	6
30210430	4,3	-	24	66	6
30210437	4,37	11/64	24	66	6
30210440	4,4	-	24	66	6
30210450	4,5	-	24	66	6
30210460	4,6	-	24	66	6
30210465	4,65	-	24	66	6
30210470	4,7	-	24	66	6
30210476	4,76	3/16	24	66	6
30210480	4,8	-	28	66	6
30210490	4,9	-	28	66	6
30210500	5	-	28	66	6
30210510	5,1	-	28	66	6
30210516	5,16	13/64	28	66	6
30210520	5,2	-	28	66	6
30210530	5,3	-	28	66	6
30210540	5,4	-	28	66	6
30210550	5,5	-	28	66	6
30210555	5,55	-	28	66	6
30210556	5,56	7/32	28	66	6
30210560	5,6	-	28	66	6
30210570	5,7	-	28	66	6
30210580	5,8	-	28	66	6
30210590	5,9	-	28	66	6
30210595	5,95	15/64	28	66	6
30210600	6	-	28	66	6
30210610	6,1	-	34	79	8
30210620	6,2	-	34	79	8
30210630	6,3	-	34	79	8
30210635	6,35	1/4	34	79	8
30210640	6,4	-	34	79	8

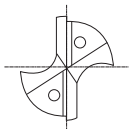
EDP	DC	DC Inch	LCF	OAL	DCON
30210650	6,5	-	34	79	8
30210660	6,6	-	34	79	8
30210670	6,7	-	34	79	8
30210675	6,75	17/64	34	79	8
30210680	6,8	-	34	79	8
30210690	6,9	-	34	79	8
30210700	7	-	34	79	8
30210710	7,1	-	41	79	8
30210714	7,14	9/32	41	79	8
30210720	7,2	-	41	79	8
30210730	7,3	-	41	79	8
30210740	7,4	-	41	79	8
30210750	7,5	-	41	79	8
30210754	7,54	19/64	41	79	8
30210760	7,6	-	41	79	8
30210770	7,7	-	41	79	8
30210780	7,8	-	41	79	8
30210790	7,9	-	41	79	8
30210794	7,94	5/16	41	79	8
30210800	8	-	41	79	8
30210810	8,1	-	47	89	10
30210820	8,2	-	47	89	10
30210830	8,3	-	47	89	10
30210833	8,33	21/64	47	89	10
30210840	8,4	-	47	89	10
30210850	8,5	-	47	89	10
30210860	8,6	-	47	89	10
30210870	8,7	-	47	89	10
30210873	8,73	11/32	47	89	10
30210880	8,8	-	47	89	10
30210890	8,9	-	47	89	10
30210900	9	-	47	89	10
30210910	9,1	-	47	89	10
30210913	9,13	23/64	47	89	10
30210920	9,2	-	47	89	10
30210930	9,3	-	47	89	10
30210940	9,4	-	47	89	10
30210950	9,5	-	47	89	10
30210952	9,52	3/8	47	89	10
30210960	9,6	-	47	89	10
30210970	9,7	-	47	89	10
30210980	9,8	-	47	89	10
30210990	9,9	-	47	89	10
30210992	9,92	25/64	47	89	10
30211000	10	-	47	89	10
30211010	10,1	-	55	102	12

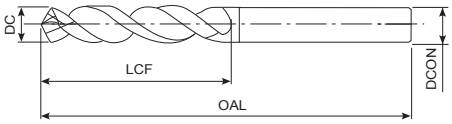
HYP-HPO-3D

INDEX

Drilling | Solid carbide | 3xD







- Carbide drill with internal coolant, EgiAs coating
- Up to 3xD
- General purpose
- 136 sizes

P ○ C <0,2% | P ◉ 0,25<C<0,4 | P ◉ C ≥ 0,45% | P ◉ SCM | M ○ INOX | K ◉ GG | K ◉ GGG | N ○ Al | N ○ AC, ADC | H ◉ 25-35 HRC | H ○ 35-45 HRC | H ○ 45-52 HRC

HYPRO | CARBIDE | EgiAs | 30° | SHRINK FIT | 140° | m7 | B.501

EDP	DC	DC Inch	LCF	OAL	DCON
30211020	10,2	-	55	102	12
30211030	10,3	-	55	102	12
30211032	10,32	13/32	55	102	12
30211040	10,4	-	55	102	12
30211050	10,5	-	55	102	12
30211060	10,6	-	55	102	12
30211070	10,7	-	55	102	12
30211072	10,72	27/64	55	102	12
30211080	10,8	-	55	102	12
30211090	10,9	-	55	102	12
30211100	11	-	55	102	12
30211110	11,1	-	55	102	12
30211111	11,11	7/16	55	102	12
30211120	11,2	-	55	102	12
30211130	11,3	-	55	102	12
30211140	11,4	-	55	102	12
30211150	11,5	-	55	102	12
30211151	11,51	29/64	55	102	12
30211160	11,6	-	55	102	12
30211170	11,7	-	55	102	12
30211180	11,8	-	55	102	12
30211190	11,9	-	55	102	12
30211191	11,91	15/32	55	102	12
30211200	12	-	55	102	12
30211230	12,3	31/64	60	107	14
30211250	12,5	-	60	107	14
30211270	12,7	1/2	60	107	14
30211300	13	-	60	107	14
30211350	13,5	-	60	107	14
30211400	14	-	60	107	14
30211429	14,29	9/16	65	115	16
30211450	14,5	-	65	115	16
30211500	15	-	65	115	16
30211550	15,5	-	65	115	16
30211587	15,87	5/8	65	115	16
30211600	16	-	65	115	16
30211650	16,5	-	73	123	18
30211700	17	-	73	123	18
30211750	17,5	-	73	123	18
30211800	18	-	73	123	18
30211850	18,5	-	79	131	20
30211900	19	-	79	131	20
30211950	19,5	-	79	131	20
30212000	20	-	79	131	20

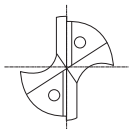
EDP	DC	DC Inch	LCF	OAL	DCON

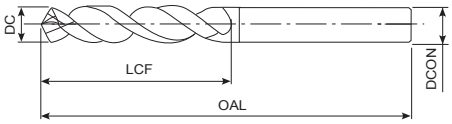
HYP-HPO-3D-HE

INDEX

Drilling | Solid carbide | 3xD







- Carbide drill with internal coolant, EgiAs coating
- Up to 3xD
- With Whistle Notch shank for general purpose
- 134 sizes

P ○ C <0,2% | P ◉ 0,25<C<0,4 | P ◉ C ≥ 0,45% | P ◉ SCM | M ○ INOX | K ◉ GG | K ◉ GGG | N ○ Al | N ○ AC, ADC | H ◉ 25-35 HRC | H ○ 35-45 HRC | H ○ 45-52 HRC

HYPRO | CARBIDE | EgiAs | 30° | 140° | m7 | B.501

EDP	DC	DC Inch	LCF	OAL	DCON
30210300-HE	3	-	20	62	6
30210310-HE	3,1	-	20	62	6
30210317-HE	3,17	1/8	20	62	6
30210320-HE	3,2	-	20	62	6
30210330-HE	3,3	-	20	62	6
30210340-HE	3,4	-	20	62	6
30210350-HE	3,5	-	20	62	6
30210357-HE	3,57	9/64	20	62	6
30210360-HE	3,6	-	20	62	6
30210370-HE	3,7	-	20	62	6
30210380-HE	3,8	-	24	66	6
30210390-HE	3,9	-	24	66	6
30210397-HE	3,97	5/32	24	66	6
30210400-HE	4	-	24	66	6
30210410-HE	4,1	-	24	66	6
30210420-HE	4,2	-	24	66	6
30210430-HE	4,3	-	24	66	6
30210437-HE	4,37	11/64	24	66	6
30210440-HE	4,4	-	24	66	6
30210450-HE	4,5	-	24	66	6
30210460-HE	4,6	-	24	66	6
30210470-HE	4,7	-	24	66	6
30210476-HE	4,76	3/16	24	66	6
30210480-HE	4,8	-	28	66	6
30210490-HE	4,9	-	28	66	6
30210500-HE	5	-	28	66	6
30210510-HE	5,1	-	28	66	6
30210516-HE	5,16	13/64	28	66	6
30210520-HE	5,2	-	28	66	6
30210530-HE	5,3	-	28	66	6
30210540-HE	5,4	-	28	66	6
30210550-HE	5,5	-	28	66	6
30210556-HE	5,56	7/32	28	66	6
30210560-HE	5,6	-	28	66	6
30210570-HE	5,7	-	28	66	6
30210580-HE	5,8	-	28	66	6
30210590-HE	5,9	-	28	66	6
30210595-HE	5,95	15/64	28	66	6
30210600-HE	6	-	28	66	6
30210610-HE	6,1	-	34	79	8
30210620-HE	6,2	-	34	79	8
30210630-HE	6,3	-	34	79	8
30210635-HE	6,35	1/4	34	79	8
30210640-HE	6,4	-	34	79	8
30210650-HE	6,5	-	34	79	8
30210660-HE	6,6	-	34	79	8

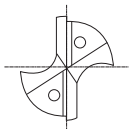
EDP	DC	DC Inch	LCF	OAL	DCON
30210670-HE	6,7	-	34	79	8
30210675-HE	6,75	17/64	34	79	8
30210680-HE	6,8	-	34	79	8
30210690-HE	6,9	-	34	79	8
30210700-HE	7	-	34	79	8
30210710-HE	7,1	-	41	79	8
30210714-HE	7,14	9/32	41	79	8
30210720-HE	7,2	-	41	79	8
30210730-HE	7,3	-	41	79	8
30210740-HE	7,4	-	41	79	8
30210750-HE	7,5	-	41	79	8
30210754-HE	7,54	19/64	41	79	8
30210760-HE	7,6	-	41	79	8
30210770-HE	7,7	-	41	79	8
30210780-HE	7,8	-	41	79	8
30210790-HE	7,9	-	41	79	8
30210794-HE	7,94	5/16	41	79	8
30210800-HE	8	-	41	79	8
30210810-HE	8,1	-	47	89	10
30210820-HE	8,2	-	47	89	10
30210830-HE	8,3	-	47	89	10
30210833-HE	8,33	21/64	47	89	10
30210840-HE	8,4	-	47	89	10
30210850-HE	8,5	-	47	89	10
30210860-HE	8,6	-	47	89	10
30210870-HE	8,7	-	47	89	10
30210873-HE	8,73	11/32	47	89	10
30210880-HE	8,8	-	47	89	10
30210890-HE	8,9	-	47	89	10
30210900-HE	9	-	47	89	10
30210910-HE	9,1	-	47	89	10
30210913-HE	9,13	23/64	47	89	10
30210920-HE	9,2	-	47	89	10
30210930-HE	9,3	-	47	89	10
30210940-HE	9,4	-	47	89	10
30210950-HE	9,5	-	47	89	10
30210952-HE	9,52	3/8	47	89	10
30210960-HE	9,6	-	47	89	10
30210970-HE	9,7	-	47	89	10
30210980-HE	9,8	-	47	89	10
30210990-HE	9,9	-	47	89	10
30210992-HE	9,92	25/64	47	89	10
30211000-HE	10	-	47	89	10
30211010-HE	10,1	-	47	89	12
30211020-HE	10,2	-	55	102	12
30211030-HE	10,3	-	55	102	12

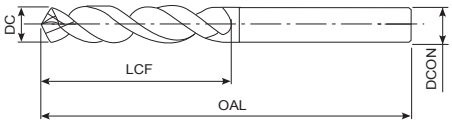
HYP-HPO-3D-HE

INDEX

Drilling | Solid carbide | 3xD







- Carbide drill with internal coolant, EgiAs coating
- Up to 3xD
- With Whistle Notch shank for general purpose
- 134 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | K GGG | N Al | N AC, ADC | H 25-35 HRC | H 35-45 HRC | H 45-52 HRC

CARBIDE | EgiAs | 30° | 140° | m7

B.501

EDP	DC	DC Inch	LCF	OAL	DCON
30211032-HE	10,32	13/32	55	102	12
30211040-HE	10,4	-	55	102	12
30211050-HE	10,5	-	55	102	12
30211060-HE	10,6	-	55	102	12
30211070-HE	10,7	-	55	102	12
30211072-HE	10,72	27/64	55	102	12
30211080-HE	10,8	-	55	102	12
30211090-HE	10,9	-	55	102	12
30211100-HE	11	-	55	102	12
30211110-HE	11,1	-	55	102	12
30211111-HE	11,11	7/16	55	102	12
30211120-HE	11,2	-	55	102	12
30211130-HE	11,3	-	55	102	12
30211140-HE	11,4	-	55	102	12
30211150-HE	11,5	-	55	102	12
30211151-HE	11,51	29/64	55	102	12
30211160-HE	11,6	-	55	102	12
30211170-HE	11,7	-	55	102	12
30211180-HE	11,8	-	55	102	12
30211190-HE	11,9	-	55	102	12
30211191-HE	11,91	15/32	55	102	12
30211200-HE	12	-	55	102	12
30211230-HE	12,3	31/64	60	107	14
30211250-HE	12,5	-	60	107	14
30211270-HE	12,7	1/2	60	107	14
30211300-HE	13	-	60	107	14
30211350-HE	13,5	-	60	107	14
30211400-HE	14	-	60	107	14
30211429-HE	14,29	9/16	65	115	16
30211450-HE	14,5	-	65	115	16
30211500-HE	15	-	65	115	16
30211550-HE	15,5	-	65	115	16
30211587-HE	15,87	5/8	65	115	16
30211600-HE	16	-	65	115	16
30211650-HE	16,5	-	73	123	18
30211700-HE	17	-	73	123	18
30211750-HE	17,5	-	73	123	18
30211800-HE	18	-	73	123	18
30211850-HE	18,5	-	79	131	20
30211900-HE	19	-	79	131	20
30211950-HE	19,5	-	79	131	20
30212000-HE	20	-	79	131	20

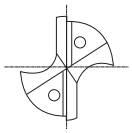
EDP	DC	DC Inch	LCF	OAL	DCON

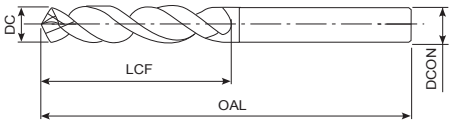
HYP-HPO-3D-HB

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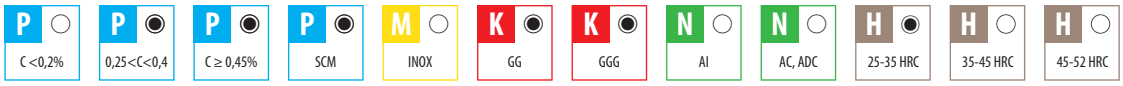
Drilling | Solid carbide | 3xD







- Carbide drill with internal coolant, EgiAs coating
- Up to 3xD
- With Weldon shank for general purpose
- 136 sizes







EDP	DC	DC Inch	LCF	OAL	DCON
30210300-HB	3	-	20	62	6
30210310-HB	3,1	-	20	62	6
30210317-HB	3,17	1/8	20	62	6
30210320-HB	3,2	-	20	62	6
30210330-HB	3,3	-	20	62	6
30210340-HB	3,4	-	20	62	6
30210350-HB	3,5	-	20	62	6
30210357-HB	3,57	9/64	20	62	6
30210360-HB	3,6	-	20	62	6
30210370-HB	3,7	-	20	62	6
30210380-HB	3,8	-	24	66	6
30210390-HB	3,9	-	24	66	6
30210397-HB	3,97	5/32	24	66	6
30210400-HB	4	-	24	66	6
30210410-HB	4,1	-	24	66	6
30210420-HB	4,2	-	24	66	6
30210430-HB	4,3	-	24	66	6
30210437-HB	4,37	11/64	24	66	6
30210440-HB	4,4	-	24	66	6
30210450-HB	4,5	-	24	66	6
30210460-HB	4,6	-	24	66	6
30210465-HB	4,65	-	24	66	6
30210470-HB	4,7	-	24	66	6
30210476-HB	4,76	3/16	24	66	6
30210480-HB	4,8	-	28	66	6
30210490-HB	4,9	-	28	66	6
30210500-HB	5	-	28	66	6
30210510-HB	5,1	-	28	66	6
30210516-HB	5,16	13/64	28	66	6
30210520-HB	5,2	-	28	66	6
30210530-HB	5,3	-	28	66	6
30210540-HB	5,4	-	28	66	6
30210550-HB	5,5	-	28	66	6
30210555-HB	5,55	-	28	66	6
30210556-HB	5,56	7/32	28	66	6
30210560-HB	5,6	-	28	66	6
30210570-HB	5,7	-	28	66	6
30210580-HB	5,8	-	28	66	6
30210590-HB	5,9	-	28	66	6
30210595-HB	5,95	15/64	28	66	6
30210600-HB	6	-	28	66	6
30210610-HB	6,1	-	34	79	8
30210620-HB	6,2	-	34	79	8
30210630-HB	6,3	-	34	79	8
30210635-HB	6,35	1/4	34	79	8
30210640-HB	6,4	-	34	79	8

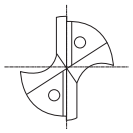
EDP	DC	DC Inch	LCF	OAL	DCON
30210650-HB	6,5	-	34	79	8
30210660-HB	6,6	-	34	79	8
30210670-HB	6,7	-	34	79	8
30210675-HB	6,75	17/64	34	79	8
30210680-HB	6,8	-	34	79	8
30210690-HB	6,9	-	34	79	8
30210700-HB	7	-	34	79	8
30210710-HB	7,1	-	41	79	8
30210714-HB	7,14	9/32	41	79	8
30210720-HB	7,2	-	41	79	8
30210730-HB	7,3	-	41	79	8
30210740-HB	7,4	-	41	79	8
30210750-HB	7,5	-	41	79	8
30210754-HB	7,54	19/64	41	79	8
30210760-HB	7,6	-	41	79	8
30210770-HB	7,7	-	41	79	8
30210780-HB	7,8	-	41	79	8
30210790-HB	7,9	-	41	79	8
30210794-HB	7,94	5/16	41	79	8
30210800-HB	8	-	41	79	8
30210810-HB	8,1	-	47	89	10
30210820-HB	8,2	-	47	89	10
30210830-HB	8,3	-	47	89	10
30210833-HB	8,33	21/64	47	89	10
30210840-HB	8,4	-	47	89	10
30210850-HB	8,5	-	47	89	10
30210860-HB	8,6	-	47	89	10
30210870-HB	8,7	-	47	89	10
30210873-HB	8,73	11/32	47	89	10
30210880-HB	8,8	-	47	89	10
30210890-HB	8,9	-	47	89	10
30210900-HB	9	-	47	89	10
30210910-HB	9,1	-	47	89	10
30210913-HB	9,13	23/64	47	89	10
30210920-HB	9,2	-	47	89	10
30210930-HB	9,3	-	47	89	10
30210940-HB	9,4	-	47	89	10
30210950-HB	9,5	-	47	89	10
30210952-HB	9,52	3/8	47	89	10
30210960-HB	9,6	-	47	89	10
30210970-HB	9,7	-	47	89	10
30210980-HB	9,8	-	47	89	10
30210990-HB	9,9	-	47	89	10
30210992-HB	9,92	25/64	47	89	10
30211000-HB	10	-	47	89	10
30211010-HB	10,1	-	55	102	12

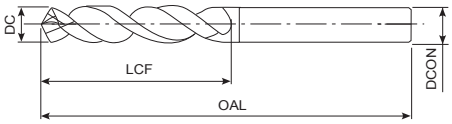
HYP-HPO-3D-HB

INDEX

Drilling | Solid carbide | 3xD







- Carbide drill with internal coolant, EgiAs coating
- Up to 3xD
- With Weldon shank for general purpose
- 136 sizes







EDP	DC	DC Inch	LCF	OAL	DCON
30211020-HB	10,2	-	55	102	12
30211030-HB	10,3	-	55	102	12
30211032-HB	10,32	13/32	55	102	12
30211040-HB	10,4	-	55	102	12
30211050-HB	10,5	-	55	102	12
30211060-HB	10,6	-	55	102	12
30211070-HB	10,7	-	55	102	12
30211072-HB	10,72	27/64	55	102	12
30211080-HB	10,8	-	55	102	12
30211090-HB	10,9	-	55	102	12
30211100-HB	11	-	55	102	12
30211110-HB	11,1	-	55	102	12
30211111-HB	11,11	7/16	55	102	12
30211120-HB	11,2	-	55	102	12
30211130-HB	11,3	-	55	102	12
30211140-HB	11,4	-	55	102	12
30211150-HB	11,5	-	55	102	12
30211151-HB	11,51	29/64	55	102	12
30211160-HB	11,6	-	55	102	12
30211170-HB	11,7	-	55	102	12
30211180-HB	11,8	-	55	102	12
30211190-HB	11,9	-	55	102	12
30211191-HB	11,91	15/32	55	102	12
30211200-HB	12	-	55	102	12
30211230-HB	12,3	31/64	60	107	14
30211250-HB	12,5	-	60	107	14
30211270-HB	12,7	1/2	60	107	14
30211300-HB	13	-	60	107	14
30211350-HB	13,5	-	60	107	14
30211400-HB	14	-	60	107	14
30211429-HB	14,29	9/16	65	115	16
30211450-HB	14,5	-	65	115	16
30211500-HB	15	-	65	115	16
30211550-HB	15,5	-	65	115	16
30211587-HB	15,87	5/8	65	115	16
30211600-HB	16	-	65	115	16
30211650-HB	16,5	-	73	123	18
30211700-HB	17	-	73	123	18
30211750-HB	17,5	-	73	123	18
30211800-HB	18	-	73	123	18
30211850-HB	18,5	-	79	131	20
30211900-HB	19	-	79	131	20
30211950-HB	19,5	-	79	131	20
30212000-HB	20	-	79	131	20

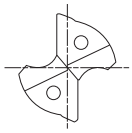
EDP	DC	DC Inch	LCF	OAL	DCON

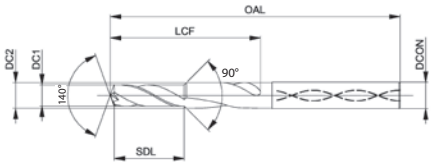
HYP-HPO-SC-3D

INDEX

Drilling | Solid carbide | 3xD







- Carbide drill with internal coolant, EgiAs coating
- 3xD step length
- General purpose
- For tap drill holes

P ○ C <0,2% | P ◉ 0,25<C<0,4 | P ◉ C ≥ 0,45% | P ◉ SCM | M ○ INOX | K ◉ GG | K ◉ GGG | N ○ Al | N ○ AC, ADC | H ◉ 25-35 HRC | H ○ 35-45 HRC | H ○ 45-52 HRC

HYPRO | CARBIDE | EgiAs | ±25° | SHRINK FIT | 140° | h8

B.501

EDP	Thread	DC1	DC2	DCON	SDL	LCF	OAL
EP0202144	M4x0,7	3,3	6	6	12	16	66
EP0202149	M5x0,8	4,2	6	6	15	18	66
EP0202155	M6x1	5	8	8	18	23	79
EP0202161	M8x1,25	6,8	10	10	24	29	89
EP0202169	M10x1,5	8,5	12	12	30	35	89
EP0202179	M12x1,75	10,2	14	14	36	41	112

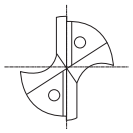
EDP	DC1	DC2	DCON	SDL	LCF	OAL

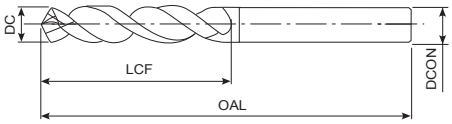
HYP-HPO-5D

INDEX

Drilling | Solid carbide | 5xD







- Carbide drill with internal coolant, EgiAs coating
- Up to 5xD
- General purpose
- 156 sizes

P ○ C <0,2% | P ◉ 0,25<C<0,4 | P ◉ C ≥ 0,45% | P ◉ SCM | M ○ INOX | K ◉ GG | K ◉ GGG | N ○ Al | N ○ AC, ADC | H ◉ 25-35 HRC | H ○ 35-45 HRC | H ○ 45-52 HRC

HYPRO | CARBIDE | EgiAs | 30° | SHRINK FIT | 140° | m7 | B.501

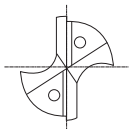
EDP	DC	DC Inch	LCF	OAL	DCON
30220100	1	-	8	55	3
30220110	1,1	-	12	55	3
30220120	1,2	-	12	55	3
30220130	1,3	-	12	55	3
30220140	1,4	-	12	55	3
30220150	1,5	-	16	55	3
30220160	1,6	-	16	55	3
30220170	1,7	-	16	55	3
30220180	1,8	-	16	55	3
30220190	1,9	-	16	55	3
30220200	2	-	21	57	4
30220210	2,1	-	21	57	4
30220220	2,2	-	21	57	4
30220230	2,3	-	21	57	4
30220240	2,4	-	21	57	4
30220250	2,5	-	21	57	4
30220260	2,6	-	21	57	4
30220270	2,7	-	21	57	4
30220280	2,8	-	21	57	4
30220290	2,9	-	21	57	4
30220300	3	-	28	66	6
30220310	3,1	-	28	66	6
30220317	3,17	1/8	28	66	6
30220320	3,2	-	28	66	6
30220330	3,3	-	28	66	6
30220340	3,4	-	28	66	6
30220350	3,5	-	28	66	6
30220357	3,57	9/64	28	66	6
30220360	3,6	-	28	66	6
30220370	3,7	-	28	66	6
30220380	3,8	-	36	74	6
30220390	3,9	-	36	74	6
30220397	3,97	5/32	36	74	6
30220400	4	-	36	74	6
30220410	4,1	-	36	74	6
30220420	4,2	-	36	74	6
30220430	4,3	-	36	74	6
30220437	4,37	11/64	36	74	6
30220440	4,4	-	36	74	6
30220450	4,5	-	36	74	6
30220460	4,6	-	36	74	6
30220465	4,65	-	36	74	6
30220470	4,7	-	36	74	6
30220476	4,76	3/16	44	82	6
30220480	4,8	-	44	82	6
30220490	4,9	-	44	82	6

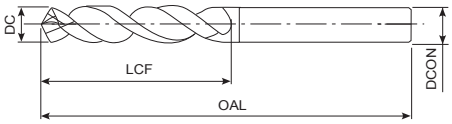
EDP	DC	DC Inch	LCF	OAL	DCON
30220500	5	-	44	82	6
30220510	5,1	-	44	82	6
30220516	5,16	13/64	44	82	6
30220520	5,2	-	44	82	6
30220530	5,3	-	44	82	6
30220540	5,4	-	44	82	6
30220550	5,5	-	44	82	6
30220555	5,55	-	44	82	6
30220556	5,56	7/32	44	82	6
30220560	5,6	-	44	82	6
30220570	5,7	-	44	82	6
30220580	5,8	-	44	82	6
30220590	5,9	-	44	82	6
30220595	5,95	15/54	44	82	6
30220600	6	-	44	82	6
30220610	6,1	-	53	91	8
30220620	6,2	-	53	91	8
30220630	6,3	-	53	91	8
30220635	6,35	1/4	53	91	8
30220640	6,4	-	53	91	8
30220650	6,5	-	53	91	8
30220660	6,6	-	53	91	8
30220670	6,7	-	53	91	8
30220675	6,75	17/64	53	91	8
30220680	6,8	-	53	91	8
30220690	6,9	-	53	91	8
30220700	7	-	53	91	8
30220710	7,1	-	53	91	8
30220714	7,14	9/32	53	91	8
30220720	7,2	-	53	91	8
30220730	7,3	-	53	91	8
30220740	7,4	-	53	91	8
30220750	7,5	-	53	91	8
30220754	7,54	19/64	53	91	8
30220760	7,6	-	53	91	8
30220770	7,7	-	53	91	8
30220780	7,8	-	53	91	8
30220790	7,9	-	53	91	8
30220794	7,94	5/16	53	91	8
30220800	8	-	53	91	8
30220810	8,1	-	61	103	10
30220820	8,2	-	61	103	10
30220830	8,3	-	61	103	10
30220833	8,33	21/64	61	103	10
30220840	8,4	-	61	103	10
30220850	8,5	-	61	103	10

HYP-HPO-5D

Drilling | Solid carbide | 5xD







- Carbide drill with internal coolant, EgiAs coating
- Up to 5xD
- General purpose
- 156 sizes

P ○ C <0,2% | P ◉ 0,25<C<0,4 | P ◉ C ≥ 0,45% | P ◉ SCM | M ○ INOX | K ◉ GG | K ◉ GGG | N ○ Al | N ○ AC, ADC | H ◉ 25-35 HRC | H ○ 35-45 HRC | H ○ 45-52 HRC

HYPRO | CARBIDE | EgiAs | 30° | SHRINK FIT | 140° | m7 | B.501

EDP	DC	DC Inch	LCF	OAL	DCON
30220860	8,6	-	61	103	10
30220870	8,7	-	61	103	10
30220873	8,73	11/32	61	103	10
30220880	8,8	-	61	103	10
30220890	8,9	-	61	103	10
30220900	9	-	61	103	10
30220910	9,1	-	61	103	10
30220913	9,13	23/64	61	103	10
30220920	9,2	-	61	103	10
30220930	9,3	-	61	103	10
30220940	9,4	-	61	103	10
30220950	9,5	-	61	103	10
30220952	9,52	3/8	61	103	10
30220960	9,6	-	61	103	10
30220970	9,7	-	61	103	10
30220980	9,8	-	61	103	10
30220990	9,9	-	61	103	10
30220992	9,92	25/64	61	103	10
30221000	10	-	61	103	10
30221010	10,1	-	71	118	12
30221020	10,2	-	71	118	12
30221030	10,3	-	71	118	12
30221032	10,32	13/32	71	118	12
30221040	10,4	-	71	118	12
30221050	10,5	-	71	118	12
30221060	10,6	-	71	118	12
30221070	10,7	-	71	118	12
30221072	10,72	27/64	71	118	12
30221080	10,8	-	71	118	12
30221090	10,9	-	71	118	12
30221100	11	-	71	118	12
30221110	11,1	-	71	118	12
30221111	11,11	7/16	71	118	12
30221120	11,2	-	71	118	12
30221130	11,3	-	71	118	12
30221140	11,4	-	71	118	12
30221150	11,5	-	71	118	12
30221151	11,51	29/64	71	118	12
30221160	11,6	-	71	118	12
30221170	11,7	-	71	118	12
30221180	11,8	-	71	118	12
30221190	11,9	-	71	118	12
30221191	11,91	15/32	71	118	12
30221200	12	-	71	118	12
30221230	12,3	31/64	77	124	14
30221250	12,5	-	77	124	14

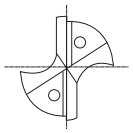
EDP	DC	DC Inch	LCF	OAL	DCON
30221270	12,7	1/2	77	124	14
30221300	13	-	77	124	14
30221350	13,5	-	77	124	14
30221400	14	-	77	124	14
30221429	14,29	9/16	83	133	16
30221450	14,5	-	83	133	16
30221500	15	-	83	133	16
30221550	15,5	-	83	133	16
30221587	15,87	5/8	83	133	16
30221600	16	-	83	133	16
30221650	16,5	-	93	143	18
30221700	17	-	93	143	18
30221750	17,5	-	93	143	18
30221800	18	-	93	143	18
30221850	18,5	-	101	153	20
30221900	19	-	101	153	20
30221950	19,5	-	101	153	20
30222000	20	-	101	153	20

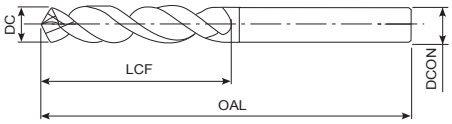
HYP-HPO-5D-HE

INDEX

Drilling | Solid carbide | 5xD







- Carbide drill with internal coolant, EgiAs coating
- Up to 5xD
- With Whistle Notch shank for general purpose
- 134 sizes

P ○ C <0,2% | P ◉ 0,25<C<0,4 | P ◉ C ≥ 0,45% | P ◉ SCM | M ○ INOX | K ◉ GG | K ◉ GGG | N ○ Al | N ○ AC, ADC | H ◉ 25-35 HRC | H ○ 35-45 HRC | H ○ 45-52 HRC

HYPRO | CARBIDE | EgiAs | 30° | 140° | m7 | B.501

EDP	DC	DC Inch	LCF	OAL	DCON
30220300-HE	3	-	28	66	6
30220310-HE	3,1	-	28	66	6
30220317-HE	3,17	1/8	28	66	6
30220320-HE	3,2	-	28	66	6
30220330-HE	3,3	-	28	66	6
30220340-HE	3,4	-	28	66	6
30220350-HE	3,5	-	28	66	6
30220357-HE	3,57	9/64	28	66	6
30220360-HE	3,6	-	28	66	6
30220370-HE	3,7	-	28	66	6
30220380-HE	3,8	-	36	74	6
30220390-HE	3,9	-	36	74	6
30220397-HE	3,97	5/32	36	74	6
30220400-HE	4	-	36	74	6
30220410-HE	4,1	-	36	74	6
30220420-HE	4,2	-	36	74	6
30220430-HE	4,3	-	36	74	6
30220437-HE	4,37	11/64	36	74	6
30220440-HE	4,4	-	36	74	6
30220450-HE	4,5	-	36	74	6
30220460-HE	4,6	-	36	74	6
30220470-HE	4,7	-	36	74	6
30220476-HE	4,76	3/16	44	82	6
30220480-HE	4,8	-	44	82	6
30220490-HE	4,9	-	44	82	6
30220500-HE	5	-	44	82	6
30220510-HE	5,1	-	44	82	6
30220516-HE	5,16	13/64	44	82	6
30220520-HE	5,2	-	44	82	6
30220530-HE	5,3	-	44	82	6
30220540-HE	5,4	-	44	82	6
30220550-HE	5,5	-	44	82	6
30220556-HE	5,56	7/32	44	82	6
30220560-HE	5,6	-	44	82	6
30220570-HE	5,7	-	44	82	6
30220580-HE	5,8	-	44	82	6
30220590-HE	5,9	-	44	82	6
30220595-HE	5,95	15/64	44	82	6
30220600-HE	6	-	44	82	6
30220610-HE	6,1	-	53	91	8
30220620-HE	6,2	-	53	91	8
30220630-HE	6,3	-	53	91	8
30220635-HE	6,35	1/4	53	91	8
30220640-HE	6,4	-	53	91	8
30220650-HE	6,5	-	53	91	8
30220660-HE	6,6	-	53	91	8

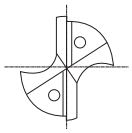
EDP	DC	DC Inch	LCF	OAL	DCON
30220670-HE	6,7	-	53	91	8
30220675-HE	6,75	17/64	53	91	8
30220680-HE	6,8	-	53	91	8
30220690-HE	6,9	-	53	91	8
30220700-HE	7	-	53	91	8
30220710-HE	7,1	-	53	91	8
30220714-HE	7,14	9/32	53	91	8
30220720-HE	7,2	-	53	91	8
30220730-HE	7,3	-	53	91	8
30220740-HE	7,4	-	53	91	8
30220750-HE	7,5	-	53	91	8
30220754-HE	7,54	19/64	53	91	8
30220760-HE	7,6	-	53	91	8
30220770-HE	7,7	-	53	91	8
30220780-HE	7,8	-	53	91	8
30220790-HE	7,9	-	53	91	8
30220794-HE	7,94	5/16	53	91	8
30220800-HE	8	-	53	91	8
30220810-HE	8,1	-	61	103	10
30220820-HE	8,2	-	61	103	10
30220830-HE	8,3	-	61	103	10
30220833-HE	8,33	21/64	61	103	10
30220840-HE	8,4	-	61	103	10
30220850-HE	8,5	-	61	103	10
30220860-HE	8,6	-	61	103	10
30220870-HE	8,7	-	61	103	10
30220873-HE	8,73	11/32	61	103	10
30220880-HE	8,8	-	61	103	10
30220890-HE	8,9	-	61	103	10
30220900-HE	9	-	61	103	10
30220910-HE	9,1	-	61	103	10
30220913-HE	9,13	23/64	61	103	10
30220920-HE	9,2	-	61	103	10
30220930-HE	9,3	-	61	103	10
30220940-HE	9,4	-	61	103	10
30220950-HE	9,5	-	61	103	10
30220952-HE	9,52	3/8	61	103	10
30220960-HE	9,6	-	61	103	10
30220970-HE	9,7	-	61	103	10
30220980-HE	9,8	-	61	103	10
30220990-HE	9,9	-	61	103	10
30220992-HE	9,92	25/64	61	103	10
30221000-HE	10	-	61	103	10
30221010-HE	10,1	-	71	118	12
30221020-HE	10,2	-	71	118	12
30221030-HE	10,3	-	71	118	12

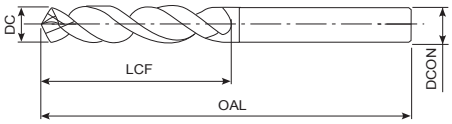
HYP-HPO-5D-HE

INDEX

Drilling | Solid carbide | 5xD







- Carbide drill with internal coolant, EgiAs coating
- Up to 5xD
- With Whistle Notch shank for general purpose
- 134 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | K GGG | N Al | N AC, ADC | H 25-35 HRC | H 35-45 HRC | H 45-52 HRC

CARBIDE | EgiAs | 30° | 140° | m7

B.501

EDP	DC	DC Inch	LCF	OAL	DCON
30221032-HE	10,32	13/32	71	118	12
30221040-HE	10,4	-	71	118	12
30221050-HE	10,5	-	71	118	12
30221060-HE	10,6	-	71	118	12
30221070-HE	10,7	-	71	118	12
30221072-HE	10,72	27/64	71	118	12
30221080-HE	10,8	-	71	118	12
30221090-HE	10,9	-	71	118	12
30221100-HE	11	-	71	118	12
30221110-HE	11,1	-	71	118	12
30221111-HE	11,11	7/16	71	118	12
30221120-HE	11,2	-	71	118	12
30221130-HE	11,3	-	71	118	12
30221140-HE	11,4	-	71	118	12
30221150-HE	11,5	-	71	118	12
30221151-HE	11,51	29/64	71	118	12
30221160-HE	11,6	-	71	118	12
30221170-HE	11,7	-	71	118	12
30221180-HE	11,8	-	71	118	12
30221190-HE	11,9	-	71	118	12
30221191-HE	11,91	15/32	71	118	12
30221200-HE	12	-	71	118	12
30221230-HE	12,3	31/64	77	124	14
30221250-HE	12,5	-	77	124	14
30221270-HE	12,7	1/2	77	124	14
30221300-HE	13	-	77	124	14
30221350-HE	13,5	-	77	124	14
30221400-HE	14	-	77	124	14
30221429-HE	14,29	9/16	83	133	16
30221450-HE	14,5	-	83	133	16
30221500-HE	15	-	83	133	16
30221550-HE	15,5	-	83	133	16
30221587-HE	15,87	5/8	83	133	16
30221600-HE	16	-	83	133	16
30221650-HE	16,5	-	93	143	18
30221700-HE	17	-	93	143	18
30221750-HE	17,5	-	93	143	18
30221800-HE	18	-	93	143	18
30221850-HE	18,5	-	101	153	20
30221900-HE	19	-	101	153	20
30221950-HE	19,5	-	101	153	20
30222000-HE	20	-	101	153	20

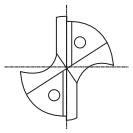
EDP	DC	DC Inch	LCF	OAL	DCON

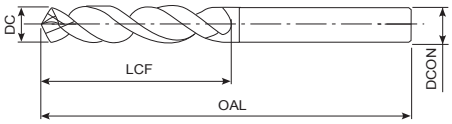
HYP-HPO-5D-HB

INDEX

Drilling | Solid carbide | 5xD







- Carbide drill with internal coolant, EgiAs coating
- Up to 5xD
- With Weldon shank for general purpose
- 136 sizes







EDP	DC	DC Inch	LCF	OAL	DCON
30220300-HB	3	-	28	66	6
30220310-HB	3,1	-	28	66	6
30220317-HB	3,17	1/8	28	66	6
30220320-HB	3,2	-	28	66	6
30220330-HB	3,3	-	28	66	6
30220340-HB	3,4	-	28	66	6
30220350-HB	3,5	-	28	66	6
30220357-HB	3,57	9/64	28	66	6
30220360-HB	3,6	-	28	66	6
30220370-HB	3,7	-	28	66	6
30220380-HB	3,8	-	36	74	6
30220390-HB	3,9	-	36	74	6
30220397-HB	3,97	5/32	36	74	6
30220400-HB	4	-	36	74	6
30220410-HB	4,1	-	36	74	6
30220420-HB	4,2	-	36	74	6
30220430-HB	4,3	-	36	74	6
30220437-HB	4,37	11/64	36	74	6
30220440-HB	4,4	-	36	74	6
30220450-HB	4,5	-	36	74	6
30220460-HB	4,6	-	36	74	6
30220465-HB	4,65	-	36	74	6
30220470-HB	4,7	-	36	74	6
30220476-HB	4,76	3/16	44	82	6
30220480-HB	4,8	-	44	82	6
30220490-HB	4,9	-	44	82	6
30220500-HB	5	-	44	82	6
30220510-HB	5,1	-	44	82	6
30220516-HB	5,16	13/64	44	82	6
30220520-HB	5,2	-	44	82	6
30220530-HB	5,3	-	44	82	6
30220540-HB	5,4	-	44	82	6
30220550-HB	5,5	-	44	82	6
30220555-HB	5,55	-	44	82	6
30220556-HB	5,56	7/32	44	82	6
30220560-HB	5,6	-	44	82	6
30220570-HB	5,7	-	44	82	6
30220580-HB	5,8	-	44	82	6
30220590-HB	5,9	-	44	82	6
30220595-HB	5,95	15/54	44	82	6
30220600-HB	6	-	44	82	6
30220610-HB	6,1	-	53	91	8
30220620-HB	6,2	-	53	91	8
30220630-HB	6,3	-	53	91	8
30220635-HB	6,35	1/4	53	91	8
30220640-HB	6,4	-	53	91	8

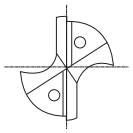
EDP	DC	DC Inch	LCF	OAL	DCON
30220650-HB	6,5	-	53	91	8
30220660-HB	6,6	-	53	91	8
30220670-HB	6,7	-	53	91	8
30220675-HB	6,75	17/64	53	91	8
30220680-HB	6,8	-	53	91	8
30220690-HB	6,9	-	53	91	8
30220700-HB	7	-	53	91	8
30220710-HB	7,1	-	53	91	8
30220714-HB	7,14	9/32	53	91	8
30220720-HB	7,2	-	53	91	8
30220730-HB	7,3	-	53	91	8
30220740-HB	7,4	-	53	91	8
30220750-HB	7,5	-	53	91	8
30220754-HB	7,54	19/64	53	91	8
30220760-HB	7,6	-	53	91	8
30220770-HB	7,7	-	53	91	8
30220780-HB	7,8	-	53	91	8
30220790-HB	7,9	-	53	91	8
30220794-HB	7,94	5/16	53	91	8
30220800-HB	8	-	53	91	8
30220810-HB	8,1	-	61	103	10
30220820-HB	8,2	-	61	103	10
30220830-HB	8,3	-	61	103	10
30220833-HB	8,33	21/64	61	103	10
30220840-HB	8,4	-	61	103	10
30220850-HB	8,5	-	61	103	10
30220860-HB	8,6	-	61	103	10
30220870-HB	8,7	-	61	103	10
30220873-HB	8,73	11/32	61	103	10
30220880-HB	8,8	-	61	103	10
30220890-HB	8,9	-	61	103	10
30220900-HB	9	-	61	103	10
30220910-HB	9,1	-	61	103	10
30220913-HB	9,13	23/64	61	103	10
30220920-HB	9,2	-	61	103	10
30220930-HB	9,3	-	61	103	10
30220940-HB	9,4	-	61	103	10
30220950-HB	9,5	-	61	103	10
30220952-HB	9,52	3/8	61	103	10
30220960-HB	9,6	-	61	103	10
30220970-HB	9,7	-	61	103	10
30220980-HB	9,8	-	61	103	10
30220990-HB	9,9	-	61	103	10
30220992-HB	9,92	25/64	61	103	10
30221000-HB	10	-	61	103	10
30221010-HB	10,1	-	71	118	12

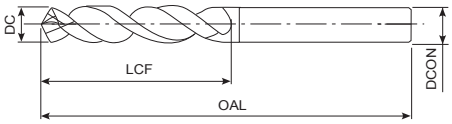
HYP-HPO-5D-HB

INDEX

Drilling | Solid carbide | 5xD







- Carbide drill with internal coolant, EgiAs coating
- Up to 5xD
- With Weldon shank for general purpose
- 136 sizes





EDP	DC	DC Inch	LCF	OAL	DCON
30221020-HB	10,2	-	71	118	12
30221030-HB	10,3	-	71	118	12
30221032-HB	10,32	13/32	71	118	12
30221040-HB	10,4	-	71	118	12
30221050-HB	10,5	-	71	118	12
30221060-HB	10,6	-	71	118	12
30221070-HB	10,7	-	71	118	12
30221072-HB	10,72	27/64	71	118	12
30221080-HB	10,8	-	71	118	12
30221090-HB	10,9	-	71	118	12
30221100-HB	11	-	71	118	12
30221110-HB	11,1	-	71	118	12
30221111-HB	11,11	7/16	71	118	12
30221120-HB	11,2	-	71	118	12
30221130-HB	11,3	-	71	118	12
30221140-HB	11,4	-	71	118	12
30221150-HB	11,5	-	71	118	12
30221151-HB	11,51	29/64	71	118	12
30221160-HB	11,6	-	71	118	12
30221170-HB	11,7	-	71	118	12
30221180-HB	11,8	-	71	118	12
30221190-HB	11,9	-	71	118	12
30221191-HB	11,91	15/32	71	118	12
30221200-HB	12	-	71	118	12
30221230-HB	12,3	31/64	77	124	14
30221250-HB	12,5	-	77	124	14
30221270-HB	12,7	1/2	77	124	14
30221300-HB	13	-	77	124	14
30221350-HB	13,5	-	77	124	14
30221400-HB	14	-	77	124	14
30221429-HB	14,29	9/16	83	133	16
30221450-HB	14,5	-	83	133	16
30221500-HB	15	-	83	133	16
30221550-HB	15,5	-	83	133	16
30221587-HB	15,87	5/8	83	133	16
30221600-HB	16	-	83	133	16
30221650-HB	16,5	-	93	143	18
30221700-HB	17	-	93	143	18
30221750-HB	17,5	-	93	143	18
30221800-HB	18	-	93	143	18
30221850-HB	18,5	-	101	153	20
30221900-HB	19	-	101	153	20
30221950-HB	19,5	-	101	153	20
30222000-HB	20	-	101	153	20

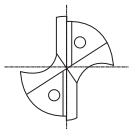
EDP	DC	DC Inch	LCF	OAL	DCON

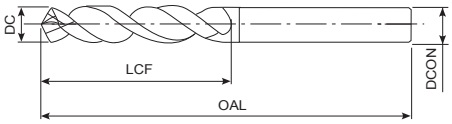
HYP-HPO-8D

INDEX

Drilling | Solid carbide | 8xD







- Carbide drill with internal coolant, EgiAs coating
- Up to 8xD
- General purpose
- 134 sizes

P ○	P ◉	P ◉	P ◉	M ○	K ◉	K ◉	N ○	N ○	H ◉	H ○	H ○
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	INOX	GG	GGG	Al	AC, ADC	25-35 HRC	35-45 HRC	45-52 HRC

HYPRO | CARBIDE | EgiAs | 30° | SHRINK FIT | 140° | m7 | B.501

EDP	DC	DC Inch	LCF	OAL	DCON
32210300	3	-	34	72	4
32210310	3,1	-	43	81	4
32210317	3,17	1/8	43	81	4
32210320	3,2	-	43	81	4
32210330	3,3	-	43	81	4
32210340	3,4	-	43	81	4
32210350	3,5	-	43	81	4
32210357	3,57	9/64	43	81	4
32210360	3,6	-	43	81	4
32210370	3,7	-	43	81	4
32210380	3,8	-	43	81	4
32210390	3,9	-	43	81	4
32210397	3,97	5/32	43	81	4
32210400	4	-	43	81	4
32210410	4,1	-	50	90	6
32210420	4,2	-	50	90	6
32210430	4,3	-	50	90	6
32210437	4,37	11/64	50	90	6
32210440	4,4	-	50	90	6
32210450	4,5	-	50	90	6
32210460	4,6	-	50	90	6
32210470	4,7	-	50	90	6
32210476	4,76	3/16	50	90	6
32210480	4,8	-	50	90	6
32210490	4,9	-	50	90	6
32210500	5	-	50	90	6
32210510	5,1	-	57	97	6
32210516	5,16	13/64	57	97	6
32210520	5,2	-	57	97	6
32210530	5,3	-	57	97	6
32210540	5,4	-	57	97	6
32210550	5,5	-	57	97	6
32210556	5,56	7/32	57	97	6
32210560	5,6	-	57	97	6
32210570	5,7	-	57	97	6
32210580	5,8	-	57	97	6
32210590	5,9	-	57	97	6
32210595	5,95	15/64	57	97	6
32210600	6	-	57	97	6
32210610	6,1	-	66	106	8
32210620	6,2	-	66	106	8
32210630	6,3	-	66	106	8
32210635	6,35	1/4	66	106	8
32210640	6,4	-	66	106	8
32210650	6,5	-	66	106	8
32210660	6,6	-	66	106	8

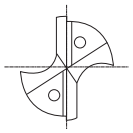
EDP	DC	DC Inch	LCF	OAL	DCON
32210670	6,7	-	66	106	8
32210675	6,75	17/64	66	106	8
32210680	6,8	-	66	106	8
32210690	6,9	-	76	116	8
32210700	7	-	76	116	8
32210710	7,1	-	76	116	8
32210714	7,14	9/32	76	116	8
32210720	7,2	-	76	116	8
32210730	7,3	-	76	116	8
32210740	7,4	-	76	116	8
32210750	7,5	-	76	116	8
32210754	7,54	19/64	76	116	8
32210760	7,6	-	76	116	8
32210770	7,7	-	76	116	8
32210780	7,8	-	76	116	8
32210790	7,9	-	76	116	8
32210794	7,94	5/16	76	116	8
32210800	8	-	76	116	8
32210810	8,1	-	87	131	10
32210820	8,2	-	87	131	10
32210830	8,3	-	87	131	10
32210833	8,33	21/64	87	131	10
32210840	8,4	-	87	131	10
32210850	8,5	-	87	131	10
32210860	8,6	-	87	131	10
32210870	8,7	-	87	131	10
32210873	8,73	11/32	87	131	10
32210880	8,8	-	87	131	10
32210890	8,9	-	87	131	10
32210900	9	-	87	131	10
32210910	9,1	-	95	139	10
32210913	9,13	23/64	95	139	10
32210920	9,2	-	95	139	10
32210930	9,3	-	95	139	10
32210940	9,4	-	95	139	10
32210950	9,5	-	95	139	10
32210952	9,52	3/8	95	139	10
32210960	9,6	-	95	139	10
32210970	9,7	-	95	139	10
32210980	9,8	-	95	139	10
32210990	9,9	-	95	139	10
32210992	9,92	25/64	95	139	10
32211000	10	-	95	139	10
32211010	10,1	-	106	155	12
32211020	10,2	-	106	155	12
32211030	10,3	-	106	155	12

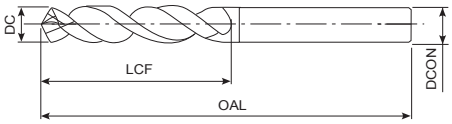
HYP-HPO-8D

INDEX

Drilling | Solid carbide | 8xD







- Carbide drill with internal coolant, EgiAs coating
- Up to 8xD
- General purpose
- 134 sizes

P ○ C <0,2% | P ◉ 0,25<C<0,4 | P ◉ C ≥ 0,45% | P ◉ SCM | M ○ INOX | K ◉ GG | K ◉ GGG | N ○ Al | N ○ AC, ADC | H ◉ 25-35 HRC | H ○ 35-45 HRC | H ○ 45-52 HRC

HYPRO | CARBIDE | EgiAs | 30° | SHRINK FIT | 140° | m7 | B.501

EDP	DC	DC Inch	LCF	OAL	DCON
32211032	10,32	13/32	106	155	12
32211040	10,4	-	106	155	12
32211050	10,5	-	106	155	12
32211060	10,6	-	106	155	12
32211070	10,7	-	106	155	12
32211072	10,72	27/64	106	155	12
32211080	10,8	-	106	155	12
32211090	10,9	-	106	155	12
32211100	11	-	106	155	12
32211110	11,1	-	114	163	12
32211111	11,11	7/16	114	163	12
32211120	11,2	-	114	163	12
32211130	11,3	-	114	163	12
32211140	11,4	-	114	163	12
32211150	11,5	-	114	163	12
32211151	11,51	29/64	114	163	12
32211160	11,6	-	114	163	12
32211170	11,7	-	114	163	12
32211180	11,8	-	114	163	12
32211190	11,9	-	114	163	12
32211191	11,91	15/32	114	163	12
32211200	12	-	114	163	12
32211230	12,3	31/64	133	182	14
32211250	12,5	-	133	182	14
32211270	12,7	1/2	133	182	14
32211300	13	-	133	182	14
32211350	13,5	-	133	182	14
32211400	14	-	133	182	14
32211429	14,29	9/16	152	204	16
32211450	14,5	-	152	204	16
32211500	15	-	152	204	16
32211550	15,5	-	152	204	16
32211587	15,87	5/8	152	204	16
32211600	16	-	152	204	16
32211650	16,5	-	171	223	18
32211700	17	-	171	223	18
32211750	17,5	-	171	223	18
32211800	18	-	171	223	18
32211850	18,5	-	190	244	20
32211900	19	-	190	244	20
32211950	19,5	-	190	244	20
32212000	20	-	190	244	20

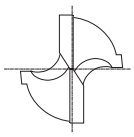
EDP	DC	DC Inch	LCF	OAL	DCON

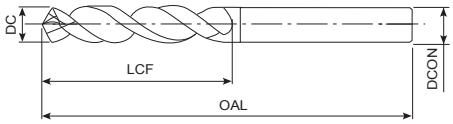
HYP-AL-3D

INDEX

Drilling | 3xD







- Carbide drill bright finish
- Up to 3xD
- For aluminium and cast aluminium
- 137 sizes

N AI

N AC, ADC

HYPRO | CARBIDE | 30° | SHRINK FIT | 130° | m7

B.502

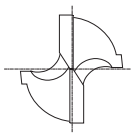
EDP	DC	LCF	OAL	DCON
110301000	1	7	35	3
110301100	1,1	7	35	3
110301200	1,2	8	35	3
110301300	1,3	8	35	3
110301400	1,4	9	35	3
110301500	1,5	9	40	3
110301600	1,6	10	40	3
110301700	1,7	10	40	3
110301800	1,8	11	40	3
110301900	1,9	11	40	3
110302000	2	13	45	3
110302100	2,1	13	45	3
110302200	2,2	13	45	3
110302300	2,3	13	45	3
110302400	2,4	15	45	3
110302500	2,5	15	50	3
110302600	2,6	15	50	3
110302700	2,7	17	50	3
110302800	2,8	17	50	3
110302900	2,9	17	50	3
110303000	3	20	62	6
110303100	3,1	20	62	6
110303170	3,17	20	62	6
110303200	3,2	20	62	6
110303300	3,3	20	62	6
110303400	3,4	20	62	6
110303500	3,5	20	62	6
110303570	3,57	20	62	6
110303600	3,6	20	62	6
110303700	3,7	20	62	6
110303800	3,8	24	66	6
110303900	3,9	24	66	6
110303970	3,97	24	66	6
110304000	4	24	66	6
110304100	4,1	24	66	6
110304200	4,2	24	66	6
110304300	4,3	24	66	6
110304370	4,37	24	66	6
110304400	4,4	24	66	6
110304500	4,5	24	66	6
110304600	4,6	24	66	6
110304700	4,7	24	66	6
110304760	4,76	28	66	6
110304800	4,8	28	66	6
110304900	4,9	28	66	6
110305000	5	28	66	6

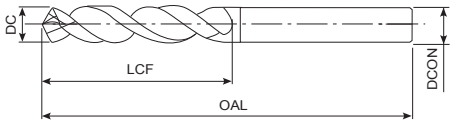
EDP	DC	LCF	OAL	DCON
110305100	5,1	28	66	6
110305160	5,16	28	66	6
110305200	5,2	28	66	6
110305300	5,3	28	66	6
110305400	5,4	28	66	6
110305500	5,5	28	66	6
110305560	5,56	28	66	6
110305600	5,6	28	66	6
110305700	5,7	28	66	6
110305800	5,8	28	66	6
110305900	5,9	28	66	6
110305950	5,95	28	66	6
110306000	6	28	66	6
110306100	6,1	34	79	8
110306200	6,2	34	79	8
110306300	6,3	34	79	8
110306350	6,35	34	79	8
110306400	6,4	34	79	8
110306500	6,5	34	79	8
110306600	6,6	34	79	8
110306700	6,7	34	79	8
110306750	6,75	34	79	8
110306800	6,8	34	79	8
110306900	6,9	34	79	8
110307000	7	34	79	8
110307100	7,1	41	79	8
110307140	7,14	41	79	8
110307200	7,2	41	79	8
110307300	7,3	41	79	8
110307400	7,4	41	79	8
110307500	7,5	41	79	8
110307540	7,54	41	79	8
110307600	7,6	41	79	8
110307700	7,7	41	79	8
110307800	7,8	41	79	8
110307900	7,9	41	79	8
110307940	7,94	41	79	8
110308000	8	41	79	8
110308100	8,1	47	89	10
110308200	8,2	47	89	10
110308300	8,3	47	89	10
110308330	8,33	47	89	10
110308400	8,4	47	89	10
110308500	8,5	47	89	10
110308600	8,6	47	89	10
110308700	8,7	47	89	10

HYP-AL-3D

Drilling | 3xD







- Carbide drill bright finish
- Up to 3xD
- For aluminium and cast aluminium
- 137 sizes

N AI

N AC, ADC

HYPRO | CARBIDE | 30° | SHRINK FIT | 130° | m7

B.502

EDP	DC	LCF	OAL	DCON
110308730	8,73	47	89	10
110308800	8,8	47	89	10
110308900	8,9	47	89	10
110309000	9	47	89	10
110309100	9,1	47	89	10
110309130	9,13	47	89	10
110309200	9,2	47	89	10
110309300	9,3	47	89	10
110309400	9,4	47	89	10
110309500	9,5	47	89	10
110309520	9,52	47	89	10
110309600	9,6	47	89	10
110309700	9,7	47	89	10
110309800	9,8	47	89	10
110309900	9,9	47	89	10
110309920	9,92	47	89	10
110310000	10	47	89	10
110310100	10,1	55	102	12
110310200	10,2	55	102	12
110310300	10,3	55	102	12
110310320	10,32	55	102	12
110310400	10,4	55	102	12
110310500	10,5	55	102	12
110310600	10,6	55	102	12
110310700	10,7	55	102	12
110310720	10,72	55	102	12
110310800	10,8	55	102	12
110310900	10,9	55	102	12
110311000	11	55	102	12
110311100	11,1	55	102	12
110311110	11,11	55	102	12
110311200	11,2	55	102	12
110311300	11,3	55	102	12
110311400	11,4	55	102	12
110311500	11,5	55	102	12
110311510	11,51	55	102	12
110311600	11,6	55	102	12
110311700	11,7	55	102	12
110311800	11,8	55	102	12
110311900	11,9	55	102	12
110311910	11,91	55	102	12
110312000	12	55	102	12
110312300	12,3	60	107	14
110312500	12,5	60	107	14
110312700	12,7	60	107	14

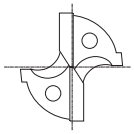
EDP	DC	LCF	OAL	DCON

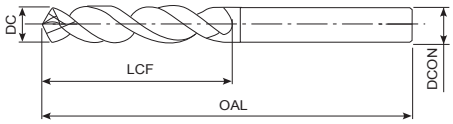
HYP-ALO-5D

INDEX

Drilling | 5xD







- Carbide drill with internal coolant, bright finish
- Up to 5xD
- For aluminium and cast aluminium
- 119 sizes







EDP	DC	LCF	OAL	DCON
111503000	3	28	66	6
111503100	3,1	28	66	6
111503170	3,17	28	66	6
111503200	3,2	28	66	6
111503300	3,3	28	66	6
111503400	3,4	28	66	6
111503500	3,5	28	66	6
111503570	3,57	28	66	6
111503600	3,6	28	66	6
111503700	3,7	28	66	6
111503800	3,8	36	74	6
111503900	3,9	36	74	6
111503970	3,97	36	74	6
111504000	4	36	74	6
111504100	4,1	36	74	6
111504200	4,2	36	74	6
111504300	4,3	36	74	6
111504370	4,37	36	74	6
111504400	4,4	36	74	6
111504500	4,5	36	74	6
111504600	4,6	36	74	6
111504650	4,65	36	74	6
111504700	4,7	36	74	6
111504760	4,76	44	82	6
111504800	4,8	44	82	6
111504900	4,9	44	82	6
111505000	5	44	82	6
111505100	5,1	44	82	6
111505160	5,16	44	82	6
111505200	5,2	44	82	6
111505300	5,3	44	82	6
111505400	5,4	44	82	6
111505500	5,5	44	82	6
111505550	5,55	44	82	6
111505560	5,56	44	82	6
111505600	5,6	44	82	6
111505700	5,7	44	82	6
111505800	5,8	44	82	6
111505900	5,9	44	82	6
111505950	5,95	44	82	6
111506000	6	44	82	6
111506100	6,1	53	91	8
111506200	6,2	53	91	8
111506300	6,3	53	91	8
111506350	6,35	53	91	8
111506400	6,4	53	91	8

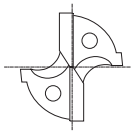
EDP	DC	LCF	OAL	DCON
111506500	6,5	53	91	8
111506600	6,6	53	91	8
111506700	6,7	53	91	8
111506750	6,75	53	91	8
111506800	6,8	53	91	8
111506900	6,9	53	91	8
111507000	7	53	91	8
111507100	7,1	53	91	8
111507140	7,14	53	91	8
111507200	7,2	53	91	8
111507300	7,3	53	91	8
111507400	7,4	53	91	8
111507500	7,5	53	91	8
111507540	7,54	53	91	8
111507600	7,6	53	91	8
111507700	7,7	53	91	8
111507800	7,8	53	91	8
111507900	7,9	53	91	8
111507940	7,94	53	91	8
111508000	8	53	91	8
111508100	8,1	61	103	10
111508200	8,2	61	103	10
111508300	8,3	61	103	10
111508330	8,33	61	103	10
111508400	8,4	61	103	10
111508500	8,5	61	103	10
111508600	8,6	61	103	10
111508700	8,7	61	103	10
111508730	8,73	61	103	10
111508800	8,8	61	103	10
111508900	8,9	61	103	10
111509000	9	61	103	10
111509100	9,1	61	103	10
111509130	9,13	61	103	10
111509200	9,2	61	103	10
111509300	9,3	61	103	10
111509400	9,4	61	103	10
111509500	9,5	61	103	10
111509520	9,52	61	103	10
111509600	9,6	61	103	10
111509700	9,7	61	103	10
111509800	9,8	61	103	10
111509900	9,9	61	103	10
111509920	9,92	61	103	10
111510000	10	61	103	10
111510100	10,1	71	118	12

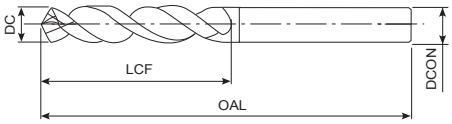
HYP-ALO-5D

INDEX

Drilling | 5xD







- Carbide drill with internal coolant, bright finish
- Up to 5xD
- For aluminium and cast aluminium
- 119 sizes







EDP	DC	LCF	OAL	DCON
111510200	10,2	71	118	12
111510300	10,3	71	118	12
111510320	10,32	71	118	12
111510400	10,4	71	118	12
111510500	10,5	71	118	12
111510600	10,6	71	118	12
111510700	10,7	71	118	12
111510720	10,72	71	118	12
111510800	10,8	71	118	12
111510900	10,9	71	118	12
111511000	11	71	118	12
111511100	11,1	71	118	12
111511110	11,11	71	118	12
111511200	11,2	71	118	12
111511300	11,3	71	118	12
111511400	11,4	71	118	12
111511500	11,5	71	118	12
111511510	11,51	71	118	12
111511600	11,6	71	118	12
111511700	11,7	71	118	12
111511800	11,8	71	118	12
111511900	11,9	71	118	12
111511910	11,91	71	118	12
111512000	12	71	118	12
111512300	12,3	77	124	14
111512500	12,5	77	124	14
111512700	12,7	77	124	14

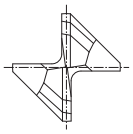
EDP	DC	LCF	OAL	DCON

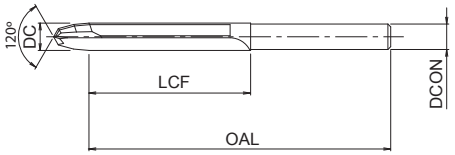
D-STAD

INDEX

Drilling | Solid carbide | 3xD







- Triple angle carbide drill with diamond coating
- Up to 3xD
- For CFRP
- 4 sizes

CFRP

CARBIDE | DIA | SHRINK FIT | 0~-0.02

B.502

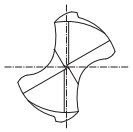
EDP	DC	LCF	OAL	DCON
48154001	4	30	80	4
48154002	6	40	90	6
48154004	6,35	38	88	6,35
48154003	8	50	100	8

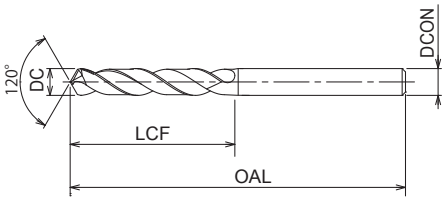
EDP	DC	LCF	OAL	DCON

D-DAD

Drilling | Solid carbide | 3xD







- Double angle drill
- For CFRP
- 6 sizes

CFRP

CARBIDE | DIA | SHRINK FIT | 0~-0.02 | 40°

B.510

EDP	DC	LCF	OAL	DCON
8809141	2,50	15	50	2,50
8809142	3,27	20	76	3,27
8809143	4,10	25	80	4,10
8809144	4,80	29	80	4,80
8809145	6,30	38	94	6,30
8809146	9,50	57	115	9,50

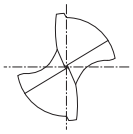
EDP	DC	LCF	OAL	DCON

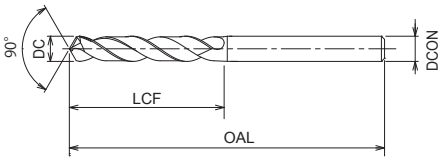
D-GDN90

INDEX

Drilling | Solid carbide | 3xD







- Diamond coated 90° point angle drill
- For CFRP
- 6 sizes

CFRP

CARBIDE | DIA | SHRINK FIT | 0~-0.02 | 40°

B.510

EDP	DC	LCF	OAL	DCON
8809151	2,5	15	50	2,50
8809152	3,27	20	76	3,27
8809153	4,1	25	80	4,10
8809154	4,8	29	80	4,80
8809155	6,3	38	94	6,30
8809156	9,5	57	115	9,50

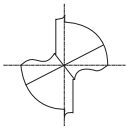
EDP	DC	LCF	OAL	DCON

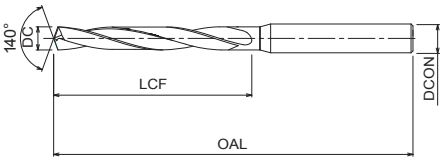
WH55-5D

INDEX

Drilling | Solid carbide | 5xD







- Carbide drill with DUROREY coating
- Up to 5xD
- For hardened material up to 55HRC
- 36 sizes

H 35-45 HRC | H 45-52 HRC | H 52-62 HRC

CARBIDE | DUROREY | 12°~20° | SHRINK FIT | 140° | h8

B.502

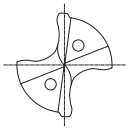
EDP	DC	LCF	OAL	DCON
3312200	2	18	68	4
3312250	2,5	23	73	4
3312280	2,8	27	73	4
3312300	3	29	78	6
3312330	3,3	32	78	6
3312350	3,5	32	78	6
3312380	3,8	36	78	6
3312400	4	36	78	6
3312420	4,2	38	88	6
3312450	4,5	41	88	6
3312480	4,8	45	88	6
3312500	5	45	88	6
3312510	5,1	42	92	6
3312550	5,5	44	92	6
3312580	5,8	48	92	6
3312600	6	48	92	6
3312650	6,5	52	102	8
3312680	6,8	56	102	8
3312700	7	56	102	8
3312750	7,5	60	118	8
3312780	7,8	64	118	8
3312800	8	64	118	8
3312850	8,5	68	128	10
3312870	8,7	70	128	10
3312880	8,8	72	128	10
3312900	9	72	128	10
3312950	9,5	76	136	10
3312980	9,8	80	136	10
3313000	10	80	136	10
3313030	10,3	84	146	12
3313050	10,5	84	146	12
3313080	10,8	88	146	12
3313100	11	88	146	12
3313150	11,5	92	156	12
3313180	11,8	96	156	12
3313200	12	96	156	12

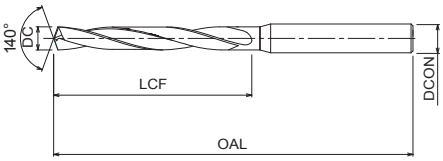
EDP	DC	LCF	OAL	DCON

WHO55-5D

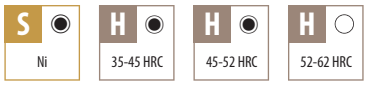
Drilling | Solid carbide | 5xD







- Carbide drill with internal coolant, DUROREY coating
- Up to 5xD
- For hardened material up to 55HRC including Inconel
- 54 sizes







EDP	DC	LCF	OAL	DCON
3316330	3,3	32	78	6
3316340	3,4	32	78	6
3316349	3,49	32	78	6
3316350	3,5	32	78	6
3316360	3,6	34	78	6
3316370	3,7	34	78	6
3316380	3,8	36	78	6
3316390	3,9	36	78	6
3316400	4	36	78	6
3316410	4,1	38	88	6
3316415	4,15	38	88	6
3316420	4,2	38	88	6
3316430	4,3	41	88	6
3316440	4,4	41	88	6
3316450	4,5	41	88	6
3316460	4,6	43	88	6
3316470	4,7	43	88	6
3316480	4,8	45	88	6
3316490	4,9	45	88	6
3316500	5	45	88	6
3316510	5,1	42	92	6
3316520	5,2	42	92	6
3316530	5,3	44	92	6
3316540	5,4	44	92	6
3316550	5,5	44	92	6
3316556	5,56	46	92	6
3316560	5,6	46	92	6
3316570	5,7	46	92	6
3316580	5,8	48	92	6
3316590	5,9	48	92	6
3316600	6	48	92	6
3316650	6,5	52	102	8
3316680	6,8	56	102	8
3316700	7	56	102	8
3316750	7,5	60	118	8
3316780	7,8	64	118	8
3316800	8	64	118	8
3316850	8,5	68	128	10
3316858	8,58	70	128	10
3316870	8,7	70	128	10
3316880	8,8	72	128	10
3316900	9	72	128	10
3316950	9,5	76	136	10
3316980	9,8	80	136	10
3316997	9,97	80	136	10
3317000	10	80	136	10

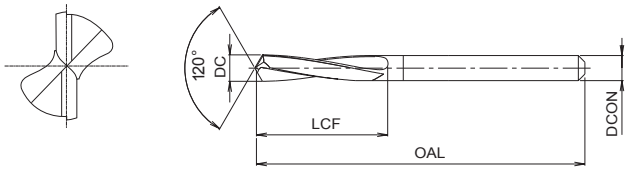
EDP	DC	LCF	OAL	DCON
3317030	10,3	84	146	12
3317050	10,5	84	146	12
3317080	10,8	88	146	12
3317100	11	88	146	12
3317150	11,5	92	156	12
3317156	11,56	94	156	12
3317180	11,8	96	156	12
3317200	12	96	156	12

WH70-DRL

INDEX

Drilling | Solid carbide | 3xD





- Carbide drill with DUROREY coating
- Up to 3xD
- With low helix for high rigidity, up to 70HRC material
- 101 sizes

H
52-62 HRC

CARBIDE | DUROREY | 12° | SHRINK FIT | 120° | h8

B.503

EDP	DC	LCF	OAL	DCON
3318200	2	12	42	3
3318210	2,1	12	42	3
3318220	2,2	13	43	3
3318230	2,3	13	43	3
3318240	2,4	14	44	3
3318250	2,5	14	44	3
3318260	2,6	14	44	3
3318270	2,7	16	46	3
3318280	2,8	16	46	3
3318290	2,9	16	46	3
3318300	3	16	46	3
3318310	3,1	18	48	4
3318320	3,2	18	48	4
3318330	3,3	18	48	4
3318340	3,4	20	50	4
3318350	3,5	20	50	4
3318360	3,6	20	50	4
3318370	3,7	20	50	4
3318380	3,8	22	52	4
3318390	3,9	22	52	4
3318400	4	22	52	4
3318410	4,1	25	68	5
3318420	4,2	25	68	5
3318430	4,3	28	68	5
3318440	4,4	28	68	5
3318450	4,5	28	68	5
3318460	4,6	28	68	5
3318470	4,7	28	68	5
3318480	4,8	32	68	5
3318490	4,9	32	68	5
3318500	5	32	68	5
3318510	5,1	32	74	6
3318520	5,2	32	74	6
3318530	5,3	32	74	6
3318540	5,4	35	74	6
3318550	5,5	35	74	6
3318560	5,6	35	74	6
3318570	5,7	35	74	6
3318580	5,8	35	74	6
3318590	5,9	35	74	6
3318600	6	35	74	6
3318610	6,1	40	83	7
3318620	6,2	40	83	7
3318630	6,3	40	83	7
3318640	6,4	40	83	7
3318650	6,5	40	83	7

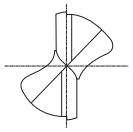
EDP	DC	LCF	OAL	DCON
3318660	6,6	40	83	7
3318670	6,7	40	83	7
3318680	6,8	45	83	7
3318690	6,9	45	83	7
3318700	7	45	83	7
3318710	7,1	45	94	8
3318720	7,2	45	94	8
3318730	7,3	45	94	8
3318740	7,4	45	94	8
3318750	7,5	45	94	8
3318760	7,6	50	94	8
3318770	7,7	50	94	8
3318780	7,8	50	94	8
3318790	7,9	50	94	8
3318800	8	50	94	8
3318810	8,1	50	101	9
3318820	8,2	50	101	9
3318830	8,3	50	101	9
3318840	8,4	50	101	9
3318850	8,5	50	101	9
3318860	8,6	57	101	9
3318870	8,7	57	101	9
3318880	8,8	57	101	9
3318890	8,9	57	101	9
3318900	9	57	101	9
3318910	9,1	57	106	10
3318920	9,2	57	106	10
3318930	9,3	57	106	10
3318940	9,4	57	106	10
3318950	9,5	57	106	10
3318960	9,6	63	106	10
3318970	9,7	63	106	10
3318980	9,8	63	106	10
3318990	9,9	63	106	10
3319000	10	63	106	10
3319010	10,1	63	113	11
3319020	10,2	63	113	11
3319030	10,3	63	113	11
3319040	10,4	63	113	11
3319050	10,5	63	113	11
3319060	10,6	63	113	11
3319070	10,7	71	113	11
3319080	10,8	71	113	11
3319090	10,9	71	113	11
3319100	11	71	113	11
3319110	11,1	71	120	12

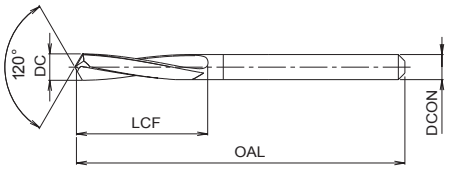
WH70-DRL

INDEX

Drilling | Solid carbide | 3xD







- Carbide drill with DUROREY coating
- Up to 3xD
- With low helix for high rigidity, up to 70HRC material
- 101 sizes







EDP	DC	LCF	OAL	DCON
3319120	11,2	71	120	12
3319130	11,3	71	120	12
3319140	11,4	71	120	12
3319150	11,5	71	120	12
3319160	11,6	71	120	12
3319170	11,7	71	120	12
3319180	11,8	71	120	12
3319190	11,9	76	120	12
3319200	12	76	120	12

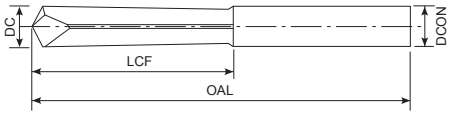
EDP	DC	LCF	OAL	DCON

EX-H-DRL

INDEX

Drilling | Solid carbide | Removing





- Carbide drill for removing broken taps, bright finish
- For hardened material up to 70HRC
- 11 sizes

H
52-62 HRC

CARBIDE

h7

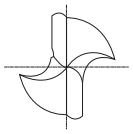
EDP	DC	LCF	OAL	DCON
87702	2	10	30	2
87703	3	15	40	3
87704	4	20	45	4
87705	5	25	50	5
87706	6	30	60	6
87707	7	35	80	8
87708	8	40	80	8
87709	9	45	100	10
87710	10	50	100	10
87781	11	55	156	12
87782	12	60	162	12

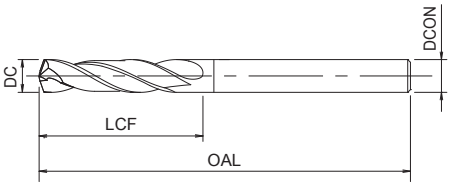
EDP	DC	LCF	OAL	DCON

VPH-GDS

Drilling | Powder metal | 3xD







- Powder metal drill with WDI coating
- Up to 3xD
- For cast iron, exotic material and hardened steel
- 126 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | K GG | K GGG | S Ti | S Ni | H 25-35 HRC | H 35-45 HRC | H 45-52 HRC

XPM | WDI | 30° | h7 | 130° | h8

B.504

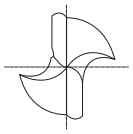
EDP	DC	LCF	OAL	DCON
8599005	0,5	3	38	3
8599006	0,6	3,5	38	3
8599007	0,7	4,5	38	3
8599008	0,8	5	38	3
8599009	0,9	5,5	38	3
8599010	1	6	38	3
8599011	1,1	7	39	3
8599012	1,2	8	40	3
8599013	1,3	8	40	3
8599014	1,4	9	41	3
8599015	1,5	9	41	3
8599016	1,6	10	42	3
8599017	1,7	10	42	3
8599018	1,8	11	43	3
8599019	1,9	11	43	3
8599020	2	12	44	3
8599021	2,1	12	44	3
8599022	2,2	13	45	3
8599023	2,3	13	45	3
8599024	2,4	14	46	3
8599025	2,5	14	46	3
8599026	2,6	14	46	3
8599027	2,7	16	48	3
8599028	2,8	16	48	3
8599029	2,9	16	48	3
8599030	3	16	48	3
8599031	3,1	18	50	3
8599032	3,2	18	50	3
8599033	3,3	18	50	4
8599034	3,4	20	52	4
8599035	3,5	20	52	4
8599036	3,6	20	52	4
8599037	3,7	20	52	4
8599038	3,8	22	54	4
8599039	3,9	22	54	4
8599040	4	22	54	4
8599041	4,1	22	66	6
8599042	4,2	22	66	6
8599043	4,3	24	68	6
8599044	4,4	24	68	6
8599045	4,5	24	68	6
8599046	4,6	24	68	6
8599047	4,7	24	68	6
8599048	4,8	26	70	6
8599049	4,9	26	70	6
8599050	5	26	70	6

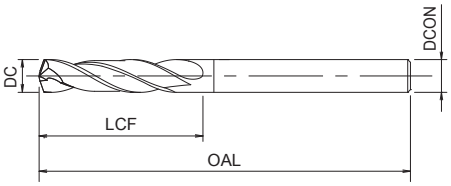
EDP	DC	LCF	OAL	DCON
8599051	5,1	26	70	6
8599052	5,2	26	70	6
8599053	5,3	26	70	6
8599054	5,4	28	72	6
8599055	5,5	28	72	6
8599056	5,6	28	72	6
8599057	5,7	28	72	6
8599058	5,8	28	72	6
8599059	5,9	28	72	6
8599060	6	28	72	6
8599061	6,1	31	75	8
8599062	6,2	31	75	8
8599063	6,3	31	75	8
8599064	6,4	31	75	8
8599065	6,5	31	75	8
8599066	6,6	31	75	8
8599067	6,7	31	75	8
8599068	6,8	34	78	8
8599069	6,9	34	78	8
8599070	7	34	78	8
8599071	7,1	34	78	8
8599072	7,2	34	78	8
8599073	7,3	34	78	8
8599074	7,4	34	78	8
8599075	7,5	34	78	8
8599076	7,6	37	81	8
8599077	7,7	37	81	8
8599078	7,8	37	81	8
8599079	7,9	37	81	8
8599080	8	37	81	8
8599081	8,1	37	87	10
8599082	8,2	37	87	10
8599083	8,3	37	87	10
8599084	8,4	37	87	10
8599085	8,5	37	87	10
8599086	8,6	40	90	10
8599087	8,7	40	90	10
8599088	8,8	40	90	10
8599089	8,9	40	90	10
8599090	9	40	90	10
8599091	9,1	40	90	10
8599092	9,2	40	90	10
8599093	9,3	40	90	10
8599094	9,4	40	90	10
8599095	9,5	40	90	10
8599096	9,6	43	93	10

VPH-GDS

Drilling | Powder metal | 3xD







- Powder metal drill with WDI coating
- Up to 3xD
- For cast iron, exotic material and hardened steel
- 126 sizes





B.504

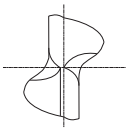
EDP	DC	LCF	OAL	DCON
8599097	9,7	43	93	10
8599098	9,8	43	93	10
8599099	9,9	43	93	10
8599100	10	43	93	10
8599101	10,1	43	100	12
8599102	10,2	43	100	12
8599103	10,3	43	100	12
8599104	10,4	43	100	12
8599105	10,5	43	100	12
8599106	10,6	43	100	12
8599107	10,7	47	104	12
8599108	10,8	47	104	12
8599109	10,9	47	104	12
8599110	11	47	104	12
8599111	11,1	47	104	12
8599112	11,2	47	104	12
8599113	11,3	47	104	12
8599114	11,4	47	104	12
8599115	11,5	47	104	12
8599116	11,6	47	104	12
8599117	11,7	47	104	12
8599118	11,8	47	104	12
8599119	11,9	51	108	12
8599120	12	51	108	12
8599121	12,1	51	108	12
8599122	12,2	51	108	12
8599123	12,3	51	108	12
8599124	12,4	51	108	12
8599125	12,5	51	108	12
8599126	12,6	51	108	12
8599127	12,7	51	108	12
8599128	12,8	51	108	12
8599129	12,9	51	108	12
8599130	13	51	108	12

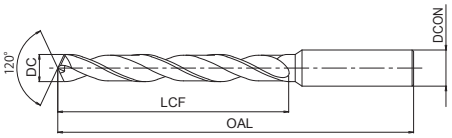
EDP	DC	LCF	OAL	DCON

VP-GDR

Drilling | Powder metal | 5xD







- Powder metal drill with TiCN coating
- Up to 5xD
- For steel, cast iron and non-ferrous material
- 144 sizes





B.504

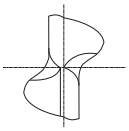
EDP	DC	LCF	OAL	DCON
8593020	2	24	56	3
8593021	2,1	24	56	3
8593022	2,2	27	59	3
8593023	2,3	27	59	3
8593024	2,4	30	62	3
8593025	2,5	30	62	3
8593026	2,6	30	62	3
8593027	2,7	33	65	3
8593028	2,8	33	65	3
8593029	2,9	33	65	3
8593030	3	33	65	3
8593031	3,1	36	68	4
8593032	3,2	36	68	4
8593033	3,3	36	68	4
8593034	3,4	39	71	4
8593035	3,5	39	71	4
8593036	3,6	39	71	4
8593037	3,7	39	71	4
8593038	3,8	43	75	4
8593039	3,9	43	75	4
8593040	4	43	75	4
8593041	4,1	43	87	6
8593042	4,2	43	87	6
8593043	4,3	47	91	6
8593044	4,4	47	91	6
8593045	4,5	47	91	6
8593046	4,6	47	91	6
8593047	4,7	47	91	6
8593048	4,8	52	96	6
8593049	4,9	52	96	6
8593050	5	52	96	6
8593051	5,1	52	96	6
8593052	5,2	52	96	6
8593053	5,3	52	96	6
8593054	5,4	57	101	6
8593055	5,5	57	101	6
8593056	5,6	57	101	6
8593057	5,7	57	101	6
8593058	5,8	57	101	6
8593059	5,9	57	101	6
8593060	6	57	101	6
8593061	6,1	63	107	8
8593062	6,2	63	107	8
8593063	6,3	63	107	8
8593064	6,4	63	107	8
8593065	6,5	63	107	8

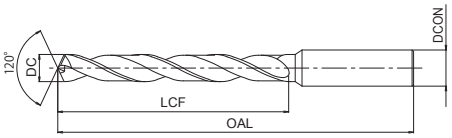
EDP	DC	LCF	OAL	DCON
8593066	6,6	63	107	8
8593067	6,7	63	107	8
8593068	6,8	69	113	8
8593069	6,9	69	113	8
8593070	7	69	113	8
8593071	7,1	69	113	8
8593072	7,2	69	113	8
8593073	7,3	69	113	8
8593074	7,4	69	113	8
8593075	7,5	69	113	8
8593076	7,6	75	119	8
8593077	7,7	75	119	8
8593078	7,8	75	119	8
8593079	7,9	75	119	8
8593080	8	75	119	8
8593081	8,1	75	125	10
8593082	8,2	75	125	10
8593083	8,3	75	125	10
8593084	8,4	75	125	10
8593085	8,5	75	125	10
8593086	8,6	81	131	10
8593087	8,7	81	131	10
8593088	8,8	81	131	10
8593089	8,9	81	131	10
8593090	9	81	131	10
8593091	9,1	81	131	10
8593092	9,2	81	131	10
8593093	9,3	81	131	10
8593094	9,4	81	131	10
8593095	9,5	81	131	10
8593096	9,6	87	137	10
8593097	9,7	87	137	10
8593098	9,8	87	137	10
8593099	9,9	87	137	10
8593100	10	87	137	10
8593101	10,1	87	144	12
8593102	10,2	87	144	12
8593103	10,3	87	144	12
8593104	10,4	87	144	12
8593105	10,5	87	144	12
8593106	10,6	87	144	12
8593107	10,7	94	151	12
8593108	10,8	94	151	12
8593109	10,9	94	151	12
8593110	11	94	151	12
8593111	11,1	94	151	12

VP-GDR

Drilling | Powder metal | 5xD







- Powder metal drill with TiCN coating
- Up to 5xD
- For steel, cast iron and non-ferrous material
- 144 sizes





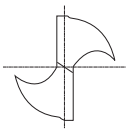
EDP	DC	LCF	OAL	DCON
8593121	12,1	101	158	12
8593122	12,2	101	158	12
8593123	12,3	101	158	12
8593124	12,4	101	158	12
8593125	12,5	101	158	12
8593126	12,6	101	158	12
8593127	12,7	101	158	12
8593128	12,8	101	158	12
8593129	12,9	101	158	12
8593130	13	101	158	12
8593135	13,5	106	166	16
8593140	14	106	166	16
8593145	14,5	109	169	16
8593150	15	109	169	16
8593155	15,5	112	172	16
8593160	16	112	172	16
8593165	16,5	115	181	20
8593170	17	115	181	20
8593175	17,5	118	184	20
8593180	18	118	184	20
8593185	18,5	122	188	20
8593190	19	122	188	20
8593195	19,5	125	191	20
8593200	20	125	191	20
8593205	20,5	128	204	25
8593210	21	128	204	25
8593215	21,5	132	208	25
8593220	22	132	208	25
8593225	22,5	136	212	25
8593230	23	136	212	25
8593235	23,5	136	212	25
8593240	24	140	216	25
8593245	24,5	140	216	25
8593250	25	140	216	25
8593255	25,5	145	225	32
8593260	26	145	225	32
8593265	26,5	145	225	32
8593270	27	150	230	32
8593280	28	150	230	32
8593290	29	155	235	32
8593300	30	155	235	32
8593310	31	160	240	32
8593320	32	165	245	32

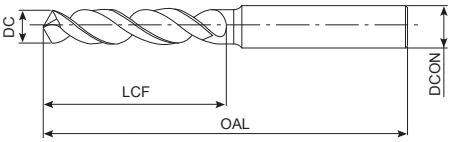
EDP	DC	LCF	OAL	DCON

NEXUS-GDS

Drilling | HSS | 3xD







- HSSE drill with WDI coating
- Up to 3xD
- For stainless steel and non-ferrous materials
- 106 sizes





B.505

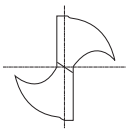
EDP	DC	LCF	OAL	DCON
8650100	1	6	38	3
8650110	1,1	7	39	3
8650120	1,2	8	40	3
8650130	1,3	8	40	3
8650140	1,4	9	41	3
8650150	1,5	9	41	3
8650160	1,6	10	42	3
8650170	1,7	10	42	3
8650180	1,8	11	43	3
8650181	1,81	11	43	3
8650183	1,83	11	43	3
8650190	1,9	11	43	3
8650200	2	12	44	3
8650210	2,1	12	44	3
8650211	2,11	12	44	3
8650213	2,13	13	45	3
8650220	2,2	13	45	3
8650228	2,28	13	45	3
8650230	2,3	13	45	3
8650238	2,38	14	46	3
8650240	2,4	14	46	3
8650250	2,5	14	46	3
8650260	2,6	14	46	3
8650270	2,7	16	48	3
8650276	2,76	16	48	3
8650278	2,78	16	48	3
8650280	2,8	16	48	3
8650290	2,9	16	48	3
8650300	3	16	48	3
8650310	3,1	18	50	4
8650320	3,2	18	50	4
8650325	3,25	18	50	4
8650330	3,3	18	50	4
8650340	3,4	20	52	4
8650350	3,5	20	52	4
8650360	3,6	20	52	4
8650365	3,65	20	52	4
8650367	3,67	20	52	4
8650370	3,7	20	52	4
8650380	3,8	22	54	4
8650390	3,9	22	54	4
8650400	4	22	54	4
8650410	4,1	22	66	6
8650420	4,2	22	66	6
8650430	4,3	24	68	6
8650440	4,4	24	68	6

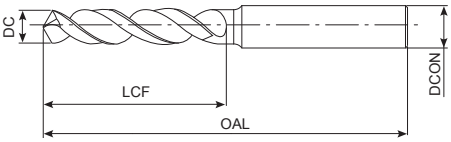
EDP	DC	LCF	OAL	DCON
8650450	4,5	24	68	6
8650459	4,59	24	68	6
8650460	4,6	24	68	6
8650463	4,63	24	68	6
8650470	4,7	24	68	6
8650480	4,8	26	70	6
8650490	4,9	26	70	6
8650500	5	26	70	6
8650510	5,1	26	70	6
8650520	5,2	26	70	6
8650530	5,3	26	70	6
8650540	5,4	28	72	6
8650548	5,48	28	72	6
8650550	5,5	28	72	6
8650560	5,6	28	72	6
8650570	5,7	28	72	6
8650580	5,8	28	72	6
8650590	5,9	28	72	6
8650600	6	28	72	6
8650610	6,1	31	75	8
8650620	6,2	31	75	8
8650630	6,3	31	75	8
8650640	6,4	31	75	8
8650650	6,5	31	75	8
8650660	6,6	31	75	8
8650680	6,8	34	78	8
8650690	6,9	34	78	8
8650700	7	34	78	8
8650734	7,34	34	78	8
8650738	7,38	34	78	8
8650740	7,4	34	78	8
8650750	7,5	34	78	8
8650780	7,8	37	81	8
8650790	7,9	37	81	8
8650800	8	37	81	8
8650810	8,1	37	87	10
8650820	8,2	37	87	10
8650830	8,3	37	87	10
8650840	8,4	37	87	10
8650850	8,5	37	87	10
8650860	8,6	40	90	10
8650870	8,7	40	90	10
8650880	8,8	40	90	10
8650900	9	40	90	10
8650918	9,18	40	90	10
8650920	9,2	40	90	10

NEXUS-GDS

Drilling | HSS | 3xD







- HSSE drill with WDI coating
- Up to 3xD
- For stainless steel and non-ferrous materials
- 106 sizes

P ◉ C <0,2% | P ○ 0,25<C<0,4 | M ◉ INOX | N ◉ Al | N ◉ AC, ADC | S ◉ Ti

HSSE | WDI | 35° ~40° | D<2 140° | 2≤D≤4 130° | D>4 120° | h8

B.505

EDP	DC	LCF	OAL	DCON
8650924	9,24	40	90	10
8650934	9,34	40	90	10
8650936	9,36	40	90	10
8650950	9,5	40	90	10
8650980	9,8	43	93	10
8651000	10	43	93	10
8651020	10,2	43	100	12
8651030	10,3	43	100	12
8651040	10,4	43	100	12
8651050	10,5	43	100	12
8651100	11	47	104	12
8651120	11,2	47	104	12
8651150	11,5	47	104	12
8651200	12	51	108	12

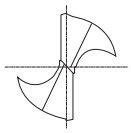
EDP	DC	LCF	OAL	DCON

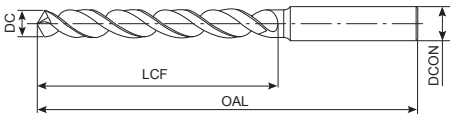
NEXUS-GDR

INDEX

Drilling | HSS | 5xD







- HSSE drill with WDI coating
- Up to 5xD
- For stainless steel and non-ferrous materials
- 32 sizes

P C <0,2% | P 0,25<C<0,4 | M INOX | N Al | N AC, ADC | S Ti

HSSE | WDI | 35°~40° | D>4 120° | D≤4 130° | h8

B.505

EDP	DC	LCF	OAL	DCON
8655200	2	24	56	3
8655230	2,3	27	59	3
8655250	2,5	30	62	3
8655260	2,6	30	62	3
8655280	2,8	33	65	3
8655300	3	33	65	3
8655330	3,3	36	68	4
8655340	3,4	39	71	4
8655350	3,5	39	71	4
8655400	4	43	75	4
8655420	4,2	43	87	6
8655430	4,3	47	91	6
8655450	4,5	47	91	6
8655500	5	52	96	6
8655510	5,1	52	96	6
8655520	5,2	52	96	6
8655550	5,5	57	101	6
8655600	6	57	101	6
8655680	6,8	69	113	8
8655690	6,9	69	113	8
8655700	7	69	113	8
8655800	8	75	119	8
8655850	8,5	75	125	10
8655860	8,6	81	131	10
8655880	8,8	81	131	10
8655900	9	81	131	10
8656000	10	87	137	10
8656030	10,3	87	144	12
8656040	10,4	87	144	12
8656050	10,5	87	144	12
8656100	11	94	151	12
8656200	12	101	158	12

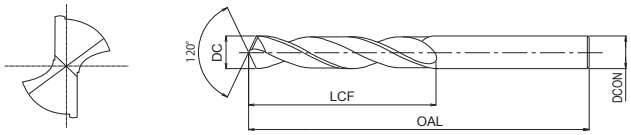
EDP	DC	LCF	OAL	DCON

V-SDR

Drilling | HSS | 5xD

INDEX





- HSSE drill with TiCN coating
- Up to 5xD
- General purpose
- 111 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | K GG | K GGG | N Al | N AC, ADC

HSSE | V | 28°~38° | 120° | DIN 338

B.506

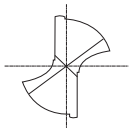
EDP	DC	LCF	OAL	DCON
8594020	2	24	49	2
8594021	2,1	24	49	2,1
8594022	2,2	27	53	2,2
8594023	2,3	27	53	2,3
8594024	2,4	30	57	2,4
8594025	2,5	30	57	2,5
8594026	2,6	30	57	2,6
8594027	2,7	33	61	2,7
8594028	2,8	33	61	2,8
8594029	2,9	33	61	2,9
8594030	3	33	61	3
8594031	3,1	36	65	3,1
8594032	3,2	36	65	3,2
8594033	3,3	36	65	3,3
8594034	3,4	39	70	3,4
8594035	3,5	39	70	3,5
8594036	3,6	39	70	3,6
8594037	3,7	39	70	3,7
8594038	3,8	43	75	3,8
8594039	3,9	43	75	3,9
8594040	4	43	75	4
8594041	4,1	43	75	4,1
8594042	4,2	43	75	4,2
8594043	4,3	47	80	4,3
8594044	4,4	47	80	4,4
8594045	4,5	47	80	4,5
8594046	4,6	47	80	4,6
8594047	4,7	47	80	4,7
8594048	4,8	52	86	4,8
8594049	4,9	52	86	4,9
8594050	5	52	86	5
8594051	5,1	52	86	5,1
8594052	5,2	52	86	5,2
8594053	5,3	52	86	5,3
8594054	5,4	57	93	5,4
8594055	5,5	57	93	5,5
8594056	5,6	57	93	5,6
8594057	5,7	57	93	5,7
8594058	5,8	57	93	5,8
8594059	5,9	57	93	5,9
8594060	6	57	93	6
8594061	6,1	63	101	6,1
8594062	6,2	63	101	6,2
8594063	6,3	63	101	6,3
8594064	6,4	63	101	6,4
8594065	6,5	63	101	6,5

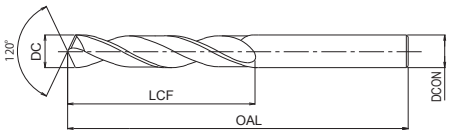
EDP	DC	LCF	OAL	DCON
8594066	6,6	63	101	6,6
8594067	6,7	63	109	6,7
8594068	6,8	69	109	6,8
8594069	6,9	69	109	6,9
8594070	7	69	109	7
8594071	7,1	69	109	7,1
8594072	7,2	69	109	7,2
8594073	7,3	69	109	7,3
8594074	7,4	69	109	7,4
8594075	7,5	69	109	7,5
8594076	7,6	75	117	7,6
8594077	7,7	75	117	7,7
8594078	7,8	75	117	7,8
8594079	7,9	75	117	7,9
8594080	8	75	117	8
8594081	8,1	75	117	8,1
8594082	8,2	75	117	8,2
8594083	8,3	75	117	8,3
8594084	8,4	75	117	8,4
8594085	8,5	75	117	8,5
8594086	8,6	81	125	8,6
8594087	8,7	81	125	8,7
8594088	8,8	81	125	8,8
8594089	8,9	81	125	8,9
8594090	9	81	125	9
8594091	9,1	81	125	9,1
8594092	9,2	81	125	9,2
8594093	9,3	81	125	9,3
8594094	9,4	81	125	9,4
8594095	9,5	81	125	9,5
8594096	9,6	87	133	9,6
8594097	9,7	87	133	9,7
8594098	9,8	87	133	9,8
8594099	9,9	87	133	9,9
8594100	10	87	133	10
8594101	10,1	87	133	10,1
8594102	10,2	87	133	10,2
8594103	10,3	87	133	10,3
8594104	10,4	87	133	10,4
8594105	10,5	87	133	10,5
8594106	10,6	87	133	10,6
8594107	10,7	94	142	10,7
8594108	10,8	94	142	10,8
8594109	10,9	94	142	10,9
8594110	11	94	142	11
8594111	11,1	94	142	11,1

V-SDR

Drilling | HSS | 5xD







- HSSE drill with TiCN coating
- Up to 5xD
- General purpose
- 111 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | K GG | K GGG | N Al | N AC, ADC

HSSE | V | 28°~38° | 120° | DIN 338

B.506

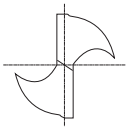
EDP	DC	LCF	OAL	DCON
8594112	11,2	94	142	11,2
8594113	11,3	94	142	11,3
8594114	11,4	94	142	11,4
8594115	11,5	94	142	11,5
8594116	11,6	94	142	11,6
8594117	11,7	94	142	11,7
8594118	11,8	94	142	11,8
8594119	11,9	101	151	11,9
8594120	12	101	151	12
8594121	12,1	101	151	12,1
8594122	12,2	101	151	12,2
8594123	12,3	101	151	12,3
8594124	12,4	101	151	12,4
8594125	12,5	101	151	12,5
8594126	12,6	101	151	12,6
8594127	12,7	101	151	12,7
8594128	12,8	101	151	12,8
8594129	12,9	101	151	12,9
8594130	13	101	151	13

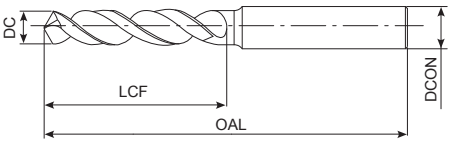
EDP	DC	LCF	OAL	DCON

EX-SUS-GDS

Drilling | HSS | 3xD







- First choice in quality and performance
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- Up to 3xD
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HSSE | TiN | 35°~40° | h7 | D≤12 | D>12 | 0,5≤D<1 150° | 1≤D<2 140° | 2≤D≤4 130° | 4<D≤20 120° | h8

B.506

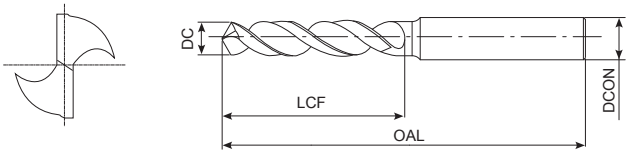
EDP	DC	LCF	OAL	DCON
61505	0,5	3	38	3
8595051	0,51	3	38	3
8595052	0,52	3	38	3
8595053	0,53	3	38	3
8595054	0,54	3,5	38	3
8595055	0,55	3,5	38	3
8595056	0,56	3,5	38	3
8595057	0,57	3,5	38	3
8595058	0,58	3,5	38	3
8595059	0,59	3,5	38	3
61506	0,6	3,5	38	3
8595061	0,61	4	38	3
8595062	0,62	4	38	3
8595063	0,63	4	38	3
8595064	0,64	4	38	3
8595065	0,65	4	38	3
8595066	0,66	4	38	3
8595067	0,67	4	38	3
8595068	0,68	4,5	38	3
8595069	0,69	4,5	38	3
61507	0,7	4,5	38	3
8595071	0,71	4,5	38	3
8595072	0,72	4,5	38	3
8595073	0,73	4,5	38	3
8595074	0,74	4,5	38	3
8595075	0,75	4,5	38	3
8595076	0,76	5	38	3
8595077	0,77	5	38	3
8595078	0,78	5	38	3
8595079	0,79	5	38	3
61508	0,8	5	38	3
8595081	0,81	5	38	3
8595082	0,82	5	38	3
8595083	0,83	5	38	3
8595084	0,84	5	38	3
8595085	0,85	5	38	3
8595086	0,86	5,5	38	3
8595087	0,87	5,5	38	3
8595088	0,88	5,5	38	3
8595089	0,89	5,5	38	3
61509	0,9	5,5	38	3
8595091	0,91	5,5	38	3
8595092	0,92	5,5	38	3
8595093	0,93	5,5	38	3
8595094	0,94	5,5	38	3
8595095	0,95	6	38	3

EDP	DC	LCF	OAL	DCON
8595096	0,96	6	38	3
8595097	0,97	6	38	3
8595098	0,98	6	38	3
8595099	0,99	6	38	3
61510	1	6	38	3
8595101	1,01	6	38	3
8595102	1,02	6	38	3
8595103	1,03	6	38	3
8595104	1,04	6	38	3
8595105	1,05	6	38	3
8595106	1,06	6	38	3
8595107	1,07	7	39	3
8595108	1,08	7	39	3
8595109	1,09	7	39	3
61511	1,1	7	39	3
8595111	1,11	7	39	3
8595112	1,12	7	39	3
8595113	1,13	7	39	3
8595114	1,14	7	39	3
8595115	1,15	7	39	3
8595116	1,16	7	39	3
8595117	1,17	7	39	3
8595118	1,18	7	39	3
8595119	1,19	8	40	3
61512	1,2	8	40	3
8595121	1,21	8	40	3
8595122	1,22	8	40	3
8595123	1,23	8	40	3
8595124	1,24	8	40	3
8595125	1,25	8	40	3
8595126	1,26	8	40	3
8595127	1,27	8	40	3
8595128	1,28	8	40	3
8595129	1,29	8	40	3
61513	1,3	8	40	3
8595131	1,31	8	40	3
8595132	1,32	8	40	3
8595133	1,33	8	41	3
8595134	1,34	8	41	3
8595135	1,35	8	41	3
8595136	1,36	8	41	3
8595137	1,37	9	41	3
8595138	1,38	9	41	3
8595139	1,39	9	41	3
61514	1,4	9	41	3
8595141	1,41	9	41	3

EX-SUS-GDS

Drilling | HSS | 3xD





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B.506

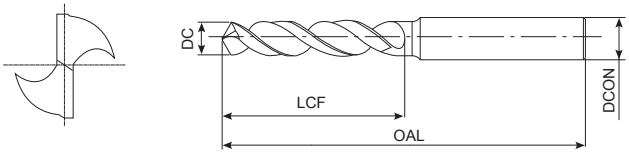
EDP	DC	LCF	OAL	DCON
8595142	1,42	9	41	3
8595143	1,43	9	41	3
8595144	1,44	9	41	3
8595145	1,45	9	41	3
8595146	1,46	9	41	3
8595147	1,47	9	41	3
8595148	1,48	9	41	3
8595149	1,49	9	41	3
61515	1,5	9	41	3
8595151	1,51	10	42	3
8595152	1,52	10	42	3
8595153	1,53	10	42	3
8595154	1,54	10	42	3
8595155	1,55	10	42	3
8595156	1,56	10	42	3
8595157	1,57	10	42	3
8595158	1,58	10	42	3
8595159	1,59	10	42	3
61516	1,6	10	42	3
8595161	1,61	10	42	3
8595162	1,62	10	42	3
8595163	1,63	10	42	3
8595164	1,64	10	42	3
8595165	1,65	10	42	3
8595166	1,66	10	42	3
8595167	1,67	10	42	3
8595168	1,68	10	42	3
8595169	1,69	10	42	3
61517	1,7	10	42	3
8595171	1,71	11	43	3
8595172	1,72	11	43	3
8595173	1,73	11	43	3
8595174	1,74	11	43	3
8595175	1,75	11	43	3
8595176	1,76	11	43	3
8595177	1,77	11	43	3
8595178	1,78	11	43	3
8595179	1,79	11	43	3
61518	1,8	11	43	3
8595181	1,81	11	43	3
8595182	1,82	11	43	3
8595183	1,83	11	43	3
8595184	1,84	11	43	3
8595185	1,85	11	43	3
8595186	1,86	11	43	3
8595187	1,87	11	43	3

EDP	DC	LCF	OAL	DCON
8595188	1,88	11	43	3
8595189	1,89	11	43	3
61519	1,9	11	43	3
8595191	1,91	12	44	3
8595192	1,92	12	44	3
8595193	1,93	12	44	3
8595194	1,94	12	44	3
8595195	1,95	12	44	3
8595196	1,96	12	44	3
8595197	1,97	12	44	3
8595198	1,98	12	44	3
8595199	1,99	12	44	3
61520	2	12	44	3
8595201	2,01	12	44	3
8595202	2,02	12	44	3
8595203	2,03	12	44	3
8595204	2,04	12	44	3
8595205	2,05	12	44	3
8595206	2,06	12	44	3
8595207	2,07	12	44	3
8595208	2,08	12	44	3
8595209	2,09	12	44	3
61521	2,1	12	44	3
8595211	2,11	12	44	3
8595212	2,12	12	44	3
8595213	2,13	13	45	3
8595214	2,14	13	45	3
8595215	2,15	13	45	3
8595216	2,16	13	45	3
8595217	2,17	13	45	3
8595218	2,18	13	45	3
8595219	2,19	13	45	3
61522	2,2	13	45	3
8595221	2,21	13	45	3
8595222	2,22	13	45	3
8595223	2,23	13	45	3
8595224	2,24	13	45	3
8595225	2,25	13	45	3
8595226	2,26	13	45	3
8595227	2,27	13	45	3
8595228	2,28	13	45	3
8595229	2,29	13	45	3
61523	2,3	13	45	3
8595231	2,31	13	45	3
8595232	2,32	13	45	3
8595233	2,33	13	45	3

EX-SUS-GDS

Drilling | HSS | 3xD





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B.506

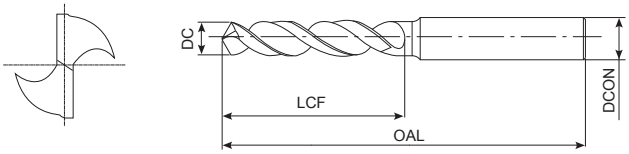
EDP	DC	LCF	OAL	DCON
8595234	2,34	13	45	3
8595235	2,35	13	45	3
8595236	2,36	13	45	3
8595237	2,37	14	46	3
8595238	2,38	14	46	3
8595239	2,39	14	46	3
61524	2,4	14	46	3
8595241	2,41	14	46	3
8595242	2,42	14	46	3
8595243	2,43	14	46	3
8595244	2,44	14	46	3
8595245	2,45	14	46	3
8595246	2,46	14	46	3
8595247	2,47	14	46	3
8595248	2,48	14	46	3
8595249	2,49	14	46	3
61525	2,5	14	46	3
8595251	2,51	14	46	3
8595252	2,52	14	46	3
8595253	2,53	14	46	3
8595254	2,54	14	46	3
8595255	2,55	14	46	3
8595256	2,56	14	46	3
8595257	2,57	14	46	3
8595258	2,58	14	46	3
8595259	2,59	14	46	3
61526	2,6	14	46	3
8595261	2,61	14	46	3
8595262	2,62	14	46	3
8595263	2,63	14	46	3
8595264	2,64	14	46	3
8595265	2,65	14	46	3
8595266	2,66	16	48	3
8595267	2,67	16	48	3
8595268	2,68	16	48	3
8595269	2,69	16	48	3
61527	2,7	16	48	3
8595271	2,71	16	48	3
8595272	2,72	16	48	3
8595273	2,73	16	48	3
8595274	2,74	16	48	3
8595275	2,75	16	48	3
8595276	2,76	16	48	3
8595277	2,77	16	48	3
8595278	2,78	16	48	3
8595279	2,79	16	48	3

EDP	DC	LCF	OAL	DCON
61528	2,8	16	48	3
8595281	2,81	16	48	3
8595282	2,82	16	48	3
8595283	2,83	16	48	3
8595284	2,84	16	48	3
8595285	2,85	16	48	3
8595286	2,86	16	48	3
8595287	2,87	16	48	3
8595288	2,88	16	48	3
8595289	2,89	16	48	3
61529	2,9	16	48	3
8595291	2,91	16	48	3
8595292	2,92	16	48	3
8595293	2,93	16	48	3
8595294	2,94	16	48	3
8595295	2,95	16	48	3
8595296	2,96	16	48	3
8595297	2,97	16	48	3
8595298	2,98	16	48	3
8595299	2,99	16	48	3
61530	3	16	48	3
8595301	3,01	18	50	4
8595302	3,02	18	50	4
8595303	3,03	18	50	4
8595304	3,04	18	50	4
8595305	3,05	18	50	4
8595306	3,06	18	50	4
8595307	3,07	18	50	4
8595308	3,08	18	50	4
8595309	3,09	18	50	4
61531	3,1	18	50	4
8595311	3,11	18	50	4
8595312	3,12	18	50	4
8595313	3,13	18	50	4
8595314	3,14	18	50	4
8595315	3,15	18	50	4
8595316	3,16	18	50	4
8595317	3,17	18	50	4
8595318	3,18	18	50	4
8595319	3,19	18	50	4
61532	3,2	18	50	4
8595321	3,21	18	50	4
8595322	3,22	18	50	4
8595323	3,23	18	50	4
8595324	3,24	18	50	4
8595325	3,25	18	50	4

EX-SUS-GDS

Drilling | HSS | 3xD





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HSSE | TiN | 35°~40° | h7 | D≤12 | D>12 | 0,5≤D<1 150° | 1≤D<2 140° | 2≤D≤4 130° | 4<D≤20 120° | h8

B.506

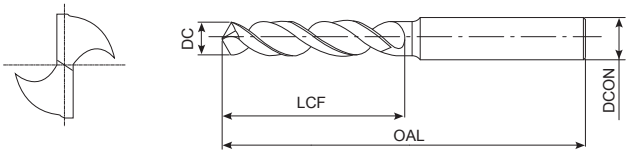
EDP	DC	LCF	OAL	DCON
8595326	3,26	18	50	4
8595327	3,27	18	50	4
8595328	3,28	18	50	4
8595329	3,29	18	50	4
61533	3,3	18	50	4
8595331	3,31	18	50	4
8595332	3,32	18	50	4
8595333	3,33	18	50	4
8595334	3,34	18	50	4
8595335	3,35	18	50	4
8595336	3,36	20	52	4
8595337	3,37	20	52	4
8595338	3,38	20	52	4
8595339	3,39	20	52	4
61534	3,4	20	52	4
8595341	3,41	20	52	4
8595342	3,42	20	52	4
8595343	3,43	20	52	4
8595344	3,44	20	52	4
8595345	3,45	20	52	4
8595346	3,46	20	52	4
8595347	3,47	20	52	4
8595348	3,48	20	52	4
8595349	3,49	20	52	4
61535	3,5	20	52	4
8595351	3,51	20	52	4
8595352	3,52	20	52	4
8595353	3,53	20	52	4
8595354	3,54	20	52	4
8595355	3,55	20	52	4
8595356	3,56	20	52	4
8595357	3,57	20	52	4
8595358	3,58	20	52	4
8595359	3,59	20	52	4
61536	3,6	20	52	4
8595361	3,61	20	52	4
8595362	3,62	20	52	4
8595363	3,63	20	52	4
8595364	3,64	20	52	4
8595365	3,65	20	52	4
8595366	3,66	20	52	4
8595367	3,67	20	52	4
8595368	3,68	20	52	4
8595369	3,69	20	52	4
61537	3,7	20	52	4
8595371	3,71	20	52	4

EDP	DC	LCF	OAL	DCON
8595372	3,72	20	52	4
8595373	3,73	20	52	4
8595374	3,74	20	52	4
8595375	3,75	20	52	4
8595376	3,76	22	54	4
8595377	3,77	22	54	4
8595378	3,78	22	54	4
8595379	3,79	22	54	4
61538	3,8	22	54	4
8595381	3,81	22	54	4
8595382	3,82	22	54	4
8595383	3,83	22	54	4
8595384	3,84	22	54	4
8595385	3,85	22	54	4
8595386	3,86	22	54	4
8595387	3,87	22	54	4
8595388	3,88	22	54	4
8595389	3,89	22	54	4
61539	3,9	22	54	4
8595391	3,91	22	54	4
8595392	3,92	22	54	4
8595393	3,93	22	54	4
8595394	3,94	22	54	4
8595395	3,95	22	54	4
8595396	3,96	22	54	4
8595397	3,97	22	54	4
8595398	3,98	22	54	4
8595399	3,99	22	54	4
61540	4	22	54	4
8595401	4,01	22	66	6
8595402	4,02	22	66	6
8595403	4,03	22	66	6
8595404	4,04	22	66	6
8595405	4,05	22	66	6
8595406	4,06	22	66	6
8595407	4,07	22	66	6
8595408	4,08	22	66	6
8595409	4,09	22	66	6
61541	4,1	22	66	6
8595411	4,11	22	66	6
8595412	4,12	22	66	6
8595413	4,13	22	66	6
8595414	4,14	22	66	6
8595415	4,15	22	66	6
8595416	4,16	22	66	6
8595417	4,17	22	66	6

EX-SUS-GDS

Drilling | HSS | 3xD





- First choice in quality and performance
- HSSE drill with TiN coating
- Up to 3xD
- For stainless steel, low carbon steel and cast aluminium
- 635 sizes - from Ø 0,5-6 mm in 0,01 mm increments

P ◉ C <0,2% | P ○ 0,25<C<0,4 | M ◉ INOX | N ◉ Al | N ○ AC, ADC

HSSE | TiN | 35°~40° | h7 | D≤12 | D>12 | 0,5≤D<1 150° | 1≤D<2 140° | 2≤D≤4 130° | 4<D≤20 120° | h8

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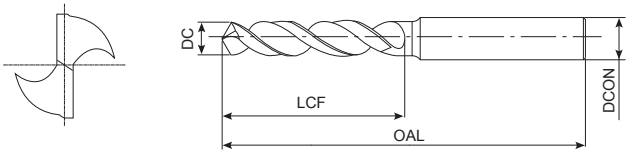
EDP	DC	LCF	OAL	DCON
8595418	4,18	22	66	6
8595419	4,19	22	66	6
61542	4,2	22	66	6
8595421	4,21	22	66	6
8595422	4,22	22	66	6
8595423	4,23	22	66	6
8595424	4,24	22	66	6
8595425	4,25	22	66	6
8595426	4,26	24	68	6
8595427	4,27	24	68	6
8595428	4,28	24	68	6
8595429	4,29	24	68	6
61543	4,3	24	68	6
8595431	4,31	24	68	6
8595432	4,32	24	68	6
8595433	4,33	24	68	6
8595434	4,34	24	68	6
8595435	4,35	24	68	6
8595436	4,36	24	68	6
8595437	4,37	24	68	6
8595438	4,38	24	68	6
8595439	4,39	24	68	6
61544	4,4	24	68	6
8595441	4,41	24	68	6
8595442	4,42	24	68	6
8595443	4,43	24	68	6
8595444	4,44	24	68	6
8595445	4,45	24	68	6
8595446	4,46	24	68	6
8595447	4,47	24	68	6
8595448	4,48	24	68	6
8595449	4,49	24	68	6
61545	4,5	24	68	6
8595451	4,51	24	68	6
8595452	4,52	24	68	6
8595453	4,53	24	68	6
8595454	4,54	24	68	6
8595455	4,55	24	68	6
8595456	4,56	24	68	6
8595457	4,57	24	68	6
8595458	4,58	24	68	6
8595459	4,59	24	68	6
61546	4,6	24	68	6
8595461	4,61	24	68	6
8595462	4,62	24	68	6
8595463	4,63	24	68	6

EDP	DC	LCF	OAL	DCON
8595464	4,64	24	68	6
8595465	4,65	24	68	6
8595466	4,66	24	68	6
8595467	4,67	24	68	6
8595468	4,68	24	68	6
8595469	4,69	24	68	6
61547	4,7	24	68	6
8595471	4,71	24	68	6
8595472	4,72	24	68	6
8595473	4,73	24	68	6
8595474	4,74	24	68	6
8595475	4,75	24	68	6
8595476	4,76	26	70	6
8595477	4,77	26	70	6
8595478	4,78	26	70	6
8595479	4,79	26	70	6
61548	4,8	26	70	6
8595481	4,81	26	70	6
8595482	4,82	26	70	6
8595483	4,83	26	70	6
8595484	4,84	26	70	6
8595485	4,85	26	70	6
8595486	4,86	26	70	6
8595487	4,87	26	70	6
8595488	4,88	26	70	6
8595489	4,89	26	70	6
61549	4,9	26	70	6
8595491	4,91	26	70	6
8595492	4,92	26	70	6
8595493	4,93	26	70	6
8595494	4,94	26	70	6
8595495	4,95	26	70	6
8595496	4,96	26	70	6
8595497	4,97	26	70	6
8595498	4,98	26	70	6
8595499	4,99	26	70	6
61550	5	26	70	6
8595501	5,01	26	70	6
8595502	5,02	26	70	6
8595503	5,03	26	70	6
8595504	5,04	26	70	6
8595505	5,05	26	70	6
8595506	5,06	26	70	6
8595507	5,07	26	70	6
8595508	5,08	26	70	6
8595509	5,09	26	70	6

EX-SUS-GDS

Drilling | HSS | 3xD





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P ◉ C <0,2% | P ○ 0,25<C<0,4 | M ◉ INOX | N ◉ Al | N ○ AC, ADC

HSSE | TiN | 35°~40° | h7 | D≤12 | D>12 | 0,5≤D<1 150° | 1≤D<2 140° | 2≤D≤4 130° | 4<D≤20 120° | h8

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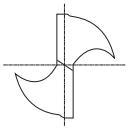
EDP	DC	LCF	OAL	DCON
61551	5,1	26	70	6
8595511	5,11	26	70	6
8595512	5,12	26	70	6
8595513	5,13	26	70	6
8595514	5,14	26	70	6
8595515	5,15	26	70	6
8595516	5,16	26	70	6
8595517	5,17	26	70	6
8595518	5,18	26	70	6
8595519	5,19	26	70	6
61552	5,2	26	70	6
8595521	5,21	26	70	6
8595522	5,22	26	70	6
8595523	5,23	26	70	6
8595524	5,24	26	70	6
8595525	5,25	26	70	6
8595526	5,26	26	70	6
8595527	5,27	26	70	6
8595528	5,28	26	70	6
8595529	5,29	26	70	6
61553	5,3	26	70	6
8595531	5,31	28	72	6
8595532	5,32	28	72	6
8595533	5,33	28	72	6
8595534	5,34	28	72	6
8595535	5,35	28	72	6
8595536	5,36	28	72	6
8595537	5,37	28	72	6
8595538	5,38	28	72	6
8595539	5,39	28	72	6
61554	5,4	28	72	6
8595541	5,41	28	72	6
8595542	5,42	28	72	6
8595543	5,43	28	72	6
8595544	5,44	28	72	6
8595545	5,45	28	72	6
8595546	5,46	28	72	6
8595547	5,47	28	72	6
8595548	5,48	28	72	6
8595549	5,49	28	72	6
61555	5,5	28	72	6
8595551	5,51	28	72	6
8595552	5,52	28	72	6
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8595554	5,54	28	72	6
8595555	5,55	28	72	6

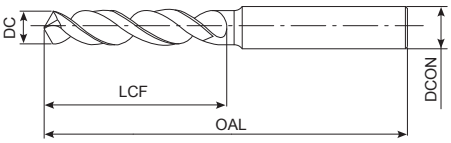
EDP	DC	LCF	OAL	DCON
8595556	5,56	28	72	6
8595557	5,57	28	72	6
8595558	5,58	28	72	6
8595559	5,59	28	72	6
61556	5,6	28	72	6
8595561	5,61	28	72	6
8595562	5,62	28	72	6
8595563	5,63	28	72	6
8595564	5,64	28	72	6
8595565	5,65	28	72	6
8595566	5,66	28	72	6
8595567	5,67	28	72	6
8595568	5,68	28	72	6
8595569	5,69	28	72	6
61557	5,7	28	72	6
8595571	5,71	28	72	6
8595572	5,72	28	72	6
8595573	5,73	28	72	6
8595574	5,74	28	72	6
8595575	5,75	28	72	6
8595576	5,76	28	72	6
8595577	5,77	28	72	6
8595578	5,78	28	72	6
8595579	5,79	28	72	6
61558	5,8	28	72	6
8595581	5,81	28	72	6
8595582	5,82	28	72	6
8595583	5,83	28	72	6
8595584	5,84	28	72	6
8595585	5,85	28	72	6
8595586	5,86	28	72	6
8595587	5,87	28	72	6
8595588	5,88	28	72	6
8595589	5,89	28	72	6
61559	5,9	28	72	6
8595591	5,91	28	72	6
8595592	5,92	28	72	6
8595593	5,93	28	72	6
8595594	5,94	28	72	6
8595595	5,95	28	72	6
8595596	5,96	28	72	6
8595597	5,97	28	72	6
8595598	5,98	28	72	6
8595599	5,99	28	72	6
61560	6	28	72	6
61561	6,1	31	75	8

EX-SUS-GDS

Drilling | HSS | 3xD







- First choice in quality and performance
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- Up to 3xD
- For stainless steel, low carbon steel and cast aluminium
- 635 sizes - from Ø 0,5-6 mm in 0,01 mm increments

P ◉ C <0,2% | P ○ 0,25<C<0,4 | M ◉ INOX | N ◉ Al | N ○ AC, ADC

HSSE | TiN | 35°~40° | h7 | D≤12 | D>12 | 0,5≤D<1 150° | 1≤D<2 140° | 2≤D≤4 130° | 4<D≤20 120° | h8

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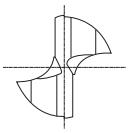
EDP	DC	LCF	OAL	DCON
61562	6,2	31	75	8
61563	6,3	31	75	8
61564	6,4	31	75	8
61565	6,5	31	75	8
61566	6,6	31	75	8
61567	6,7	31	75	8
61568	6,8	34	78	8
61569	6,9	34	78	8
61570	7	34	78	8
61571	7,1	34	78	8
61572	7,2	34	78	8
61573	7,3	34	78	8
61574	7,4	34	78	8
61575	7,5	34	78	8
61576	7,6	37	81	8
61577	7,7	37	81	8
61578	7,8	37	81	8
61579	7,9	37	81	8
61580	8	37	81	8
61581	8,1	37	87	10
61582	8,2	37	87	10
61583	8,3	37	87	10
61584	8,4	37	87	10
61585	8,5	37	87	10
61586	8,6	40	90	10
61587	8,7	40	90	10
61588	8,8	40	90	10
61589	8,9	40	90	10
61590	9	40	90	10
61591	9,1	40	90	10
61592	9,2	40	90	10
61593	9,3	40	90	10
61594	9,4	40	90	10
61595	9,5	40	90	10
61596	9,6	43	93	10
61597	9,7	43	93	10
61598	9,8	43	93	10
61599	9,9	43	93	10
61600	10	43	93	10
61601	10,1	43	100	12
61602	10,2	43	100	12
61603	10,3	43	100	12
61604	10,4	43	100	12
61605	10,5	43	100	12
61606	10,6	43	100	12
61607	10,7	47	104	12

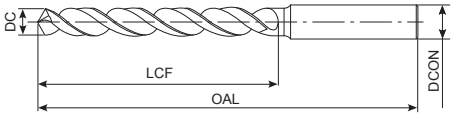
EDP	DC	LCF	OAL	DCON
61608	10,8	47	104	12
61609	10,9	47	104	12
61610	11	47	104	12
61611	11,1	47	104	12
61612	11,2	47	104	12
61613	11,3	47	104	12
61614	11,4	47	104	12
61615	11,5	47	104	12
61616	11,6	47	104	12
61617	11,7	47	104	12
61618	11,8	47	104	12
61619	11,9	51	108	12
61620	12	51	108	12
43011210	12,1	51	111	16
43011220	12,2	51	111	16
43011230	12,3	51	108	16
43011240	12,4	51	108	16
43011250	12,5	51	108	16
43011260	12,6	51	108	16
43011270	12,7	51	108	16
43011280	12,8	51	108	16
43011290	12,9	51	108	16
43011300	13	51	108	16
43011350	13,5	54	114	16
43011400	14	54	114	16
43011450	14,5	56	116	16
43011500	15	56	116	16
43011550	15,5	58	118	16
43011600	16	58	118	16
43011650	16,5	60	126	20
43011700	17	60	126	20
43011750	17,5	62	128	20
43011800	18	62	128	20
43011850	18,5	64	130	20
43011900	19	64	130	20
43011950	19,5	66	132	20
43012000	20	66	132	20

EX-SUS-GDR

Drilling | HSS | 5xD

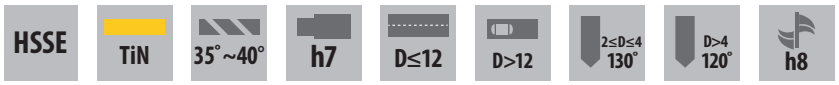






- First choice in quality and performance
- HSSE drill with TiN coating
- Up to 5xD
- For stainless steel, low carbon steel and cast aluminium
- 485 sizes - from Ø 2-6 mm in 0,01 mm increments







EDP	DC	LCF	OAL	DCON
62520	2	24	56	3
8597201	2,01	24	56	3
8597202	2,02	24	56	3
8597203	2,03	24	56	3
8597204	2,04	24	56	3
8597205	2,05	24	56	3
8597206	2,06	24	56	3
8597207	2,07	24	56	3
8597208	2,08	24	56	3
8597209	2,09	24	56	3
62521	2,1	24	56	3
8597211	2,11	24	56	3
8597212	2,12	24	56	3
8597213	2,13	27	59	3
8597214	2,14	27	59	3
8597215	2,15	27	59	3
8597216	2,16	27	59	3
8597217	2,17	27	59	3
8597218	2,18	27	59	3
8597219	2,19	27	59	3
62522	2,2	27	59	3
8597221	2,21	27	59	3
8597222	2,22	27	59	3
8597223	2,23	27	59	3
8597224	2,24	27	59	3
8597225	2,25	27	59	3
8597226	2,26	27	59	3
8597227	2,27	27	59	3
8597228	2,28	27	59	3
8597229	2,29	27	59	3
62523	2,3	27	59	3
8597231	2,31	27	59	3
8597232	2,32	27	59	3
8597233	2,33	27	59	3
8597234	2,34	27	59	3
8597235	2,35	27	59	3
8597236	2,36	27	59	3
8597237	2,37	30	62	3
8597238	2,38	30	62	3
8597239	2,39	30	62	3
62524	2,4	30	62	3
8597241	2,41	30	62	3
8597242	2,42	30	62	3
8597243	2,43	30	62	3
8597244	2,44	30	62	3
8597245	2,45	30	62	3

EDP	DC	LCF	OAL	DCON
8597246	2,46	30	62	3
8597247	2,47	30	62	3
8597248	2,48	30	62	3
8597249	2,49	30	62	3
62525	2,5	30	62	3
8597251	2,51	30	62	3
8597252	2,52	30	62	3
8597253	2,53	30	62	3
8597254	2,54	30	62	3
8597255	2,55	30	62	3
8597256	2,56	30	62	3
8597257	2,57	30	62	3
8597258	2,58	30	62	3
8597259	2,59	30	62	3
62526	2,6	30	62	3
8597261	2,61	30	62	3
8597262	2,62	30	62	3
8597263	2,63	30	62	3
8597264	2,64	30	62	3
8597265	2,65	30	62	3
8597266	2,66	33	65	3
8597267	2,67	33	65	3
8597268	2,68	33	65	3
8597269	2,69	33	65	3
62527	2,7	33	65	3
8597271	2,71	33	65	3
8597272	2,72	33	65	3
8597273	2,73	33	65	3
8597274	2,74	33	65	3
8597275	2,75	33	65	3
8597276	2,76	33	65	3
8597277	2,77	33	65	3
8597278	2,78	33	65	3
8597279	2,79	33	65	3
62528	2,8	33	65	3
8597281	2,81	33	65	3
8597282	2,82	33	65	3
8597283	2,83	33	65	3
8597284	2,84	33	65	3
8597285	2,85	33	65	3
8597286	2,86	33	65	3
8597287	2,87	33	65	3
8597288	2,88	33	65	3
8597289	2,89	33	65	3
62529	2,9	33	65	3
8597291	2,91	33	65	3

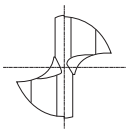


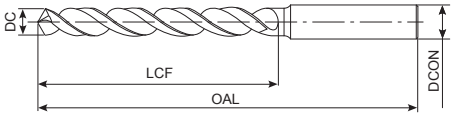
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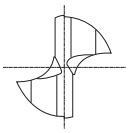
EDP	DC	LCF	OAL	DCON
8597292	2,92	33	65	3
8597293	2,93	33	65	3
8597294	2,94	33	65	3
8597295	2,95	33	65	3
8597296	2,96	33	65	3
8597297	2,97	33	65	3
8597298	2,98	33	65	3
8597299	2,99	33	65	3
62530	3	33	65	3
8597301	3,01	36	68	4
8597302	3,02	36	68	4
8597303	3,03	36	68	4
8597304	3,04	36	68	4
8597305	3,05	36	68	4
8597306	3,06	36	68	4
8597307	3,07	36	68	4
8597308	3,08	36	68	4
8597309	3,09	36	68	4
62531	3,1	36	68	4
8597311	3,11	36	68	4
8597312	3,12	36	68	4
8597313	3,13	36	68	4
8597314	3,14	36	68	4
8597315	3,15	36	68	4
8597316	3,16	36	68	4
8597317	3,17	36	68	4
8597318	3,18	36	68	4
8597319	3,19	36	68	4
62532	3,2	36	68	4
8597321	3,21	36	68	4
8597322	3,22	36	68	4
8597323	3,23	36	68	4
8597324	3,24	36	68	4
8597325	3,25	36	68	4
8597326	3,26	36	68	4
8597327	3,27	36	68	4
8597328	3,28	36	68	4
8597329	3,29	36	68	4
62533	3,3	36	68	4
8597331	3,31	36	68	4
8597332	3,32	36	68	4
8597333	3,33	36	68	4
8597334	3,34	36	68	4
8597335	3,35	36	68	4
8597336	3,36	39	71	4
8597337	3,37	39	71	4

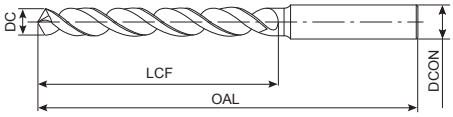
EDP	DC	LCF	OAL	DCON
8597338	3,38	39	71	4
8597339	3,39	39	71	4
62534	3,4	39	71	4
8597341	3,41	39	71	4
8597342	3,42	39	71	4
8597343	3,43	39	71	4
8597344	3,44	39	71	4
8597345	3,45	39	71	4
8597346	3,46	39	71	4
8597347	3,47	39	71	4
8597348	3,48	39	71	4
8597349	3,49	39	71	4
62535	3,5	39	71	4
8597351	3,51	39	71	4
8597352	3,52	39	71	4
8597353	3,53	39	71	4
8597354	3,54	39	71	4
8597355	3,55	39	71	4
8597356	3,56	39	71	4
8597357	3,57	39	71	4
8597358	3,58	39	71	4
8597359	3,59	39	71	4
62536	3,6	39	71	4
8597361	3,61	39	71	4
8597362	3,62	39	71	4
8597363	3,63	39	71	4
8597364	3,64	39	71	4
8597365	3,65	39	71	4
8597366	3,66	39	71	4
8597367	3,67	39	71	4
8597368	3,68	39	71	4
8597369	3,69	39	71	4
62537	3,7	39	71	4
8597371	3,71	39	71	4
8597372	3,72	39	71	4
8597373	3,73	39	71	4
8597374	3,74	39	71	4
8597375	3,75	39	71	4
8597376	3,76	43	75	4
8597377	3,77	43	75	4
8597378	3,78	43	75	4
8597379	3,79	43	75	4
62538	3,8	43	75	4
8597381	3,81	43	75	4
8597382	3,82	43	75	4
8597383	3,83	43	75	4

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Drilling | HSS | 5xD

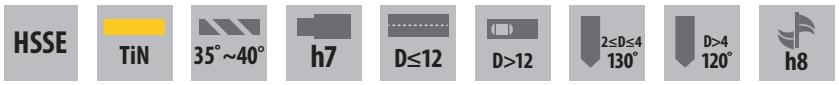






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EDP	DC	LCF	OAL	DCON
8597384	3,84	43	75	4
8597385	3,85	43	75	4
8597386	3,86	43	75	4
8597387	3,87	43	75	4
8597388	3,88	43	75	4
8597389	3,89	43	75	4
62539	3,9	43	75	4
8597391	3,91	43	75	4
8597392	3,92	43	75	4
8597393	3,93	43	75	4
8597394	3,94	43	75	4
8597395	3,95	43	75	4
8597396	3,96	43	75	4
8597397	3,97	43	75	4
8597398	3,98	43	75	4
8597399	3,99	43	75	4
62540	4	43	75	4
8597401	4,01	43	87	6
8597402	4,02	43	87	6
8597403	4,03	43	87	6
8597404	4,04	43	87	6
8597405	4,05	43	87	6
8597406	4,06	43	87	6
8597407	4,07	43	87	6
8597408	4,08	43	87	6
8597409	4,09	43	87	6
62541	4,1	43	87	6
8597411	4,11	43	87	6
8597412	4,12	43	87	6
8597413	4,13	43	87	6
8597414	4,14	43	87	6
8597415	4,15	43	87	6
8597416	4,16	43	87	6
8597417	4,17	43	87	6
8597418	4,18	43	87	6
8597419	4,19	43	87	6
62542	4,2	43	87	6
8597421	4,21	43	87	6
8597422	4,22	43	87	6
8597423	4,23	43	87	6
8597424	4,24	43	87	6
8597425	4,25	43	87	6
8597426	4,26	47	91	6
8597427	4,27	47	91	6
8597428	4,28	47	91	6
8597429	4,29	47	91	6

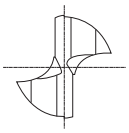
EDP	DC	LCF	OAL	DCON
62543	4,3	47	91	6
8597431	4,31	47	91	6
8597432	4,32	47	91	6
8597433	4,33	47	91	6
8597434	4,34	47	91	6
8597435	4,35	47	91	6
8597436	4,36	47	91	6
8597437	4,37	47	91	6
8597438	4,38	47	91	6
8597439	4,39	47	91	6
62544	4,4	47	91	6
8597441	4,41	47	91	6
8597442	4,42	47	91	6
8597443	4,43	47	91	6
8597444	4,44	47	91	6
8597445	4,45	47	91	6
8597446	4,46	47	91	6
8597447	4,47	47	91	6
8597448	4,48	47	91	6
8597449	4,49	47	91	6
62545	4,5	47	91	6
8597451	4,51	47	91	6
8597452	4,52	47	91	6
8597453	4,53	47	91	6
8597454	4,54	47	91	6
8597455	4,55	47	91	6
8597456	4,56	47	91	6
8597457	4,57	47	91	6
8597458	4,58	47	91	6
8597459	4,59	47	91	6
62546	4,6	47	91	6
8597461	4,61	47	91	6
8597462	4,62	47	91	6
8597463	4,63	47	91	6
8597464	4,64	47	91	6
8597465	4,65	47	91	6
8597466	4,66	47	91	6
8597467	4,67	47	91	6
8597468	4,68	47	91	6
8597469	4,69	47	91	6
62547	4,7	47	91	6
8597471	4,71	47	91	6
8597472	4,72	47	91	6
8597473	4,73	47	91	6
8597474	4,74	47	91	6
8597475	4,75	47	91	6

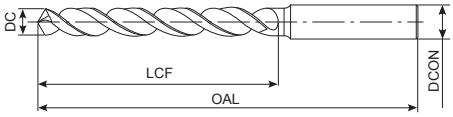
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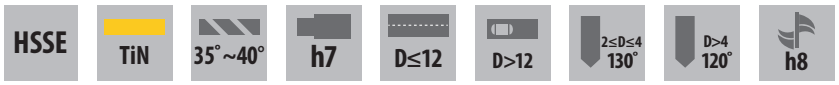






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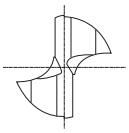
EDP	DC	LCF	OAL	DCON
8597476	4,76	52	96	6
8597477	4,77	52	96	6
8597478	4,78	52	96	6
8597479	4,79	52	96	6
62548	4,8	52	96	6
8597481	4,81	52	96	6
8597482	4,82	52	96	6
8597483	4,83	52	96	6
8597484	4,84	52	96	6
8597485	4,85	52	96	6
8597486	4,86	52	96	6
8597487	4,87	52	96	6
8597488	4,88	52	96	6
8597489	4,89	52	96	6
62549	4,9	52	96	6
8597491	4,91	52	96	6
8597492	4,92	52	96	6
8597493	4,93	52	96	6
8597494	4,94	52	96	6
8597495	4,95	52	96	6
8597496	4,96	52	96	6
8597497	4,97	52	96	6
8597498	4,98	52	96	6
8597499	4,99	52	96	6
62550	5	52	96	6
8597501	5,01	52	96	6
8597502	5,02	52	96	6
8597503	5,03	52	96	6
8597504	5,04	52	96	6
8597505	5,05	52	96	6
8597506	5,06	52	96	6
8597507	5,07	52	96	6
8597508	5,08	52	96	6
8597509	5,09	52	96	6
62551	5,1	52	96	6
8597511	5,11	52	96	6
8597512	5,12	52	96	6
8597513	5,13	52	96	6
8597514	5,14	52	96	6
8597515	5,15	52	96	6
8597516	5,16	52	96	6
8597517	5,17	52	96	6
8597518	5,18	52	96	6
8597519	5,19	52	96	6
62552	5,2	52	96	6
8597521	5,21	52	96	6

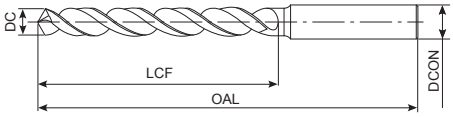
EDP	DC	LCF	OAL	DCON
8597522	5,22	52	96	6
8597523	5,23	52	96	6
8597524	5,24	52	96	6
8597525	5,25	52	96	6
8597526	5,26	52	96	6
8597527	5,27	52	96	6
8597528	5,28	52	96	6
8597529	5,29	52	96	6
62553	5,3	52	96	6
8597531	5,31	57	101	6
8597532	5,32	57	101	6
8597533	5,33	57	101	6
8597534	5,34	57	101	6
8597535	5,35	57	101	6
8597536	5,36	57	101	6
8597537	5,37	57	101	6
8597538	5,38	57	101	6
8597539	5,39	57	101	6
62554	5,4	57	101	6
8597541	5,41	57	101	6
8597542	5,42	57	101	6
8597543	5,43	57	101	6
8597544	5,44	57	101	6
8597545	5,45	57	101	6
8597546	5,46	57	101	6
8597547	5,47	57	101	6
8597548	5,48	57	101	6
8597549	5,49	57	101	6
62555	5,5	57	101	6
8597551	5,51	57	101	6
8597552	5,52	57	101	6
8597553	5,53	57	101	6
8597554	5,54	57	101	6
8597555	5,55	57	101	6
8597556	5,56	57	101	6
8597557	5,57	57	101	6
8597558	5,58	57	101	6
8597559	5,59	57	101	6
62556	5,6	57	101	6
8597561	5,61	57	101	6
8597562	5,62	57	101	6
8597563	5,63	57	101	6
8597564	5,64	57	101	6
8597565	5,65	57	101	6
8597566	5,66	57	101	6
8597567	5,67	57	101	6

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Drilling | HSS | 5xD

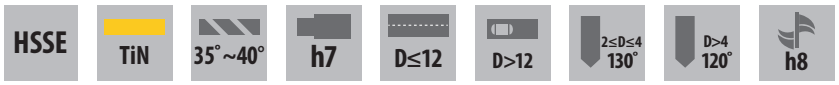






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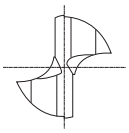
EDP	DC	LCF	OAL	DCON
8597568	5,68	57	101	6
8597569	5,69	57	101	6
62557	5,7	57	101	6
8597571	5,71	57	101	6
8597572	5,72	57	101	6
8597573	5,73	57	101	6
8597574	5,74	57	101	6
8597575	5,75	57	101	6
8597576	5,76	57	101	6
8597577	5,77	57	101	6
8597578	5,78	57	101	6
8597579	5,79	57	101	6
62558	5,8	57	101	6
8597581	5,81	57	101	6
8597582	5,82	57	101	6
8597583	5,83	57	101	6
8597584	5,84	57	101	6
8597585	5,85	57	101	6
8597586	5,86	57	101	6
8597587	5,87	57	101	6
8597588	5,88	57	101	6
8597589	5,89	57	101	6
62559	5,9	57	101	6
8597591	5,91	57	101	6
8597592	5,92	57	101	6
8597593	5,93	57	101	6
8597594	5,94	57	101	6
8597595	5,95	57	101	6
8597596	5,96	57	101	6
8597597	5,97	57	101	6
8597598	5,98	57	101	6
8597599	5,99	57	101	6
62560	6	57	101	6
62561	6,1	63	107	8
62562	6,2	63	107	8
62563	6,3	63	107	8
62564	6,4	63	107	8
62565	6,5	63	107	8
62566	6,6	63	107	8
62567	6,7	63	107	8
62568	6,8	69	113	8
62569	6,9	69	113	8
62570	7	69	113	8
62571	7,1	69	113	8
62572	7,2	69	113	8
62573	7,3	69	113	8

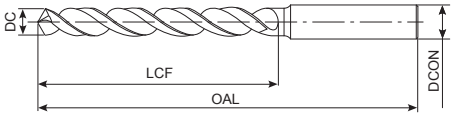
EDP	DC	LCF	OAL	DCON
62574	7,4	69	113	8
62575	7,5	69	113	8
62576	7,6	75	119	8
62577	7,7	75	119	8
62578	7,8	75	119	8
62579	7,9	75	119	8
62580	8	75	119	8
62581	8,1	75	125	10
62582	8,2	75	125	10
62583	8,3	75	125	10
62584	8,4	75	125	10
62585	8,5	75	125	10
62586	8,6	81	131	10
62587	8,7	81	131	10
62588	8,8	81	131	10
62589	8,9	81	131	10
62590	9	81	131	10
62591	9,1	81	131	10
62592	9,2	81	131	10
62593	9,3	81	131	10
62594	9,4	81	131	10
62595	9,5	81	131	10
62596	9,6	87	137	10
62597	9,7	87	137	10
62598	9,8	87	137	10
62599	9,9	87	137	10
62600	10	87	137	10
62601	10,1	87	144	12
62602	10,2	87	144	12
62603	10,3	87	144	12
62604	10,4	87	144	12
62605	10,5	87	144	12
62606	10,6	87	144	12
62607	10,7	94	151	12
62608	10,8	94	151	12
62609	10,9	94	151	12
62610	11	94	151	12
62611	11,1	94	151	12
62612	11,2	94	151	12
62613	11,3	94	151	12
62614	11,4	94	151	12
62615	11,5	94	151	12
62616	11,6	94	151	12
62617	11,7	94	151	12
62618	11,8	94	151	12
62619	11,9	101	158	12

EX-SUS-GDR

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EDP	DC	LCF	OAL	DCON
62620	12	101	158	12
43021210	12,1	101	158	16
43021220	12,2	101	158	16
43021230	12,3	101	158	16
43021240	12,4	101	158	16
43021250	12,5	101	158	16
43021260	12,6	101	158	16
43021270	12,7	101	158	16
43021280	12,8	101	158	16
43021290	12,9	101	158	16
43021300	13	101	158	16
43021350	13,5	106	166	16
43021400	14	106	166	16
43021450	14,5	109	169	16
43021500	15	109	169	16
43021550	15,5	112	172	16
43021600	16	112	172	16
43021650	16,5	115	181	20
43021700	17	115	181	20
43021750	17,5	118	184	20
43021800	18	118	184	20
43021850	18,5	122	188	20
43021900	19	122	188	20
43021950	19,5	125	191	20
43022000	20	125	191	20

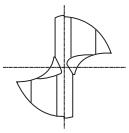
EDP	DC	LCF	OAL	DCON

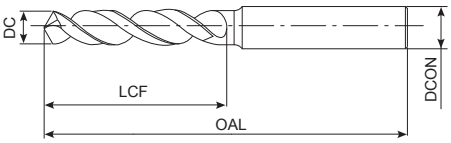
EX-GDS

INDEX

Drilling | HSS | 3xD







- HSS-Co drill with TiN coating
- Up to 3xD
- General purpose
- 193 sizes





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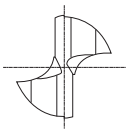
EDP	DC	LCF	OAL	DCON
60010	1	6	38	3
60410	1,05	6	38	3
60011	1,1	7	39	3
60411	1,15	7	39	3
60012	1,2	8	40	3
60412	1,25	8	40	3
60013	1,3	8	40	3
60413	1,35	9	41	3
60014	1,4	9	41	3
60414	1,45	9	41	3
60015	1,5	9	41	3
60415	1,55	10	42	3
60016	1,6	10	42	3
60416	1,65	10	42	3
60017	1,7	10	42	3
60417	1,75	11	43	3
60018	1,8	11	43	3
60418	1,85	11	43	3
60019	1,9	11	43	3
60419	1,95	12	44	3
60020	2	12	44	3
60420	2,05	12	44	3
60021	2,1	12	44	3
60421	2,15	13	45	3
60022	2,2	13	45	3
60422	2,25	13	45	3
60023	2,3	13	45	3
60423	2,35	13	45	3
60024	2,4	14	46	3
60424	2,45	14	46	3
60025	2,5	14	46	3
60425	2,55	14	46	3
60026	2,6	14	46	3
60426	2,65	14	46	3
60027	2,7	16	48	3
60427	2,75	16	48	3
60028	2,8	16	48	3
60428	2,85	16	48	3
60029	2,9	16	48	3
60429	2,95	16	48	3
60030	3	16	48	3
60430	3,05	18	50	4
60031	3,1	18	50	4
60431	3,15	18	50	4
60032	3,2	18	50	4
60432	3,25	18	50	4

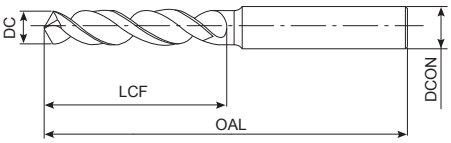
EDP	DC	LCF	OAL	DCON
60033	3,3	18	50	4
60433	3,35	18	50	4
60034	3,4	20	52	4
60434	3,45	20	52	4
60035	3,5	20	52	4
60435	3,55	20	52	4
60036	3,6	20	52	4
60436	3,65	20	52	4
60037	3,7	20	52	4
60437	3,75	20	52	4
60038	3,8	22	54	4
60438	3,85	22	54	4
60039	3,9	22	54	4
60439	3,95	22	54	4
60040	4	22	54	4
60440	4,05	22	66	6
60041	4,1	22	66	6
60441	4,15	22	66	6
60042	4,2	22	66	6
60442	4,25	22	66	6
60043	4,3	24	68	6
60443	4,35	24	68	6
60044	4,4	24	68	6
60444	4,45	24	68	6
60045	4,5	24	68	6
60445	4,55	24	68	6
60046	4,6	24	68	6
60446	4,65	24	68	6
60047	4,7	24	68	6
60447	4,75	24	68	6
60048	4,8	26	70	6
60448	4,85	26	70	6
60049	4,9	26	70	6
60449	4,95	26	70	6
60050	5	26	70	6
60450	5,05	26	70	6
60051	5,1	26	70	6
60451	5,15	26	70	6
60052	5,2	26	70	6
60452	5,25	26	70	6
60053	5,3	26	70	6
60453	5,35	28	72	6
60054	5,4	28	72	6
60454	5,45	28	72	6
60055	5,5	28	72	6
60455	5,55	28	72	6

EX-GDS

Drilling | HSS | 3xD







- HSS-Co drill with TiN coating
- Up to 3xD
- General purpose
- 193 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | K GG | K GGG | N Al | N AC, ADC | S Ni | H 25-35 HRC | H 35-45 HRC

HSS-Co | TiN | 25° | h7 | h8

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EDP	DC	LCF	OAL	DCON
60056	5,6	28	72	6
60456	5,65	28	72	6
60057	5,7	28	72	6
60457	5,75	28	72	6
60058	5,8	28	72	6
60458	5,85	28	72	6
60059	5,9	28	72	6
60459	5,95	28	72	6
60060	6	28	72	6
60061	6,1	31	75	8
60062	6,2	31	75	8
60063	6,3	31	75	8
60064	6,4	31	75	8
60065	6,5	31	75	8
60465	6,55	31	75	8
60066	6,6	31	75	8
60466	6,65	31	75	8
60067	6,7	31	75	8
60068	6,8	34	78	8
60069	6,9	34	78	8
60070	7	34	78	8
60071	7,1	34	78	8
60072	7,2	34	78	8
60073	7,3	34	78	8
60473	7,35	34	78	8
60074	7,4	34	78	8
60075	7,5	34	78	8
60475	7,55	37	81	8
60076	7,6	37	81	8
60476	7,65	37	81	8
60077	7,7	37	81	8
60078	7,8	37	81	8
60079	7,9	37	81	8
60080	8	37	81	8
60081	8,1	37	87	10
60082	8,2	37	87	10
60083	8,3	37	87	10
60483	8,35	37	87	10
60084	8,4	37	87	10
60085	8,5	37	87	10
60485	8,55	40	90	10
60086	8,6	40	90	10
60486	8,65	40	90	10
60087	8,7	40	90	10
60088	8,8	40	90	10
60089	8,9	40	90	10

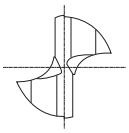
EDP	DC	LCF	OAL	DCON
60090	9	40	90	10
60091	9,1	40	90	10
60092	9,2	40	90	10
60492	9,25	40	90	10
60093	9,3	40	90	10
60493	9,35	40	90	10
60094	9,4	40	90	10
60494	9,45	40	90	10
60095	9,5	40	90	10
60495	9,55	43	93	10
60096	9,6	43	93	10
60496	9,65	43	93	10
60097	9,7	43	93	10
60098	9,8	43	93	10
60099	9,9	43	93	10
60499	9,95	43	93	10
60100	10	43	93	10
60101	10,1	43	100	12
60102	10,2	43	100	12
62002	10,25	43	100	12
60103	10,3	43	100	12
62003	10,35	43	100	12
60104	10,4	43	100	12
60105	10,5	43	100	12
62005	10,55	43	100	12
60106	10,6	43	100	12
62006	10,65	47	104	12
60107	10,7	47	104	12
60108	10,8	47	104	12
60109	10,9	47	104	12
62009	10,95	47	104	12
60110	11	47	104	12
60111	11,1	47	104	12
60112	11,2	47	104	12
62012	11,25	47	104	12
60113	11,3	47	104	12
62013	11,35	47	104	12
60114	11,4	47	104	12
60115	11,5	47	104	12
62015	11,55	47	104	12
60116	11,6	47	104	12
60117	11,7	47	104	12
60118	11,8	47	104	12
60119	11,9	51	108	12
60120	12	51	108	12
60121	12,1	51	108	12

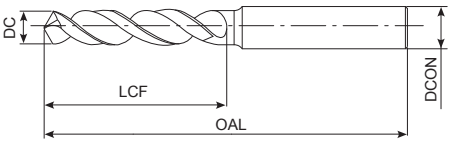
EX-GDS

INDEX

Drilling | HSS | 3xD







- HSS-Co drill with TiN coating
- Up to 3xD
- General purpose
- 193 sizes

P ○ C <0,2% | P ◉ 0,25<C<0,4 | P ◉ C ≥ 0,45% | P ◉ SCM | K ◉ GG | K ○ GGG | N ○ Al | N ○ AC, ADC | S ○ Ni | H ◉ 25-35 HRC | H ◉ 35-45 HRC

HSS-Co | TiN | 25° | h7 | h8

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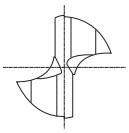
EDP	DC	LCF	OAL	DCON
60122	12,2	51	108	12
60123	12,3	51	108	12
60124	12,4	51	108	12
60125	12,5	51	108	12
60126	12,6	51	108	12
60127	12,7	51	108	12
60128	12,8	51	108	12
60129	12,9	51	108	12
60130	13	51	108	12

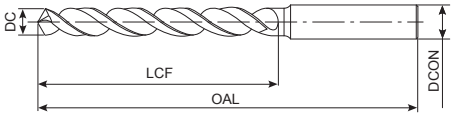
EDP	DC	LCF	OAL	DCON

EX-GDR

Drilling | HSS | 5xD







- HSS-Co drill with TiN coating
- Up to 5xD
- General purpose
- 249 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | K GG | K GGG | N Al | N AC, ADC | H 25-35 HRC

HSS-Co | TiN | 30° | h7 D>13 | h7 D≤13 | h8

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EDP	DC	LCF	OAL	DCON
60520	2	24	56	3
62120	2,05	24	56	3
60521	2,1	24	56	3
62121	2,15	27	59	3
60522	2,2	27	59	3
62122	2,25	27	59	3
60523	2,3	27	59	3
62123	2,35	27	59	3
60524	2,4	30	62	3
62124	2,45	30	62	3
60525	2,5	30	62	3
62125	2,55	30	62	3
60526	2,6	30	62	3
62126	2,65	30	62	3
60527	2,7	33	65	3
62127	2,75	33	65	3
60528	2,8	33	65	3
62128	2,85	33	65	3
60529	2,9	33	65	3
62129	2,95	33	65	3
60530	3	33	65	3
62130	3,05	36	68	4
60531	3,1	36	68	4
62131	3,15	36	68	4
60532	3,2	36	68	4
62132	3,25	36	68	4
60533	3,3	36	68	4
62133	3,35	36	68	4
60534	3,4	39	71	4
62134	3,45	39	71	4
60535	3,5	39	71	4
62135	3,55	39	71	4
60536	3,6	39	71	4
62136	3,65	39	71	4
60537	3,7	39	71	4
62137	3,75	39	71	4
60538	3,8	43	75	4
62138	3,85	43	75	4
60539	3,9	43	75	4
62139	3,95	43	75	4
60540	4	43	75	4
62140	4,05	43	87	6
60541	4,1	43	87	6
62141	4,15	43	87	6
60542	4,2	43	87	6
62142	4,25	43	87	6

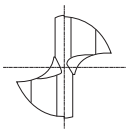
EDP	DC	LCF	OAL	DCON
60543	4,3	47	91	6
62143	4,35	47	91	6
60544	4,4	47	91	6
62144	4,45	47	91	6
60545	4,5	47	91	6
62145	4,55	47	91	6
60546	4,6	47	91	6
62146	4,65	47	91	6
60547	4,7	47	91	6
62147	4,75	47	91	6
60548	4,8	52	96	6
62148	4,85	52	96	6
60549	4,9	52	96	6
62149	4,95	52	96	6
60550	5	52	96	6
62150	5,05	52	96	6
60551	5,1	52	96	6
62151	5,15	52	96	6
60552	5,2	52	96	6
62152	5,25	52	96	6
60553	5,3	52	96	6
62153	5,35	57	101	6
60554	5,4	57	101	6
62154	5,45	57	101	6
60555	5,5	57	101	6
62155	5,55	57	101	6
60556	5,6	57	101	6
62156	5,65	57	101	6
60557	5,7	57	101	6
62157	5,75	57	101	6
60558	5,8	57	101	6
62158	5,85	57	101	6
60559	5,9	57	101	6
62159	5,95	57	101	6
60560	6	57	101	6
62160	6,05	63	107	8
60561	6,1	63	107	8
62161	6,15	63	107	8
60562	6,2	63	107	8
62162	6,25	63	107	8
60563	6,3	63	107	8
62163	6,35	63	107	8
60564	6,4	63	107	8
62164	6,45	63	107	8
60565	6,5	63	107	8
62165	6,55	63	107	8

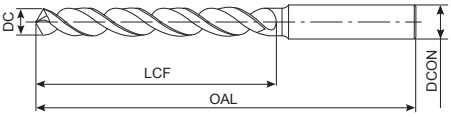
EX-GDR

INDEX

Drilling | HSS | 5xD







- HSS-Co drill with TiN coating
- Up to 5xD
- General purpose
- 249 sizes

P ○ C <0,2% | P ◉ 0,25<C<0,4 | P ◉ C ≥ 0,45% | P ◉ SCM | K ◉ GG | K ○ GGG | N ○ Al | N ○ AC, ADC | H ○ 25-35 HRC

HSS-Co | TiN | 30° | h7 D>13 | h7 D≤13 | h8

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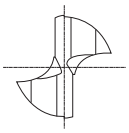
EDP	DC	LCF	OAL	DCON
60566	6,6	63	107	8
62166	6,65	63	107	8
60567	6,7	63	107	8
62167	6,75	69	113	8
60568	6,8	69	113	8
62168	6,85	69	113	8
60569	6,9	69	113	8
62169	6,95	69	113	8
60570	7	69	113	8
62170	7,05	69	113	8
60571	7,1	69	113	8
62171	7,15	69	113	8
60572	7,2	69	113	8
62172	7,25	69	113	8
60573	7,3	69	113	8
62173	7,35	69	113	8
60574	7,4	69	113	8
62174	7,45	69	113	8
60575	7,5	69	113	8
62175	7,55	75	119	8
60576	7,6	75	119	8
62176	7,65	75	119	8
60577	7,7	75	119	8
62177	7,75	75	119	8
60578	7,8	75	119	8
62178	7,85	75	119	8
60579	7,9	75	119	8
62179	7,95	75	119	8
60580	8	75	119	8
62180	8,05	75	125	10
60581	8,1	75	125	10
62181	8,15	75	125	10
60582	8,2	75	125	10
62182	8,25	75	125	10
60583	8,3	75	125	10
62183	8,35	75	125	10
60584	8,4	75	125	10
62184	8,45	75	125	10
60585	8,5	75	125	10
62185	8,55	81	131	10
60586	8,6	81	131	10
62186	8,65	81	131	10
60587	8,7	81	131	10
62187	8,75	81	131	10
60588	8,8	81	131	10
62188	8,85	81	131	10

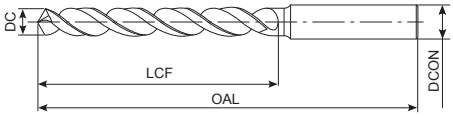
EDP	DC	LCF	OAL	DCON
60589	8,9	81	131	10
62189	8,95	81	131	10
60590	9	81	131	10
62190	9,05	81	131	10
60591	9,1	81	131	10
62191	9,15	81	131	10
60592	9,2	81	131	10
62192	9,25	81	131	10
60593	9,3	81	131	10
62193	9,35	81	131	10
60594	9,4	81	131	10
62194	9,45	81	131	10
60595	9,5	81	131	10
62195	9,55	87	137	10
60596	9,6	87	137	10
62196	9,65	87	137	10
60597	9,7	87	137	10
62197	9,75	87	137	10
60598	9,8	87	137	10
62198	9,85	87	137	10
60599	9,9	87	137	10
62199	9,95	87	137	10
60600	10	87	137	10
62200	10,05	87	144	12
60601	10,1	87	144	12
62201	10,15	87	144	12
60602	10,2	87	144	12
62202	10,25	87	144	12
60603	10,3	87	144	12
62203	10,35	87	144	12
60604	10,4	87	144	12
62204	10,45	87	144	12
60605	10,5	87	144	12
62205	10,55	87	144	12
60606	10,6	87	144	12
62206	10,65	94	151	12
60607	10,7	94	151	12
62207	10,75	94	151	12
60608	10,8	94	151	12
62208	10,85	94	151	12
60609	10,9	94	151	12
62209	10,95	94	151	12
60610	11	94	151	12
62210	11,05	94	151	12
60611	11,1	94	151	12
62211	11,15	94	151	12

EX-GDR

Drilling | HSS | 5xD







- HSS-Co drill with TiN coating
- Up to 5xD
- General purpose
- 249 sizes

P ○ C <0,2% | P ◉ 0,25<C<0,4 | P ◉ C ≥ 0,45% | P ◉ SCM | K ◉ GG | K ○ GGG | N ○ Al | N ○ AC, ADC | H ○ 25-35 HRC

HSS-Co | TiN | 30° | h7 D>13 | h7 D≤13 | h8

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EDP	DC	LCF	OAL	DCON
60612	11,2	94	151	12
62212	11,25	94	151	12
60613	11,3	94	151	12
62213	11,35	94	151	12
60614	11,4	94	151	12
62214	11,45	94	151	12
60615	11,5	94	151	12
62215	11,55	94	151	12
60616	11,6	94	151	12
62216	11,65	94	151	12
60617	11,7	94	151	12
62217	11,75	94	151	12
60618	11,8	94	151	12
62218	11,85	101	158	12
60619	11,9	101	158	12
62219	11,95	101	158	12
60620	12	101	158	12
60621	12,1	101	158	12
60622	12,2	101	158	12
60623	12,3	101	158	12
60624	12,4	101	158	12
60625	12,5	101	158	12
60626	12,6	101	158	12
60627	12,7	101	158	12
60628	12,8	101	158	12
60629	12,9	101	158	12
60630	13	101	158	12
60635	13,5	90	150	16
60640	14	90	150	16
60641	14,1	95	155	16
60645	14,5	95	155	16
60650	15	95	161	20
60655	15,5	100	166	20
60656	15,6	100	166	20
60660	16	100	166	20
60665	16,5	106	172	20
60670	17	106	172	20
60675	17,5	112	178	20
60676	17,6	112	178	20
60680	18	112	178	20
60685	18,5	118	184	20
60690	19	118	194	25
60695	19,5	125	201	25
60696	19,6	125	201	25
60700	20	125	201	25
60705	20,5	128	204	25

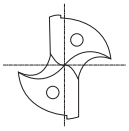
EDP	DC	LCF	OAL	DCON
60710	21	128	204	25
60711	21,1	128	204	25
60715	21,5	132	208	25
60720	22	132	208	25
60725	22,5	136	212	25
60730	23	136	212	25
60735	23,5	136	212	25
60740	24	140	220	32
60745	24,5	140	220	32
60750	25	140	220	32
60755	25,5	145	225	32
60760	26	145	225	32
60765	26,5	145	225	32
60770	27	150	230	32
60780	28	150	230	32
60790	29	155	235	32
60800	30	155	235	32
60810	31	160	241	32
60820	32	165	245	32

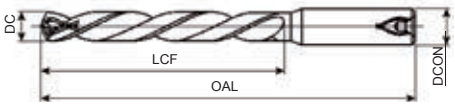
V-HDO-GDR

INDEX

Drilling | HSS | 5xD







- HSS-Co drill with internal coolant, TiCN coating
- Up to 5xD
- General purpose
- 96 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | K GGG | N Al | N AC, ADC | S Ti | S Ni | H 25-35 HRC

HSS-Co | V | 30° | h6 D>12 | h7 D≤12 | D≤12 | D>12 | 120° | h8

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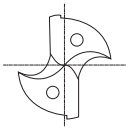
EDP	DC	LCF	OAL	DCON
43040600	6	57	101	6
43040610	6,1	63	107	6
43040620	6,2	63	107	6
43040630	6,3	63	107	6
43040640	6,4	63	107	6
43040650	6,5	63	107	6
43040660	6,6	63	107	7
43040670	6,7	63	107	7
43040680	6,8	69	113	7
43040690	6,9	69	113	7
43040700	7	69	113	7
43040710	7,1	69	113	8
43040720	7,2	69	113	8
43040730	7,3	69	113	8
43040740	7,4	69	113	8
43040750	7,5	69	113	8
43040760	7,6	75	119	8
43040770	7,7	75	119	8
43040780	7,8	75	119	8
43040790	7,9	75	119	8
43040800	8	75	119	8
43040810	8,1	75	125	9
43040820	8,2	75	125	9
43040830	8,3	75	125	9
43040840	8,4	75	125	9
43040850	8,5	75	125	9
43040860	8,6	81	131	9
43040870	8,7	81	131	9
43040880	8,8	81	131	9
43040890	8,9	81	131	9
43040900	9	81	131	9
43040910	9,1	81	131	10
43040920	9,2	81	131	10
43040930	9,3	81	131	10
43040940	9,4	81	131	10
43040950	9,5	81	131	10
43040960	9,6	87	137	10
43040970	9,7	87	137	10
43040980	9,8	87	137	10
43040990	9,9	87	137	10
43041000	10	87	137	10
43041010	10,1	87	144	11
43041020	10,2	87	144	11
43041030	10,3	87	144	11
43041040	10,4	87	144	11
43041050	10,5	87	144	11

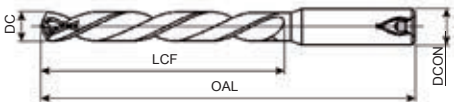
EDP	DC	LCF	OAL	DCON
43041060	10,6	87	144	11
43041070	10,7	94	151	11
43041080	10,8	94	151	11
43041090	10,9	94	151	11
43041100	11	94	151	11
43041110	11,1	94	151	12
43041120	11,2	94	151	12
43041130	11,3	94	151	12
43041140	11,4	94	151	12
43041150	11,5	94	151	12
43041160	11,6	94	151	12
43041170	11,7	94	151	12
43041180	11,8	94	151	12
43041190	11,9	101	158	12
43041200	12	101	158	12
43041250	12,5	80	140	16
43041300	13	85	145	16
43041350	13,5	90	150	16
43041400	14	90	150	16
43041450	14,5	95	155	16
43041500	15	95	161	20
43041550	15,5	100	166	20
43041600	16	100	166	20
43041650	16,5	106	172	20
43041700	17	106	172	20
43041750	17,5	112	178	20
43041800	18	112	178	20
43041850	18,5	118	184	20
43041900	19	118	194	25
43041950	19,5	125	201	25
43042000	20	125	201	25
43042050	20,5	128	204	25
43042100	21	128	204	25
43042150	21,5	132	208	25
43042200	22	132	208	25
43042250	22,5	136	212	25
43042300	23	136	212	25
43042350	23,5	136	212	25
43042400	24	140	220	32
43042450	24,5	140	220	32
43042500	25	140	220	32
43042550	25,5	145	225	32
43042600	26	145	225	32
43042650	26,5	145	225	32
43042700	27	150	230	32
43042800	28	150	230	32

V-HDO-GDR

Drilling | HSS | 5xD







- HSS-Co drill with internal coolant, TiCN coating
- Up to 5xD
- General purpose
- 96 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | K GGG | N Al | N AC, ADC | S Ti | S Ni | H 25-35 HRC

HSS-Co | V | 30° | h6 D>12 | h7 D≤12 | D≤12 | D>12 | 120° | h8

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EDP	DC	LCF	OAL	DCON
43042900	29	155	235	32
43043000	30	155	235	32
43043100	31	160	240	32
43043200	32	165	245	32

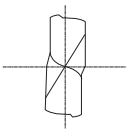
EDP	DC	LCF	OAL	DCON

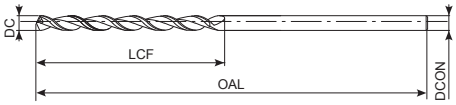
TDXL-10D

Drilling | HSS | 10xD

INDEX







- HSS-Co drill with WXL coating
- Up to 10xD
- For steels, cast iron and cast aluminium
- 103 sizes





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EDP	DC	LCF	OAL	DCON
8622816	1,6	26	70	1,6
8622818	1,8	26	75	1,8
8622820	2	26	75	2
8622821	2,1	33	75	2,1
8622822	2,2	33	75	2,2
8622823	2,3	33	75	2,3
8622824	2,4	33	75	2,4
8622825	2,5	33	75	2,5
8622826	2,6	40	90	2,6
8622827	2,7	40	90	2,7
8622828	2,8	40	90	2,8
8622829	2,9	40	90	2,9
8622830	3	40	90	3
8622831	3,1	45	100	3,1
8622832	3,2	45	100	3,2
8622833	3,3	45	100	3,3
8622834	3,4	50	100	3,4
8622835	3,5	50	100	3,5
8622836	3,6	50	100	3,6
8622837	3,7	50	100	3,7
8622838	3,8	50	100	3,8
8622839	3,9	50	100	3,9
8622840	4	50	100	4
8622841	4,1	55	115	4,1
8622842	4,2	55	115	4,2
8622843	4,3	60	115	4,3
8622844	4,4	60	115	4,4
8622845	4,5	60	115	4,5
8622846	4,6	60	115	4,6
8622847	4,7	60	115	4,7
8622848	4,8	65	115	4,8
8622849	4,9	65	115	4,9
8622850	5	65	115	5
8622851	5,1	70	128	5,1
8622852	5,2	70	128	5,2
8622853	5,3	70	128	5,3
8622854	5,4	78	128	5,4
8622855	5,5	78	128	5,5
8622856	5,6	78	128	5,6
8622857	5,7	78	128	5,7
8622858	5,8	78	128	5,8
8622859	5,9	78	128	5,9
8622860	6	78	128	6
8622861	6,1	87	140	6,1
8622862	6,2	87	140	6,2
8622863	6,3	87	140	6,3

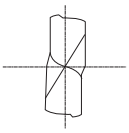
EDP	DC	LCF	OAL	DCON
8622864	6,4	87	140	6,4
8622865	6,5	87	140	6,5
8622866	6,6	87	140	6,6
8622867	6,7	87	140	6,7
8622868	6,8	90	140	6,8
8622869	6,9	90	140	6,9
8622870	7	90	140	7
8622871	7,1	100	155	7,1
8622872	7,2	100	155	7,2
8622873	7,3	100	155	7,3
8622874	7,4	100	155	7,4
8622875	7,5	100	155	7,5
8622876	7,6	105	155	7,6
8622877	7,7	105	155	7,7
8622878	7,8	105	155	7,8
8622879	7,9	105	155	7,9
8622880	8	105	155	8
8622881	8,1	110	165	8,1
8622882	8,2	110	165	8,2
8622883	8,3	110	165	8,3
8622884	8,4	110	165	8,4
8622885	8,5	110	165	8,5
8622886	8,6	115	165	8,6
8622887	8,7	115	165	8,7
8622888	8,8	115	165	8,8
8622889	8,9	115	165	8,9
8622890	9	115	165	9
8622891	9,1	125	190	9,1
8622892	9,2	125	190	9,2
8622893	9,3	125	190	9,3
8622894	9,4	125	190	9,4
8622895	9,5	125	190	9,5
8622896	9,6	130	190	9,6
8622897	9,7	130	190	9,7
8622898	9,8	130	190	9,8
8622899	9,9	130	190	9,9
8622900	10	130	190	10
8622901	10,1	140	205	10,1
8622902	10,2	140	205	10,2
8622903	10,3	140	205	10,3
8622904	10,4	140	205	10,4
8622905	10,5	140	205	10,5
8622906	10,6	145	205	10,6
8622907	10,7	145	205	10,7
8622908	10,8	145	205	10,8
8622909	10,9	145	205	10,9

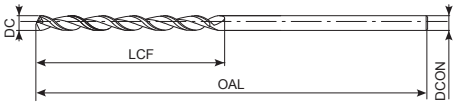
TDXL-10D

Drilling | HSS | 10xD

INDEX







- HSS-Co drill with WXL coating
- Up to 10xD
- For steels, cast iron and cast aluminium
- 103 sizes





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EDP	DC	LCF	OAL	DCON
8622910	11	145	205	11
8622911	11,1	155	215	11,1
8622912	11,2	155	215	11,2
8622913	11,3	155	215	11,3
8622914	11,4	155	215	11,4
8622915	11,5	155	215	11,5
8622916	11,6	155	215	11,6
8622917	11,7	155	215	11,7
8622918	11,8	155	215	11,8
8622919	11,9	155	215	11,9
8622920	12	155	215	12

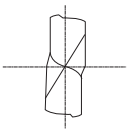
EDP	DC	LCF	OAL	DCON

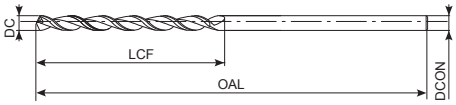
TDXL-15D

Drilling | HSS | 15xD

INDEX







- HSS-Co drill with WXL coating
- Up to 15xD
- For steels, cast iron and cast aluminium
- 68 sizes





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EDP	DC	LCF	OAL	DCON
8623016	1,6	30	70	1,6
8623018	1,8	34	75	1,8
8623020	2	36	80	2
8623021	2,1	38	80	2,1
8623022	2,2	40	80	2,2
8623023	2,3	42	85	2,3
8623024	2,4	44	85	2,4
8623025	2,5	46	85	2,5
8623026	2,6	48	100	2,6
8623027	2,7	50	100	2,7
8623028	2,8	50	100	2,8
8623029	2,9	54	105	2,9
8623030	3	54	105	3
8623031	3,1	56	110	3,1
8623032	3,2	58	110	3,2
8623033	3,3	60	110	3,3
8623034	3,4	62	115	3,4
8623035	3,5	64	115	3,5
8623036	3,6	66	115	3,6
8623037	3,7	68	120	3,7
8623038	3,8	70	120	3,8
8623039	3,9	70	120	3,9
8623040	4	72	120	4
8623041	4,1	74	135	4,1
8623042	4,2	76	135	4,2
8623043	4,3	78	140	4,3
8623044	4,4	80	140	4,4
8623045	4,5	82	140	4,5
8623046	4,6	84	145	4,6
8623047	4,7	86	145	4,7
8623048	4,8	86	145	4,8
8623049	4,9	88	150	4,9
8623050	5	90	150	5
8623051	5,1	92	150	5,1
8623052	5,2	94	155	5,2
8623053	5,3	96	155	5,3
8623054	5,4	98	155	5,4
8623055	5,5	100	155	5,5
8623056	5,6	102	160	5,6
8623057	5,7	104	165	5,7
8623058	5,8	106	165	5,8
8623060	6	108	170	6
8623062	6,2	112	170	6,2
8623063	6,3	114	175	6,3
8623065	6,5	118	200	6,5
8623066	6,6	120	200	6,6

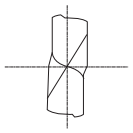
EDP	DC	LCF	OAL	DCON
8623068	6,8	124	200	6,8
8623069	6,9	126	200	6,9
8623070	7	126	200	7
8623071	7,1	128	200	7,1
8623075	7,5	136	205	7,5
8623080	8	144	215	8
8623081	8,1	146	215	8,1
8623082	8,2	148	220	8,2
8623085	8,5	154	225	8,5
8623086	8,6	156	225	8,6
8623088	8,8	160	230	8,8
8623090	9	162	230	9
8623093	9,3	168	240	9,3
8623095	9,5	172	240	9,5
8623097	9,7	176	245	9,7
8623098	9,8	178	245	9,8
8623100	10	180	250	10
8623105	10,5	190	270	10,5
8623110	11	200	280	11
8623115	11,5	208	290	11,5
8623118	11,8	214	295	11,8
8623120	12	216	300	12

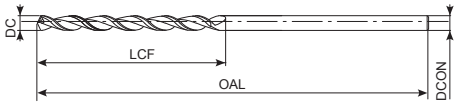
TDXL-20D

Drilling | HSS | 20xD

INDEX







- HSS-Co drill with WXL coating
- Up to 20xD
- For steels, cast iron and cast aluminium
- 48 sizes





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EDP	DC	LCF	OAL	DCON
8623216	1,6	38	85	1,6
8623218	1,8	42	85	1,8
8623220	2	46	85	2
8623221	2,1	50	90	2,1
8623222	2,2	52	90	2,2
8623223	2,3	54	95	2,3
8623224	2,4	56	95	2,4
8623225	2,5	58	100	2,5
8623226	2,6	60	110	2,6
8623227	2,7	64	115	2,7
8623228	2,8	66	115	2,8
8623229	2,9	68	120	2,9
8623230	3	70	120	3
8623231	3,1	72	125	3,1
8623232	3,2	74	125	3,2
8623233	3,3	76	125	3,3
8623234	3,4	80	130	3,4
8623235	3,5	82	130	3,5
8623237	3,7	86	135	3,7
8623238	3,8	88	140	3,8
8623240	4	92	140	4
8623241	4,1	96	155	4,1
8623242	4,2	98	155	4,2
8623243	4,3	100	160	4,3
8623245	4,5	104	165	4,5
8623246	4,6	106	165	4,6
8623248	4,8	112	170	4,8
8623250	5	116	175	5
8623251	5,1	118	180	5,1
8623252	5,2	120	180	5,2
8623255	5,5	128	185	5,5
8623257	5,7	132	190	5,7
8623258	5,8	134	200	5,8
8623260	6	138	200	6
8623263	6,3	146	200	6,3
8623265	6,5	150	225	6,5
8623268	6,8	158	225	6,8
8623269	6,9	160	230	6,9
8623270	7	162	230	7
8623275	7,5	174	245	7,5
8623280	8	184	255	8
8623281	8,1	188	255	8,1
8623282	8,2	190	260	8,2
8623285	8,5	196	265	8,5
8623290	9	208	275	9
8623300	10	230	300	10

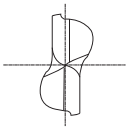
EDP	DC	LCF	OAL	DCON
8623310	11	254	350	11
8623320	12	276	350	12

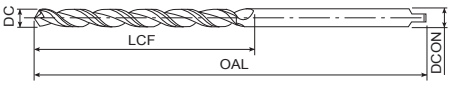
EX-GDXL-8D

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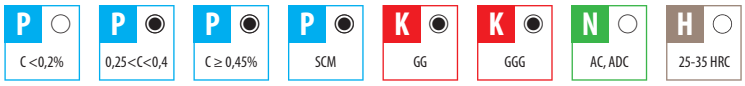
Drilling | HSS | 8xD







- HSS-Co drill with TiN coating
- Up to 8xD
- For general purpose steels and cast iron
- 21 sizes





B.508

EDP	DC	LCF	OAL	DCON
8592110	11	120	200	11
8592111	11,1	120	200	11,1
8592112	11,2	120	200	11,2
8592113	11,3	120	200	11,3
8592114	11,4	120	200	11,4
8592115	11,5	120	200	11,5
8592116	11,6	120	200	11,6
8592117	11,7	120	200	11,7
8592118	11,8	120	200	11,8
8592119	11,9	120	200	11,9
8592120	12	120	200	12
8592121	12,1	120	200	12,1
8592122	12,2	120	200	12,2
8592123	12,3	120	200	12,3
8592124	12,4	120	200	12,4
8592125	12,5	120	200	12,5
8592126	12,6	120	200	12,6
8592127	12,7	120	200	12,7
8592128	12,8	120	200	12,8
8592129	12,9	120	200	12,9
8592130	13	120	200	13

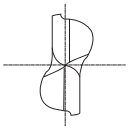
EDP	DC	LCF	OAL	DCON

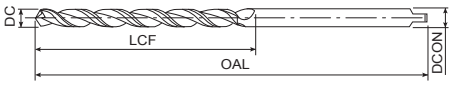
EX-GDXL-10D

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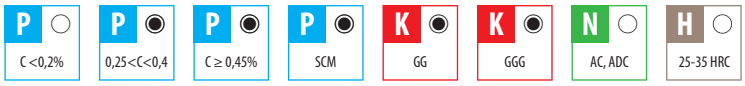
Drilling | HSS | 10xD







- HSS-Co drill with TiN coating
- Up to 10xD
- For general purpose steels and cast iron
- 89 sizes





B.508

EDP	DC	LCF	OAL	DCON
8591036	3,6	55	100	3,6
8591037	3,7	55	100	3,7
8591038	3,8	55	100	3,8
8591039	3,9	55	100	3,9
8591040	4	60	100	4
8591041	4,1	60	100	4,1
8591042	4,2	60	100	4,2
8591043	4,3	60	100	4,3
8591044	4,4	60	100	4,4
8591045	4,5	60	100	4,5
8591046	4,6	60	100	4,6
8591553	5,3	85	150	5,3
8591554	5,4	85	150	5,4
8591555	5,5	85	150	5,5
8591556	5,6	85	150	5,6
8591557	5,7	85	150	5,7
8591558	5,8	85	150	5,8
8591559	5,9	85	150	5,9
8591560	6	90	150	6
8591561	6,1	90	150	6,1
8591562	6,2	90	150	6,2
8591563	6,3	90	150	6,3
8591564	6,4	90	150	6,4
8591565	6,5	90	150	6,5
8591566	6,6	90	150	6,6
8591567	6,7	90	150	6,7
8591568	6,8	90	150	6,8
8591569	6,9	90	150	6,9
8591570	7	90	150	7
8591571	7,1	90	150	7,1
8591572	7,2	90	150	7,2
8591573	7,3	90	150	7,3
8591574	7,4	90	150	7,4
8591575	7,5	90	150	7,5
8592076	7,6	110	200	7,6
8592077	7,7	110	200	7,7
8592078	7,8	110	200	7,8
8592079	7,9	110	200	7,9
8592080	8	115	200	8
8592081	8,1	115	200	8,1
8592082	8,2	115	200	8,2
8592083	8,3	115	200	8,3
8592084	8,4	115	200	8,4
8592085	8,5	115	200	8,5
8592086	8,6	115	200	8,6
8592087	8,7	115	200	8,7

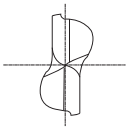
EDP	DC	LCF	OAL	DCON
8592088	8,8	115	200	8,8
8592089	8,9	115	200	8,9
8592090	9	115	200	9
8592091	9,1	115	200	9,1
8592092	9,2	115	200	9,2
8592093	9,3	115	200	9,3
8592094	9,4	115	200	9,4
8592095	9,5	115	200	9,5
8592096	9,6	115	200	9,6
8592097	9,7	115	200	9,7
8592098	9,8	115	200	9,8
8592099	9,9	115	200	9,9
8592100	10	120	200	10
8592101	10,1	120	200	10,1
8592102	10,2	120	200	10,2
8592103	10,3	120	200	10,3
8592104	10,4	120	200	10,4
8592105	10,5	120	200	10,5
8592106	10,6	120	200	10,6
8592107	10,7	120	200	10,7
8592108	10,8	120	200	10,8
8592109	10,9	120	200	10,9
8604110	11	160	250	11
8604111	11,1	160	250	11,1
8604112	11,2	160	250	11,2
8604113	11,3	160	250	11,3
8604114	11,4	160	250	11,4
8604115	11,5	160	250	11,5
8604116	11,6	160	250	11,6
8604117	11,7	160	250	11,7
8604118	11,8	160	250	11,8
8604119	11,9	160	250	11,9
8604120	12	160	250	12
8604121	12,1	160	250	12,1
8604122	12,2	160	250	12,2
8604123	12,3	160	250	12,3
8604124	12,4	160	250	12,4
8604125	12,5	160	250	12,5
8604126	12,6	160	250	12,6
8604127	12,7	160	250	12,7
8604128	12,8	160	250	12,8
8604129	12,9	160	250	12,9
8604130	13	160	250	13

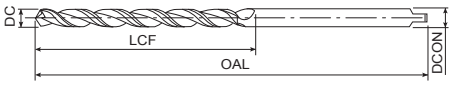
EX-GDXL-15D

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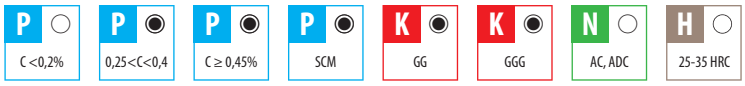
Drilling | HSS | 15xD







- HSS-Co drill with TiN coating
- Up to 15xD
- For general purpose steels and cast iron
- 104 sizes





B.508

EDP	DC	LCF	OAL	DCON
8590520	2	40	100	2
8590521	2,1	40	100	2,1
8590522	2,2	40	100	2,2
8590523	2,3	40	100	2,3
8590524	2,4	40	100	2,4
8591025	2,5	50	100	2,5
8591026	2,6	50	100	2,6
8591027	2,7	50	100	2,7
8591028	2,8	50	100	2,8
8591029	2,9	50	100	2,9
8591030	3	55	100	3
8591031	3,1	55	100	3,1
8591032	3,2	55	100	3,2
8591033	3,3	55	100	3,3
8591034	3,4	55	100	3,4
8591035	3,5	55	100	3,5
8591537	3,7	75	150	3,7
8591538	3,8	75	150	3,8
8591539	3,9	75	150	3,9
8591540	4	80	150	4
8591541	4,1	80	150	4,1
8591542	4,2	80	150	4,2
8591543	4,3	80	150	4,3
8591544	4,4	80	150	4,4
8591545	4,5	80	150	4,5
8591546	4,6	80	150	4,6
8591547	4,7	80	150	4,7
8591548	4,8	80	150	4,8
8591549	4,9	80	150	4,9
8591550	5	85	150	5
8591551	5,1	85	150	5,1
8591552	5,2	85	150	5,2
8592053	5,3	105	200	5,3
8592054	5,4	105	200	5,4
8592055	5,5	105	200	5,5
8592056	5,6	105	200	5,6
8592057	5,7	105	200	5,7
8592058	5,8	105	200	5,8
8592059	5,9	105	200	5,9
8592060	6	110	200	6
8592061	6,1	110	200	6,1
8592062	6,2	110	200	6,2
8592063	6,3	110	200	6,3
8592064	6,4	110	200	6,4
8592065	6,5	110	200	6,5
8592066	6,6	110	200	6,6

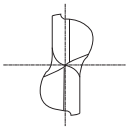
EDP	DC	LCF	OAL	DCON
8592067	6,7	110	200	6,7
8592068	6,8	110	200	6,8
8592069	6,9	110	200	6,9
8592070	7	110	200	7
8592071	7,1	110	200	7,1
8592072	7,2	110	200	7,2
8592073	7,3	110	200	7,3
8592074	7,4	110	200	7,4
8592075	7,5	110	200	7,5
8604082	8,2	160	250	8,2
8604083	8,3	160	250	8,3
8604084	8,4	160	250	8,4
8604085	8,5	160	250	8,5
8604086	8,6	160	250	8,6
8604087	8,7	160	250	8,7
8604088	8,8	160	250	8,8
8604089	8,9	160	250	8,9
8604090	9	160	250	9
8604091	9,1	160	250	9,1
8604092	9,2	160	250	9,2
8604093	9,3	160	250	9,3
8604094	9,4	160	250	9,4
8604095	9,5	160	250	9,5
8604096	9,6	160	250	9,6
8604097	9,7	160	250	9,7
8604098	9,8	160	250	9,8
8604099	9,9	160	250	9,9
8604100	10	160	250	10
8604101	10,1	160	250	10,1
8604102	10,2	160	250	10,2
8604103	10,3	160	250	10,3
8604104	10,4	160	250	10,4
8604105	10,5	160	250	10,5
8604106	10,6	160	250	10,6
8604107	10,7	160	250	10,7
8604108	10,8	160	250	10,8
8604109	10,9	160	250	10,9
8604310	11	200	300	11
8604311	11,1	200	300	11,1
8604312	11,2	200	300	11,2
8604313	11,3	200	300	11,3
8604314	11,4	200	300	11,4
8604315	11,5	200	300	11,5
8604316	11,6	200	300	11,6
8604317	11,7	200	300	11,7
8604318	11,8	200	300	11,8

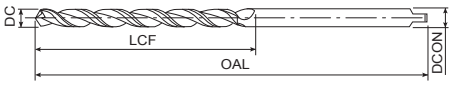
EX-GDXL-15D

INDEX

Drilling | HSS | 15xD







- HSS-Co drill with TiN coating
- Up to 15xD
- For general purpose steels and cast iron
- 104 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | K GG | K GGG | N AC, ADC | H 25-35 HRC

HSS-Co | TiN | 38° | 130° | h8

B.508

EDP	DC	LCF	OAL	DCON
8604319	11,9	200	300	11,9
8604320	12	200	300	12
8604321	12,1	200	300	12,1
8604322	12,2	200	300	12,2
8604323	12,3	200	300	12,3
8604324	12,4	200	300	12,4
8604325	12,5	200	300	12,5
8604326	12,6	200	300	12,6
8604327	12,7	200	300	12,7
8604328	12,8	200	300	12,8
8604329	12,9	200	300	12,9
8604330	13	200	300	13

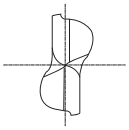
EDP	DC	LCF	OAL	DCON

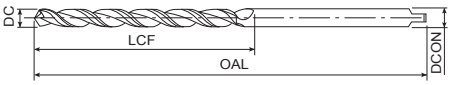
EX-GDXL-20D

INDEX

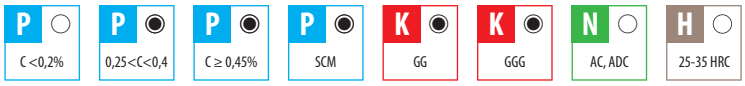
Drilling | HSS | 20xD







- HSS-Co drill with TiN coating
- Up to 20xD
- For general purpose steels and cast iron
- 72 sizes





B.508

EDP	DC	LCF	OAL	DCON
8591020	2	50	100	2
8591021	2,1	50	100	2,1
8591022	2,2	50	100	2,2
8591023	2,3	50	100	2,3
8591024	2,4	50	100	2,4
8591530	3	75	150	3
8591531	3,1	75	150	3,1
8591532	3,2	75	150	3,2
8591533	3,3	75	150	3,3
8591534	3,4	75	150	3,4
8591535	3,5	75	150	3,5
8591536	3,6	75	150	3,6
8592040	4	100	200	4
8592041	4,1	100	200	4,1
8592042	4,2	100	200	4,2
8592043	4,3	100	200	4,3
8592044	4,4	100	200	4,4
8592045	4,5	100	200	4,5
8592046	4,6	100	200	4,6
8592047	4,7	100	200	4,7
8592048	4,8	100	200	4,8
8592049	4,9	100	200	4,9
8592050	5	105	200	5
8592051	5,1	105	200	5,1
8592052	5,2	105	200	5,2
8604063	6,3	160	250	6,3
8604064	6,4	160	250	6,4
8604065	6,5	160	250	6,5
8604066	6,6	160	250	6,6
8604067	6,7	160	250	6,7
8604068	6,8	160	250	6,8
8604069	6,9	160	250	6,9
8604070	7	160	250	7
8604071	7,1	160	250	7,1
8604072	7,2	160	250	7,2
8604073	7,3	160	250	7,3
8604074	7,4	160	250	7,4
8604075	7,5	160	250	7,5
8604076	7,6	160	250	7,6
8604077	7,7	160	250	7,7
8604078	7,8	160	250	7,8
8604079	7,9	160	250	7,9
8604080	8	160	250	8
8604081	8,1	160	250	8,1
8604282	8,2	200	300	8,2
8604283	8,3	200	300	8,3

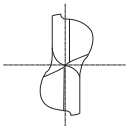
EDP	DC	LCF	OAL	DCON
8604284	8,4	200	300	8,4
8604285	8,5	200	300	8,5
8604286	8,6	200	300	8,6
8604287	8,7	200	300	8,7
8604288	8,8	200	300	8,8
8604289	8,9	200	300	8,9
8604290	9	200	300	9
8604291	9,1	200	300	9,1
8604292	9,2	200	300	9,2
8604293	9,3	200	300	9,3
8604294	9,4	200	300	9,4
8604295	9,5	200	300	9,5
8604296	9,6	200	300	9,6
8604297	9,7	200	300	9,7
8604298	9,8	200	300	9,8
8604299	9,9	200	300	9,9
8604300	10	200	300	10
8604301	10,1	200	300	10,1
8604302	10,2	200	300	10,2
8604303	10,3	200	300	10,3
8604304	10,4	200	300	10,4
8604305	10,5	200	300	10,5
8604306	10,6	200	300	10,6
8604307	10,7	200	300	10,7
8604308	10,8	200	300	10,8
8604309	10,9	200	300	10,9

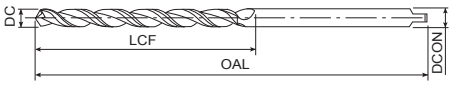
EX-GDXL-25D

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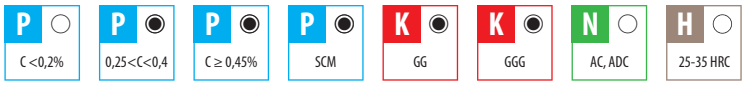
Drilling | HSS | 25xD







- HSS-Co drill with TiN coating
- Up to 25xD
- For general purpose steels and cast iron
- 36 sizes





B.508

EDP	DC	LCF	OAL	DCON
8592033	3,3	100	200	3,3
8592034	3,4	100	200	3,4
8592035	3,5	100	200	3,5
8592036	3,6	100	200	3,6
8592037	3,7	100	200	3,7
8592038	3,8	100	200	3,8
8592039	3,9	100	200	3,9
8592550	5	130	250	5
8604053	5,3	160	250	5,3
8604054	5,4	160	250	5,4
8604055	5,5	160	250	5,5
8604056	5,6	160	250	5,6
8604057	5,7	160	250	5,7
8604058	5,8	160	250	5,8
8604059	5,9	160	250	5,9
8604060	6	160	250	6
8604061	6,1	160	250	6,1
8604062	6,2	160	250	6,2
8604264	6,4	200	300	6,4
8604265	6,5	200	300	6,5
8604266	6,6	200	300	6,6
8604267	6,7	200	300	6,7
8604268	6,8	200	300	6,8
8604269	6,9	200	300	6,9
8604270	7	200	300	7
8604271	7,1	200	300	7,1
8604272	7,2	200	300	7,2
8604273	7,3	200	300	7,3
8604274	7,4	200	300	7,4
8604275	7,5	200	300	7,5
8604276	7,6	200	300	7,6
8604277	7,7	200	300	7,7
8604278	7,8	200	300	7,8
8604279	7,9	200	300	7,9
8604280	8	200	300	8
8604281	8,1	200	300	8,1

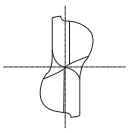
EDP	DC	LCF	OAL	DCON

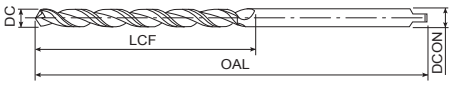
EX-GDXL-30D

INDEX

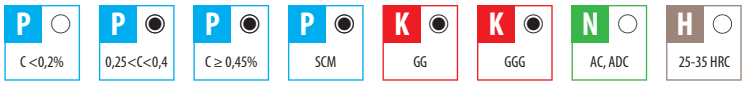
Drilling | HSS | 30xD







- HSS-Co drill with TiN coating
- Up to 30xD
- For general purpose steels and cast iron
- 10 sizes





B.508

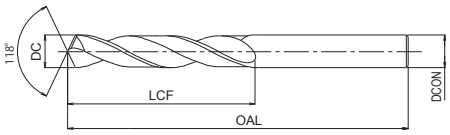
EDP	DC	LCF	OAL	DCON
8592030	3	100	200	3
8592031	3,1	100	200	3,1
8592032	3,2	100	200	3,2
8604050	5	160	250	5
8604051	5,1	160	250	5,1
8604052	5,2	160	250	5,2
8604260	6	200	300	6
8604261	6,1	200	300	6,1
8604262	6,2	200	300	6,2
8604263	6,3	200	300	6,3

EDP	DC	LCF	OAL	DCON

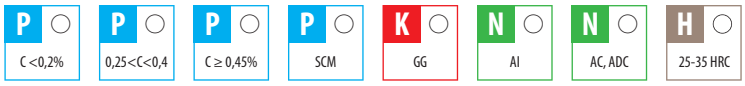
JOBBER DRILL

Drilling | Solid carbide | 5xD





- Carbide drill bright finish
- Up to 5xD
- General purpose
- 125 sizes





EDP	DC	DC Inch	LCF	OAL	DCON
71150100	1	-	15,9	38,1	1
71150110	1,1	-	19,1	38,1	1,1
71150120	1,2	-	19,1	38,1	1,2
71150130	1,3	-	19,1	38,1	1,3
71150140	1,4	-	19,1	38,1	1,4
71150150	1,5	-	19,1	38,1	1,5
71150160	1,6	-	19,1	38,1	1,6
71150170	1,7	-	19,1	38,1	1,7
71150180	1,8	-	22,2	44,5	1,8
71150190	1,9	-	22,2	44,5	1,9
71150200	2	-	22,2	44,5	2
71150210	2,1	-	22,2	44,5	2,1
71150220	2,2	-	25,4	50,8	2,2
71150230	2,3	-	25,4	50,8	2,3
71150238	2,38	3/32	25,4	50,8	2,38
71150240	2,4	-	25,4	50,8	2,4
71150250	2,5	-	25,4	50,8	2,5
71150260	2,6	-	31,8	57,2	2,6
71150270	2,7	-	31,8	57,2	2,7
71150278	2,78	7/64	31,8	57,2	2,78
71150280	2,8	-	31,8	57,2	2,8
71150290	2,9	-	31,8	57,2	2,9
71150300	3	-	31,8	57,2	3
71150310	3,1	-	31,8	57,2	3,1
71150317	3,17	1/8	31,8	57,2	3,17
71150320	3,2	-	31,8	57,2	3,2
71150330	3,3	-	31,8	57,2	3,3
71150340	3,4	-	34,9	63,5	3,4
71150350	3,5	-	34,9	63,5	3,5
71150357	3,57	9/64	34,9	63,5	3,57
71150360	3,6	-	34,9	63,5	3,6
71150370	3,7	-	34,9	63,5	3,7
71150380	3,8	-	34,9	63,5	3,8
71150390	3,9	-	34,9	63,5	3,9
71150397	3,97	5/32	34,9	63,5	3,97
71150400	4	-	34,9	63,5	4
71150410	4,1	-	34,9	63,5	4,1
71150420	4,2	-	41,3	69,9	4,2
71150430	4,3	-	41,3	69,9	4,3
71150437	4,37	11/64	41,3	69,9	4,37
71150440	4,4	-	41,3	69,9	4,4
71150450	4,5	-	41,3	69,9	4,5
71150460	4,6	-	41,3	69,9	4,6
71150470	4,7	-	41,3	69,9	4,7
71150476	4,76	3/16	41,3	69,9	4,76
71150480	4,8	-	41,3	69,9	4,8

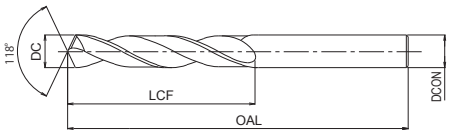
EDP	DC	DC Inch	LCF	OAL	DCON
71150490	4,9	-	41,3	69,9	4,9
71150500	5	-	44,5	76,2	5
71150510	5,1	-	44,5	76,2	5,1
71150520	5,2	-	44,5	76,2	5,2
71150530	5,3	-	44,5	76,2	5,3
71150540	5,4	-	44,5	76,2	5,4
71150550	5,5	-	44,5	76,2	5,5
71150560	5,6	-	44,5	76,2	5,6
71150570	5,7	-	44,5	76,2	5,7
71150580	5,8	-	44,5	76,2	5,8
71150590	5,9	-	50,8	82,6	5,9
71150600	6	-	50,8	82,6	6
71150610	6,1	-	50,8	82,6	6,1
71150620	6,2	-	50,8	82,6	6,2
71150630	6,3	-	50,8	82,6	6,3
71150635	6,35	1/4	50,8	82,6	6,35
71150640	6,4	-	50,8	82,6	6,4
71150650	6,5	-	50,8	82,6	6,5
71150660	6,6	-	54	88,9	6,6
71150670	6,7	-	54	88,9	6,7
71150680	6,8	-	54	88,9	6,8
71150690	6,9	-	54	88,9	6,9
71150700	7	-	54	88,9	7
71150710	7,1	-	54	88,9	7,1
71150714	7,14	9/32	54	88,9	7,14
71150720	7,2	-	54	88,9	7,2
71150730	7,3	-	54	88,9	7,3
71150740	7,4	-	54	88,9	7,4
71150750	7,5	-	60,3	95,3	7,5
71150760	7,6	-	60,3	95,3	7,6
71150770	7,7	-	60,3	95,3	7,7
71150780	7,8	-	60,3	95,3	7,8
71150790	7,9	-	60,3	95,3	7,9
71150794	7,94	5/16	60,3	95,3	7,94
71150800	8	-	60,3	95,3	8
71150810	8,1	-	60,3	95,3	8,1
71150820	8,2	-	60,3	95,3	8,2
71150830	8,3	-	36,5	101,6	8,3
71150840	8,4	-	36,5	101,6	8,4
71150850	8,5	-	36,5	101,6	8,5
71150860	8,6	-	36,5	101,6	8,6
71150870	8,7	-	36,5	101,6	8,7
71150873	8,73	11/32	36,5	101,6	8,73
71150880	8,8	-	36,5	101,6	8,8
71150890	8,9	-	36,5	101,6	8,9
71150900	9	-	36,5	101,6	9

JOBBER DRILL

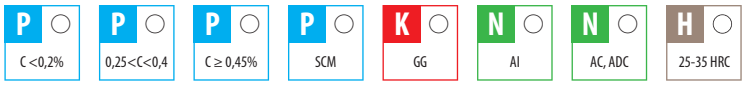
INDEX

Drilling | Solid carbide | 5xD





- Carbide drill bright finish
- Up to 5xD
- General purpose
- 125 sizes





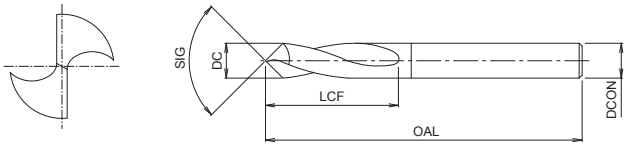
EDP	DC	DC Inch	LCF	OAL	DCON
71150910	9,1	-	36,5	101,6	9,1
71150920	9,2	-	69,9	108	9,2
71150930	9,3	-	69,9	108	9,3
71150940	9,4	-	69,9	108	9,4
71150950	9,5	-	69,9	108	9,5
71150960	9,6	-	69,9	108	9,6
71150970	9,7	-	73	114,3	9,7
71150980	9,8	-	73	114,3	9,8
71150990	9,9	-	73	114,3	9,9
71151000	10	-	73	114,3	10
71151010	10,1	-	73	114,3	10,1
71151020	10,2	-	73	114,3	10,2
71151030	10,3	-	73	114,3	10,3
71151040	10,4	-	73	114,3	10,4
71151050	10,5	-	73	114,3	10,5
71151060	10,6	-	73	114,3	10,6
71151070	10,7	-	73	114,3	10,7
71151080	10,8	-	73	114,3	10,8
71151090	10,9	-	73	114,3	10,9
71151100	11	-	73	114,3	11
71151110	11,1	-	73	114,3	11,1
71151111	11,11	7/16	73	114,3	11,11
71151120	11,2	-	76,2	120,7	11,2
71151130	11,3	-	76,2	120,7	11,3
71151140	11,4	-	76,2	120,7	11,4
71151150	11,5	-	76,2	120,7	11,5
71151160	11,6	-	76,2	120,7	11,6
71151170	11,7	-	76,2	120,7	11,7
71151180	11,8	-	76,2	120,7	11,8
71151190	11,9	-	76,2	120,7	11,9
71151191	11,91	15/32	76,2	120,7	11,91
71151200	12	-	76,2	120,7	12
71151270	12,7	1/2	76,2	120,7	12,7

EDP	DC	DC Inch	LCF	OAL	DCON

AD-LDS

Drilling | Solid carbide | Centering





- Carbide drill with EgiAs coating
- Carbide starter drill
- 30 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | K GGG | N Al | N AC, ADC | S Ti | S Ni | H 25-35 HRC | H 35-45 HRC

A | CARBIDE | EgiAs | h7 | 12° | 25° | 60° | 90° | 120° | 140°

B.511

EDP	DC	SIG	LCF	OAL	DCON	min. drill hole dia.
8688930	0,5	90	1	38	3	0,25
8688963	0,5	140	1	38	3	-
8688931	1	90	1,8	38	3	0,4
8688964	1	140	1,8	38	3	-
8688932	2	90	2,5	38	3	1
8688965	2	140	2,5	38	3	-
8688951	3	60	9	48	3	1,2
8688933	3	90	9	48	3	0,7
8688957	3	120	9	48	3	-
8688966	3	140	9	48	3	-
8688952	4	60	12	54	4	1,5
8688934	4	90	12	54	4	1,5
8688958	4	120	12	54	4	-
8688967	4	140	12	54	4	-
8688953	6	60	15	72	6	1,9
8688935	6	90	15	72	6	1,9
8688959	6	120	15	72	6	-
8688968	6	140	15	72	6	-
8688954	8	60	20	81	8	2,1
8688936	8	90	20	81	8	2,1
8688960	8	120	20	81	8	-
8688969	8	140	20	81	8	-
8688955	10	60	24	93	10	2,5
8688937	10	90	24	93	10	2,5
8688961	10	120	24	93	10	-
8688970	10	140	24	93	10	-
8688956	12	60	28	108	12	2,5
8688938	12	90	28	108	12	2,5
8688962	12	120	28	108	12	-
8688971	12	140	28	108	12	-

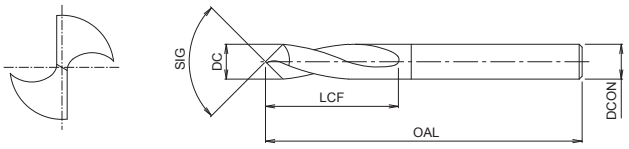
EDP	DC	SIG	LCF	OAL	DCON	min. drill hole dia.

AD-LS-LDS

INDEX

Drilling | Solid carbide | Centering





- Carbide drill with EgiAs coating
- Carbide long shank starter drill
- 6 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | K GGG | N Al | N AC, ADC | S Ti | S Ni | H 25-35 HRC | H 35-45 HRC

A | CARBIDE | EgiAs | h7 | 12° | 90°

B.511

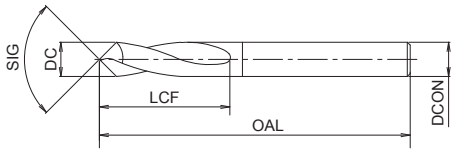
EDP	DC	LCF	OAL	DCON	Min drill hole dia.
8688942	3	9	75	3	1,20
8688943	4	12	100	4	1,50
8688944	6	15	150	6	1,90
8688945	8	20	150	8	2,10
8688946	10	24	200	10	2,50
8688947	12	28	200	12	2,50

EDP	DC	LCF	OAL	DCON	Min drill hole dia.

HYP-LDS

Drilling | Spotting & Chamfering | Centering





- Carbide drill for centring and chamfering , bright finish
- With 90°, 120° or 142° point angle
- For steels and cast iron
- 24 sizes

P ◉ C <0,2% | P ◉ 0,25<C<0,4 | P ◉ C ≥ 0,45% | P ◉ SCM | K ◉ GG | K ◉ GGG | N ○ AC, ADC | S ○ Ti | S ○ Ni | H ◉ 25-35 HRC | H ○ 35-45 HRC

HYPRO | CARBIDE | 20° | h6 | 90° | 120° | 142°

B.509

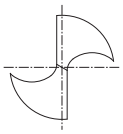
EDP	DC	SIG	LCF	OAL	DCON
20900300	3	90	8	35	3
21200300	3	120	8	35	3
21420300	3	142	8	35	3
20900400	4	90	10	40	4
21200400	4	120	10	40	4
21420400	4	142	10	40	4
20900600	6	90	16	50	6
21200600	6	120	16	50	6
21420600	6	142	16	50	6
20900800	8	90	23	60	8
21200800	8	120	23	60	8
21420800	8	142	23	60	8
20901000	10	90	24	70	10
21201000	10	120	24	70	10
21421000	10	142	24	70	10
20901200	12	90	25	70	12
21201200	12	120	25	70	12
21421200	12	142	25	70	12
20901600	16	90	30	80	16
21201600	16	120	30	80	16
21421600	16	142	30	80	16
20902000	20	90	35	100	20
21202000	20	120	35	100	20
21422000	20	142	35	100	20

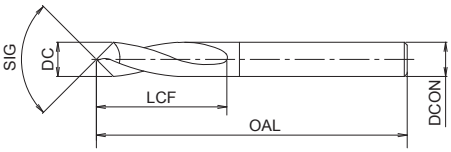
EDP	DC	SIG	LCF	OAL	DCON

TIN-NC-LDS

Drilling | Spotting & Chamfering | Centering







- HSS drill for centring and chamfering with TiN coating
- With 60°, 90° or 120° point angle
- For steels and cast iron
- 21 sizes





B.509

EDP	DC	SIG	LCF	OAL	DCON	Min drill hole dia.
63603	3	90	11	48	3	1,10
63653	3	120	11	48	3	-
63703	3	60	11	48	3	1,50
63604	4	90	15	54	4	1,30
63654	4	120	15	54	4	-
63704	4	60	15	54	4	1,70
63606	6	90	20	72	6	1,50
63656	6	120	20	72	6	-
63706	6	60	20	72	6	1,90
63608	8	90	26	81	8	1,60
63658	8	120	26	81	8	-
63708	8	60	26	81	8	1,90
63610	10	90	30	93	10	2,10
63660	10	120	30	93	10	-
63710	10	60	30	93	10	2,10
63612	12	90	36	108	12	2,10
63662	12	120	36	108	12	-
63712	12	60	36	108	12	2,10
63616	16	90	41	118	16	3
63618	20	90	53	132	20	3
63620	25	90	60	151	25	3

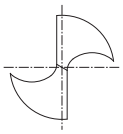
EDP	DC	SIG	LCF	OAL	DCON	Min drill hole dia.

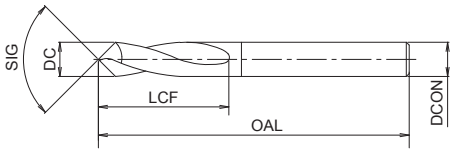
NC-LDS

INDEX

Drilling | Spotting & Chamfering | Centering







- HSS drill for centring and chamfering, bright finish
- With 90°, 120° or 130° point angle
- For steels and cast iron
- 27 sizes





B.509

EDP	DC	SIG	LCF	OAL	DCON	Min drill hole dia.
62903	3	90	11	48	3	1,10
62923	3	120	11	48	3	-
62943	3	130	11	48	3	-
62904	4	90	15	54	4	1,30
62924	4	120	15	54	4	-
62944	4	130	15	54	4	-
62906	6	90	20	72	6	1,50
62926	6	120	20	72	6	-
62946	6	130	20	72	6	-
62908	8	90	26	81	8	1,60
62928	8	120	26	81	8	-
62948	8	130	26	81	8	-
62910	10	90	30	93	10	2,10
62930	10	120	30	93	10	-
62950	10	130	30	93	10	-
62912	12	90	36	108	12	2,10
62932	12	120	36	108	12	-
62952	12	130	36	108	12	-
62916	16	90	41	118	16	3
62936	16	120	41	118	16	-
62956	16	130	41	118	16	-
62918	20	90	53	132	20	3
62938	20	120	53	132	20	-
62958	20	130	53	132	20	-
62920	25	90	60	151	25	3
62940	25	120	60	151	25	-
62960	25	130	60	151	25	-

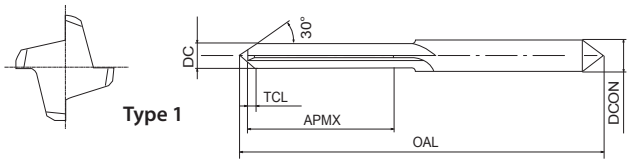
EDP	DC	SIG	LCF	OAL	DCON	Min drill hole dia.

CRM

Carbide reamers

INDEX





- First choice in quality and performance
- Carbide straight reamer, bright finish
- From Ø 0,3 - 13,05 mm in 0,01 mm increments
- 1276 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | N Al | N AC, ADC | S Ti | H 25-35 HRC | H 35-45 HRC | H 45-52 HRC

CARBIDE | 0~+0.005 | h6

B.512

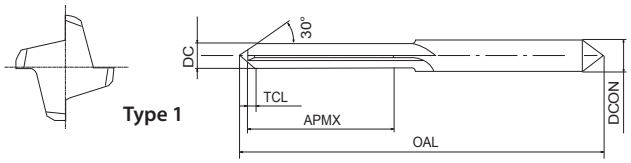
EDP	DC	OAL	APMX	TCL	DCON	ZEFP	Type
8900030	0,3	50	4	0,1	2	4	1
8900031	0,31	50	4	0,1	2	4	1
8900032	0,32	50	4	0,1	2	4	1
8900033	0,33	50	4	0,1	2	4	1
8900034	0,34	50	4	0,1	2	4	1
8900035	0,35	50	4	0,1	2	4	1
8900036	0,36	50	4	0,1	2	4	1
8900037	0,37	50	4	0,1	2	4	1
8900038	0,38	50	4	0,1	2	4	1
8900039	0,39	50	4	0,1	2	4	1
8900040	0,4	50	4	0,1	2	4	1
8900041	0,41	50	4	0,1	2	4	1
8900042	0,42	50	4	0,1	2	4	1
8900043	0,43	50	4	0,1	2	4	1
8900044	0,44	50	4	0,1	2	4	1
8900045	0,45	50	4	0,1	2	4	1
8900046	0,46	50	4	0,1	2	4	1
8900047	0,47	50	4	0,1	2	4	1
8900048	0,48	50	5	0,1	2	4	1
8900049	0,49	50	5	0,1	2	4	1
8900050	0,5	50	5	0,1	2	4	1
8900051	0,51	50	5	0,1	2	4	1
8900052	0,52	50	5	0,1	2	4	1
8900053	0,53	50	5	0,1	2	4	1
8900054	0,54	50	6	0,1	2	4	1
8900055	0,55	50	6	0,1	2	4	1
8900056	0,56	50	6	0,1	2	4	1
8900057	0,57	50	6	0,1	2	4	1
8900058	0,58	50	6	0,1	2	4	1
8900059	0,59	50	6	0,1	2	4	1
8900060	0,6	50	6	0,1	2	4	1
8900061	0,61	50	8	0,1	2	4	1
8900062	0,62	50	8	0,1	2	4	1
8900063	0,63	50	8	0,1	2	4	1
8900064	0,64	50	8	0,1	2	4	1
8900065	0,65	50	8	0,1	2	4	1
8900066	0,66	50	8	0,1	2	4	1
8900067	0,67	50	8	0,1	2	4	1
8900068	0,68	50	10	0,1	2	4	1
8900069	0,69	50	10	0,1	2	4	1
8900070	0,7	50	10	0,1	2	4	1
8900071	0,71	50	10	0,1	2	4	1
8900072	0,72	50	10	0,1	2	4	1
8900073	0,73	50	10	0,1	2	4	1
8900074	0,74	50	10	0,1	2	4	1
8900075	0,75	50	10	0,1	2	4	1

EDP	DC	OAL	APMX	TCL	DCON	ZEFP	Type
8900076	0,76	50	12	0,1	2	4	1
8900077	0,77	50	12	0,1	2	4	1
8900078	0,78	50	12	0,1	2	4	1
8900079	0,79	50	12	0,1	2	4	1
8900080	0,8	50	12	0,1	2	4	1
8900081	0,81	50	12	0,2	2	4	1
8900082	0,82	50	12	0,2	2	4	1
8900083	0,83	50	12	0,2	2	4	1
8900084	0,84	50	12	0,2	2	4	1
8900085	0,85	50	12	0,2	2	4	1
8900086	0,86	50	12	0,2	2	4	1
8900087	0,87	50	12	0,2	2	4	1
8900088	0,88	50	12	0,2	2	4	1
8900089	0,89	50	12	0,2	2	4	1
8900090	0,9	50	12	0,2	2	4	1
8900091	0,91	50	12	0,2	2	4	1
8900092	0,92	50	12	0,2	2	4	1
8900093	0,93	50	12	0,2	2	4	1
8900094	0,94	50	12	0,2	2	4	1
8900095	0,95	50	12	0,2	2	4	1
8900096	0,96	50	14	0,2	2	4	1
8900097	0,97	50	14	0,2	2	4	1
8900098	0,98	50	14	0,2	2	4	1
8900099	0,99	50	14	0,2	2	4	1
8900100	1	50	14	0,2	2	4	1
8900101	1,01	50	14	0,2	2	4	1
8900102	1,02	50	14	0,2	2	4	1
8900103	1,03	50	14	0,2	2	4	1
8900104	1,04	50	14	0,2	2	4	1
8900105	1,05	50	14	0,2	2	4	1
8900106	1,06	50	14	0,2	2	4	1
8900107	1,07	50	14	0,2	2	4	1
8900108	1,08	50	14	0,2	2	4	1
8900109	1,09	50	14	0,2	2	4	1
8900110	1,1	50	14	0,2	2	4	1
8900111	1,11	50	14	0,2	2	4	1
8900112	1,12	50	14	0,2	2	4	1
8900113	1,13	50	14	0,2	2	4	1
8900114	1,14	50	14	0,2	2	4	1
8900115	1,15	50	14	0,2	2	4	1
8900116	1,16	50	14	0,2	2	4	1
8900117	1,17	50	14	0,2	2	4	1
8900118	1,18	50	14	0,2	2	4	1
8900119	1,19	50	16	0,2	2	4	1
8900120	1,2	50	16	0,2	2	4	1
8900121	1,21	50	16	0,2	2	4	1

CRM

Carbide reamers





Type 1

- First choice in quality and performance
- Carbide straight reamer, bright finish
- From Ø 0,3 - 13,05 mm in 0,01 mm increments
- 1276 sizes

P	P	P	P	M	K	N	N	S	H	H	H
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	INOX	GG	Al	AC, ADC	Ti	25-35 HRC	35-45 HRC	45-52 HRC

CARBIDE | 0~+0.005 | h6

B.512

EDP	DC	OAL	APMX	TCL	DCON	ZEFP	Type
8900122	1,22	50	16	0,2	2	4	1
8900123	1,23	50	16	0,2	2	4	1
8900124	1,24	50	16	0,2	2	4	1
8900125	1,25	50	16	0,2	2	4	1
8900126	1,26	50	16	0,3	2	4	1
8900127	1,27	50	16	0,3	2	4	1
8900128	1,28	50	16	0,3	2	4	1
8900129	1,29	50	16	0,3	2	4	1
8900130	1,3	50	16	0,3	2	4	1
8900131	1,31	50	16	0,3	2	4	1
8900132	1,32	50	16	0,3	2	4	1
8900133	1,33	50	16	0,3	2	4	1
8900134	1,34	50	16	0,3	2	4	1
8900135	1,35	50	16	0,3	2	4	1
8900136	1,36	50	16	0,3	2	4	1
8900137	1,37	50	16	0,3	2	4	1
8900138	1,38	50	16	0,3	2	4	1
8900139	1,39	50	16	0,3	2	4	1
8900140	1,4	50	16	0,3	2	4	1
8900141	1,41	50	16	0,3	2	4	1
8900142	1,42	50	16	0,3	2	4	1
8900143	1,43	50	16	0,3	2	4	1
8900144	1,44	50	16	0,3	2	4	1
8900145	1,45	50	16	0,3	2	4	1
8900146	1,46	50	16	0,3	2	4	1
8900147	1,47	50	16	0,3	2	4	1
8900148	1,48	50	16	0,3	2	4	1
8900149	1,49	50	16	0,3	2	4	1
8900150	1,5	50	16	0,3	2	4	1
8900151	1,51	50	18	0,3	2	4	1
8900152	1,52	50	18	0,3	2	4	1
8900153	1,53	50	18	0,3	2	4	1
8900154	1,54	50	18	0,3	2	4	1
8900155	1,55	50	18	0,3	2	4	1
8900156	1,56	50	18	0,3	2	4	1
8900157	1,57	50	18	0,3	2	4	1
8900158	1,58	50	18	0,3	2	4	1
8900159	1,59	50	18	0,3	2	4	1
8900160	1,6	50	18	0,3	2	4	1
8900161	1,61	50	18	0,4	2	4	1
8900162	1,62	50	18	0,4	2	4	1
8900163	1,63	50	18	0,4	2	4	1
8900164	1,64	50	18	0,4	2	4	1
8900165	1,65	50	18	0,4	2	4	1
8900166	1,66	50	18	0,4	2	4	1
8900167	1,67	50	18	0,4	2	4	1

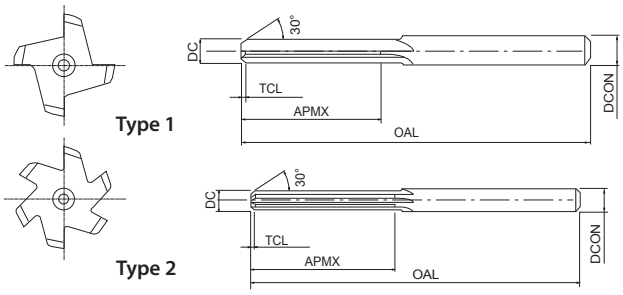
EDP	DC	OAL	APMX	TCL	DCON	ZEFP	Type
8900168	1,68	50	18	0,4	2	4	1
8900169	1,69	50	18	0,4	2	4	1
8900170	1,7	50	18	0,4	2	4	1
8900171	1,71	50	18	0,4	2	4	1
8900172	1,72	50	18	0,4	2	4	1
8900173	1,73	50	18	0,4	2	4	1
8900174	1,74	50	18	0,4	2	4	1
8900175	1,75	50	18	0,4	2	4	1
8900176	1,76	50	18	0,4	2	4	1
8900177	1,77	50	18	0,4	2	4	1
8900178	1,78	50	18	0,4	2	4	1
8900179	1,79	50	18	0,4	2	4	1
8900180	1,8	50	18	0,4	2	4	1
8900181	1,81	50	18	0,4	2	4	1
8900182	1,82	50	18	0,4	2	4	1
8900183	1,83	50	18	0,4	2	4	1
8900184	1,84	50	18	0,4	2	4	1
8900185	1,85	50	18	0,4	2	4	1
8900186	1,86	50	18	0,4	2	4	1
8900187	1,87	50	18	0,4	2	4	1
8900188	1,88	50	18	0,4	2	4	1
8900189	1,89	50	18	0,4	2	4	1
8900190	1,9	50	18	0,4	2	4	1
8900191	1,91	50	20	0,4	2	4	1
8900192	1,92	50	20	0,4	2	4	1
8900193	1,93	50	20	0,4	2	4	1
8900194	1,94	50	20	0,4	2	4	1
8900195	1,95	50	20	0,4	2	4	1
8900196	1,96	50	20	0,4	2	4	1
8900197	1,97	50	20	0,4	2	4	1
8900198	1,98	50	20	0,4	2	4	1
8900199	1,99	50	20	0,4	2	4	1
8900200	2	50	20	0,4	2	4	1
8900201	2,01	50	20	0,5	2,5	4	1
8900202	2,02	50	20	0,5	2,5	4	1
8900203	2,03	50	20	0,5	2,5	4	1
8900204	2,04	50	20	0,5	2,5	4	1
8900205	2,05	50	20	0,5	2,5	4	1
8900206	2,06	50	20	0,5	2,5	4	1
8900207	2,07	50	20	0,5	2,5	4	1
8900208	2,08	50	20	0,5	2,5	4	1
8900209	2,09	50	20	0,5	2,5	4	1
8900210	2,1	50	20	0,5	2,5	4	1
8900211	2,11	50	20	0,5	2,5	4	1
8900212	2,12	50	20	0,5	2,5	4	1
8900213	2,13	50	20	0,5	2,5	4	1

CRM

INDEX

Carbide reamers





- First choice in quality and performance
- Carbide straight reamer, bright finish
- From Ø 0,3 - 13,05 mm in 0,01 mm increments
- 1276 sizes

P ◉ C <0,2% | P ◉ 0,25<C<0,4 | P ◉ C ≥ 0,45% | P ◉ SCM | M ○ INOX | K ◉ GG | N ◉ Al | N ◉ AC, ADC | S ○ Ti | H ◉ 25-35 HRC | H ◉ 35-45 HRC | H ○ 45-52 HRC

CARBIDE | 0~+0.005 | h6

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EDP	DC	OAL	APMX	TCL	DCON	ZEFP	Type
8900214	2,14	50	20	0,5	2,5	4	1
8900215	2,15	50	20	0,5	2,5	4	1
8900216	2,16	50	20	0,5	2,5	4	1
8900217	2,17	50	20	0,5	2,5	4	1
8900218	2,18	50	20	0,5	2,5	4	1
8900219	2,19	50	20	0,5	2,5	4	1
8900220	2,2	50	20	0,5	2,5	4	1
8900221	2,21	50	20	0,5	2,5	4	1
8900222	2,22	50	20	0,5	2,5	4	1
8900223	2,23	50	20	0,5	2,5	4	1
8900224	2,24	50	20	0,5	2,5	4	1
8900225	2,25	50	20	0,5	2,5	4	1
8900226	2,26	50	20	0,5	2,5	4	1
8900227	2,27	50	20	0,5	2,5	4	1
8900228	2,28	50	20	0,5	2,5	4	1
8900229	2,29	50	20	0,5	2,5	4	1
8900230	2,3	50	20	0,5	2,5	4	1
8900231	2,31	50	20	0,5	2,5	4	1
8900232	2,32	50	20	0,5	2,5	4	1
8900233	2,33	50	20	0,5	2,5	4	1
8900234	2,34	50	20	0,5	2,5	4	1
8900235	2,35	50	20	0,5	2,5	4	1
8900236	2,36	50	20	0,5	2,5	4	1
8900237	2,37	50	22	0,5	2,5	4	1
8900238	2,38	50	22	0,5	2,5	4	1
8900239	2,39	50	22	0,5	2,5	4	1
8900240	2,4	50	22	0,5	2,5	4	1
8900241	2,41	50	22	0,5	2,5	4	1
8900242	2,42	50	22	0,5	2,5	4	1
8900243	2,43	50	22	0,5	2,5	4	1
8900244	2,44	50	22	0,5	2,5	4	1
8900245	2,45	50	22	0,5	2,5	4	1
8900246	2,46	50	22	0,5	2,5	4	1
8900247	2,47	50	22	0,5	2,5	4	1
8900248	2,48	50	22	0,5	2,5	4	1
8900249	2,49	50	22	0,5	2,5	4	1
8900250	2,5	50	22	0,5	2,5	4	1
8900251	2,51	60	22	0,6	3	4	1
8900252	2,52	60	22	0,6	3	4	1
8900253	2,53	60	22	0,6	3	4	1
8900254	2,54	60	22	0,6	3	4	1
8900255	2,55	60	22	0,6	3	4	1
8900256	2,56	60	22	0,6	3	4	1
8900257	2,57	60	22	0,6	3	4	1
8900258	2,58	60	22	0,6	3	4	1
8900259	2,59	60	22	0,6	3	4	1

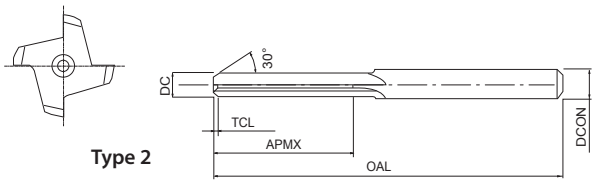
EDP	DC	OAL	APMX	TCL	DCON	ZEFP	Type
8900260	2,6	60	22	0,6	3	4	1
8900261	2,61	60	22	0,6	3	4	1
8900262	2,62	60	22	0,6	3	4	1
8900263	2,63	60	22	0,6	3	4	1
8900264	2,64	60	22	0,6	3	4	1
8900265	2,65	60	22	0,6	3	4	1
8900266	2,66	60	22	0,6	3	4	1
8900267	2,67	60	22	0,6	3	4	1
8900268	2,68	60	22	0,6	3	4	1
8900269	2,69	60	22	0,6	3	4	1
8900270	2,7	60	22	0,6	3	4	1
8900271	2,71	60	22	0,6	3	4	1
8900272	2,72	60	22	0,6	3	4	1
8900273	2,73	60	22	0,6	3	4	1
8900274	2,74	60	22	0,6	3	4	1
8900275	2,75	60	22	0,6	3	4	1
8900276	2,76	60	22	0,6	3	4	1
8900277	2,77	60	22	0,6	3	4	1
8900278	2,78	60	22	0,6	3	4	1
8900279	2,79	60	22	0,6	3	4	1
8900280	2,8	60	22	0,6	3	4	1
8900281	2,81	60	25	0,6	3	4	1
8900282	2,82	60	25	0,6	3	4	1
8900283	2,83	60	25	0,6	3	4	1
8900284	2,84	60	25	0,6	3	4	1
8900285	2,85	60	25	0,6	3	4	1
8900286	2,86	60	25	0,6	3	4	1
8900287	2,87	60	25	0,6	3	4	1
8900288	2,88	60	25	0,6	3	4	1
8900289	2,89	60	25	0,6	3	4	1
8900290	2,9	60	25	0,6	3	4	1
8900291	2,91	60	25	0,6	3	4	1
8900292	2,92	60	25	0,6	3	4	1
8900293	2,93	60	25	0,6	3	4	1
8900294	2,94	60	25	0,6	3	4	1
8900295	2,95	60	25	0,6	3	4	1
8900296	2,96	60	25	0,6	3	4	1
8900297	2,97	60	25	0,6	3	4	1
8900298	2,98	60	25	0,6	3	4	1
8900299	2,99	60	25	0,6	3	4	1
8900300	3	60	25	0,6	3	4	1
8900301	3,01	60	28	0,6	3,5	4	2
8900302	3,02	60	28	0,6	3,5	4	2
8900303	3,03	60	28	0,6	3,5	4	2
8900304	3,04	60	28	0,6	3,5	4	2
8900305	3,05	60	28	0,6	3,5	4	2

CRM

INDEX

Carbide reamers





Type 2

- First choice in quality and performance
- Carbide straight reamer, bright finish
- From Ø 0,3 - 13,05 mm in 0,01 mm increments
- 1276 sizes

P	P	P	P	M	K	N	N	S	H	H	H
C <0,2%	0,25<C<0,4	C ≥ 0,45%	SCM	INOX	GG	Al	AC, ADC	Ti	25-35 HRC	35-45 HRC	45-52 HRC

CARBIDE | 0~+0.005 | h6

B.512

EDP	DC	OAL	APMX	TCL	DCON	ZEFP	Type
8900306	3,06	60	28	0,6	3,5	4	2
8900307	3,07	60	28	0,6	3,5	4	2
8900308	3,08	60	28	0,6	3,5	4	2
8900309	3,09	60	28	0,6	3,5	4	2
8900310	3,1	60	28	0,6	3,5	4	2
8900311	3,11	60	28	0,6	3,5	4	2
8900312	3,12	60	28	0,6	3,5	4	2
8900313	3,13	60	28	0,6	3,5	4	2
8900314	3,14	60	28	0,6	3,5	4	2
8900315	3,15	60	28	0,6	3,5	4	2
8900316	3,16	60	28	0,8	3,5	4	2
8900317	3,17	60	28	0,8	3,5	4	2
8900318	3,18	60	28	0,8	3,5	4	2
8900319	3,19	60	28	0,8	3,5	4	2
8900320	3,2	60	28	0,8	3,5	4	2
8900321	3,21	60	28	0,8	3,5	4	2
8900322	3,22	60	28	0,8	3,5	4	2
8900323	3,23	60	28	0,8	3,5	4	2
8900324	3,24	60	28	0,8	3,5	4	2
8900325	3,25	60	28	0,8	3,5	4	2
8900326	3,26	60	28	0,8	3,5	4	2
8900327	3,27	60	28	0,8	3,5	4	2
8900328	3,28	60	28	0,8	3,5	4	2
8900329	3,29	60	28	0,8	3,5	4	2
8900330	3,3	60	28	0,8	3,5	4	2
8900331	3,31	60	28	0,8	3,5	4	2
8900332	3,32	60	28	0,8	3,5	4	2
8900333	3,33	60	28	0,8	3,5	4	2
8900334	3,34	60	28	0,8	3,5	4	2
8900335	3,35	60	28	0,8	3,5	4	2
8900336	3,36	60	28	0,8	3,5	4	2
8900337	3,37	60	28	0,8	3,5	4	2
8900338	3,38	60	28	0,8	3,5	4	2
8900339	3,39	60	28	0,8	3,5	4	2
8900340	3,4	60	28	0,8	3,5	4	2
8900341	3,41	60	28	0,8	3,5	4	2
8900342	3,42	60	28	0,8	3,5	4	2
8900343	3,43	60	28	0,8	3,5	4	2
8900344	3,44	60	28	0,8	3,5	4	2
8900345	3,45	60	28	0,8	3,5	4	2
8900346	3,46	60	28	0,8	3,5	4	2
8900347	3,47	60	28	0,8	3,5	4	2
8900348	3,48	60	28	0,8	3,5	4	2
8900349	3,49	60	28	0,8	3,5	4	2
8900350	3,5	60	28	0,8	3,5	4	2
8900351	3,51	70	28	0,8	4	4	2

EDP	DC	OAL	APMX	TCL	DCON	ZEFP	Type
8900352	3,52	70	28	0,8	4	4	2
8900353	3,53	70	28	0,8	4	4	2
8900354	3,54	70	28	0,8	4	4	2
8900355	3,55	70	28	0,8	4	4	2
8900356	3,56	70	28	0,8	4	4	2
8900357	3,57	70	28	0,8	4	4	2
8900358	3,58	70	28	0,8	4	4	2
8900359	3,59	70	28	0,8	4	4	2
8900360	3,6	70	28	0,8	4	4	2
8900361	3,61	70	28	0,8	4	4	2
8900362	3,62	70	28	0,8	4	4	2
8900363	3,63	70	28	0,8	4	4	2
8900364	3,64	70	28	0,8	4	4	2
8900365	3,65	70	28	0,8	4	4	2
8900366	3,66	70	28	0,8	4	4	2
8900367	3,67	70	28	0,8	4	4	2
8900368	3,68	70	28	0,8	4	4	2
8900369	3,69	70	28	0,8	4	4	2
8900370	3,7	70	28	0,8	4	4	2
8900371	3,71	70	28	0,8	4	4	2
8900372	3,72	70	28	0,8	4	4	2
8900373	3,73	70	28	0,8	4	4	2
8900374	3,74	70	28	0,8	4	4	2
8900375	3,75	70	28	0,8	4	4	2
8900376	3,76	70	28	0,8	4	4	2
8900377	3,77	70	28	0,8	4	4	2
8900378	3,78	70	28	0,8	4	4	2
8900379	3,79	70	28	0,8	4	4	2
8900380	3,8	70	28	0,8	4	4	2
8900381	3,81	70	28	0,8	4	4	2
8900382	3,82	70	28	0,8	4	4	2
8900383	3,83	70	28	0,8	4	4	2
8900384	3,84	70	28	0,8	4	4	2
8900385	3,85	70	28	0,8	4	4	2
8900386	3,86	70	28	0,8	4	4	2
8900387	3,87	70	28	0,8	4	4	2
8900388	3,88	70	28	0,8	4	4	2
8900389	3,89	70	28	0,8	4	4	2
8900390	3,9	70	28	0,8	4	4	2
8900391	3,91	70	28	0,8	4	4	2
8900392	3,92	70	28	0,8	4	4	2
8900393	3,93	70	28	0,8	4	4	2
8900394	3,94	70	28	0,8	4	4	2
8900395	3,95	70	28	0,8	4	4	2
8900396	3,96	70	28	0,8	4	4	2
8900397	3,97	70	28	0,8	4	4	2

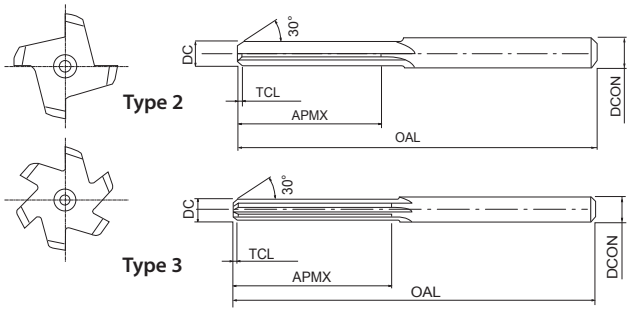


CRM

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CARBIDE | 0~+0.005 | h6

B.512

EDP	DC	OAL	APMX	TCL	DCON	ZEFP	Type
8900398	3,98	70	28	0,8	4	4	2
8900399	3,99	70	28	0,8	4	4	2
8900400	4	70	28	0,8	4	4	2
8900401	4,01	70	28	0,8	4,5	6	3
8900402	4,02	70	28	0,8	4,5	6	3
8900403	4,03	70	28	0,8	4,5	6	3
8900404	4,04	70	28	0,8	4,5	6	3
8900405	4,05	70	28	0,8	4,5	6	3
8900406	4,06	70	28	0,8	4,5	6	3
8900407	4,07	70	28	0,8	4,5	6	3
8900408	4,08	70	28	0,8	4,5	6	3
8900409	4,09	70	28	0,8	4,5	6	3
8900410	4,1	70	28	0,8	4,5	6	3
8900411	4,11	70	28	0,8	4,5	6	3
8900412	4,12	70	28	0,8	4,5	6	3
8900413	4,13	70	28	0,8	4,5	6	3
8900414	4,14	70	28	0,8	4,5	6	3
8900415	4,15	70	28	0,8	4,5	6	3
8900416	4,16	70	28	0,8	4,5	6	3
8900417	4,17	70	28	0,8	4,5	6	3
8900418	4,18	70	28	0,8	4,5	6	3
8900419	4,19	70	28	0,8	4,5	6	3
8900420	4,2	70	28	0,8	4,5	6	3
8900421	4,21	70	28	0,8	4,5	6	3
8900422	4,22	70	28	0,8	4,5	6	3
8900423	4,23	70	28	0,8	4,5	6	3
8900424	4,24	70	28	0,8	4,5	6	3
8900425	4,25	70	28	0,8	4,5	6	3
8900426	4,26	70	28	0,8	4,5	6	3
8900427	4,27	70	28	0,8	4,5	6	3
8900428	4,28	70	28	0,8	4,5	6	3
8900429	4,29	70	28	0,8	4,5	6	3
8900430	4,3	70	28	0,8	4,5	6	3
8900431	4,31	70	28	0,8	4,5	6	3
8900432	4,32	70	28	0,8	4,5	6	3
8900433	4,33	70	28	0,8	4,5	6	3
8900434	4,34	70	28	0,8	4,5	6	3
8900435	4,35	70	28	0,8	4,5	6	3
8900436	4,36	70	28	0,8	4,5	6	3
8900437	4,37	70	28	0,8	4,5	6	3
8900438	4,38	70	28	0,8	4,5	6	3
8900439	4,39	70	28	0,8	4,5	6	3
8900440	4,4	70	28	0,8	4,5	6	3
8900441	4,41	70	28	0,8	4,5	6	3
8900442	4,42	70	28	0,8	4,5	6	3
8900443	4,43	70	28	0,8	4,5	6	3

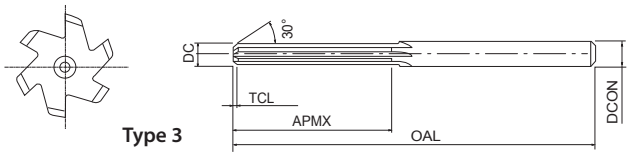
EDP	DC	OAL	APMX	TCL	DCON	ZEFP	Type
8900444	4,44	70	28	0,8	4,5	6	3
8900445	4,45	70	28	0,8	4,5	6	3
8900446	4,46	70	28	0,8	4,5	6	3
8900447	4,47	70	28	0,8	4,5	6	3
8900448	4,48	70	28	0,8	4,5	6	3
8900449	4,49	70	28	0,8	4,5	6	3
8900450	4,5	70	28	0,8	4,5	6	3
8900451	4,51	80	28	0,8	5	6	3
8900452	4,52	80	28	0,8	5	6	3
8900453	4,53	80	28	0,8	5	6	3
8900454	4,54	80	28	0,8	5	6	3
8900455	4,55	80	28	0,8	5	6	3
8900456	4,56	80	28	0,8	5	6	3
8900457	4,57	80	28	0,8	5	6	3
8900458	4,58	80	28	0,8	5	6	3
8900459	4,59	80	28	0,8	5	6	3
8900460	4,6	80	28	0,8	5	6	3
8900461	4,61	80	28	0,8	5	6	3
8900462	4,62	80	28	0,8	5	6	3
8900463	4,63	80	28	0,8	5	6	3
8900464	4,64	80	28	0,8	5	6	3
8900465	4,65	80	28	0,8	5	6	3
8900466	4,66	80	28	0,8	5	6	3
8900467	4,67	80	28	0,8	5	6	3
8900468	4,68	80	28	0,8	5	6	3
8900469	4,69	80	28	0,8	5	6	3
8900470	4,7	80	28	0,8	5	6	3
8900471	4,71	80	28	0,8	5	6	3
8900472	4,72	80	28	0,8	5	6	3
8900473	4,73	80	28	0,8	5	6	3
8900474	4,74	80	28	0,8	5	6	3
8900475	4,75	80	28	0,8	5	6	3
8900476	4,76	80	32	0,8	5	6	3
8900477	4,77	80	32	0,8	5	6	3
8900478	4,78	80	32	0,8	5	6	3
8900479	4,79	80	32	0,8	5	6	3
8900480	4,8	80	32	0,8	5	6	3
8900481	4,81	80	32	0,8	5	6	3
8900482	4,82	80	32	0,8	5	6	3
8900483	4,83	80	32	0,8	5	6	3
8900484	4,84	80	32	0,8	5	6	3
8900485	4,85	80	32	0,8	5	6	3
8900486	4,86	80	32	0,8	5	6	3
8900487	4,87	80	32	0,8	5	6	3
8900488	4,88	80	32	0,8	5	6	3
8900489	4,89	80	32	0,8	5	6	3

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CARBIDE | 0~+0.005 | h6

B.512

EDP	DC	OAL	APMX	TCL	DCON	ZEFP	Type
8900490	4,9	80	32	0,8	5	6	3
8900491	4,91	80	32	0,8	5	6	3
8900492	4,92	80	32	0,8	5	6	3
8900493	4,93	80	32	0,8	5	6	3
8900494	4,94	80	32	0,8	5	6	3
8900495	4,95	80	32	0,8	5	6	3
8900496	4,96	80	32	0,8	5	6	3
8900497	4,97	80	32	0,8	5	6	3
8900498	4,98	80	32	0,8	5	6	3
8900499	4,99	80	32	0,8	5	6	3
8900500	5	80	32	0,8	5	6	3
8900501	5,01	80	32	0,8	5,5	6	3
8900502	5,02	80	32	0,8	5,5	6	3
8900503	5,03	80	32	0,8	5,5	6	3
8900504	5,04	80	32	0,8	5,5	6	3
8900505	5,05	80	32	0,8	5,5	6	3
8900506	5,06	80	32	0,8	5,5	6	3
8900507	5,07	80	32	0,8	5,5	6	3
8900508	5,08	80	32	0,8	5,5	6	3
8900509	5,09	80	32	0,8	5,5	6	3
8900510	5,1	80	32	0,8	5,5	6	3
8900511	5,11	80	32	0,8	5,5	6	3
8900512	5,12	80	32	0,8	5,5	6	3
8900513	5,13	80	32	0,8	5,5	6	3
8900514	5,14	80	32	0,8	5,5	6	3
8900515	5,15	80	32	0,8	5,5	6	3
8900516	5,16	80	32	0,8	5,5	6	3
8900517	5,17	80	32	0,8	5,5	6	3
8900518	5,18	80	32	0,8	5,5	6	3
8900519	5,19	80	32	0,8	5,5	6	3
8900520	5,2	80	32	0,8	5,5	6	3
8900521	5,21	80	32	0,8	5,5	6	3
8900522	5,22	80	32	0,8	5,5	6	3
8900523	5,23	80	32	0,8	5,5	6	3
8900524	5,24	80	32	0,8	5,5	6	3
8900525	5,25	80	32	0,8	5,5	6	3
8900526	5,26	80	32	0,8	5,5	6	3
8900527	5,27	80	32	0,8	5,5	6	3
8900528	5,28	80	32	0,8	5,5	6	3
8900529	5,29	80	32	0,8	5,5	6	3
8900530	5,3	80	32	0,8	5,5	6	3
8900531	5,31	80	32	0,8	5,5	6	3
8900532	5,32	80	32	0,8	5,5	6	3
8900533	5,33	80	32	0,8	5,5	6	3
8900534	5,34	80	32	0,8	5,5	6	3
8900535	5,35	80	32	0,8	5,5	6	3

EDP	DC	OAL	APMX	TCL	DCON	ZEFP	Type
8900536	5,36	80	32	0,8	5,5	6	3
8900537	5,37	80	32	0,8	5,5	6	3
8900538	5,38	80	32	0,8	5,5	6	3
8900539	5,39	80	32	0,8	5,5	6	3
8900540	5,4	80	32	0,8	5,5	6	3
8900541	5,41	80	32	0,8	5,5	6	3
8900542	5,42	80	32	0,8	5,5	6	3
8900543	5,43	80	32	0,8	5,5	6	3
8900544	5,44	80	32	0,8	5,5	6	3
8900545	5,45	80	32	0,8	5,5	6	3
8900546	5,46	80	32	0,8	5,5	6	3
8900547	5,47	80	32	0,8	5,5	6	3
8900548	5,48	80	32	0,8	5,5	6	3
8900549	5,49	80	32	0,8	5,5	6	3
8900550	5,5	80	32	0,8	5,5	6	3
8900551	5,51	80	32	0,8	6	6	3
8900552	5,52	80	32	0,8	6	6	3
8900553	5,53	80	32	0,8	6	6	3
8900554	5,54	80	32	0,8	6	6	3
8900555	5,55	80	32	0,8	6	6	3
8900556	5,56	80	32	0,8	6	6	3
8900557	5,57	80	32	0,8	6	6	3
8900558	5,58	80	32	0,8	6	6	3
8900559	5,59	80	32	0,8	6	6	3
8900560	5,6	80	32	0,8	6	6	3
8900561	5,61	80	32	0,8	6	6	3
8900562	5,62	80	32	0,8	6	6	3
8900563	5,63	80	32	0,8	6	6	3
8900564	5,64	80	32	0,8	6	6	3
8900565	5,65	80	32	0,8	6	6	3
8900566	5,66	80	32	0,8	6	6	3
8900567	5,67	80	32	0,8	6	6	3
8900568	5,68	80	32	0,8	6	6	3
8900569	5,69	80	32	0,8	6	6	3
8900570	5,7	80	32	0,8	6	6	3
8900571	5,71	80	32	0,8	6	6	3
8900572	5,72	80	32	0,8	6	6	3
8900573	5,73	80	32	0,8	6	6	3
8900574	5,74	80	32	0,8	6	6	3
8900575	5,75	80	32	0,8	6	6	3
8900576	5,76	80	32	0,8	6	6	3
8900577	5,77	80	32	0,8	6	6	3
8900578	5,78	80	32	0,8	6	6	3
8900579	5,79	80	32	0,8	6	6	3
8900580	5,8	80	32	0,8	6	6	3
8900581	5,81	80	32	0,8	6	6	3

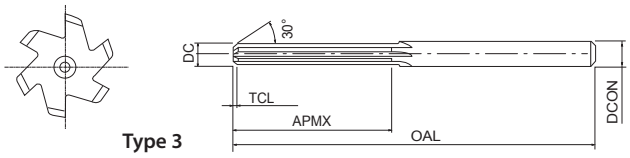


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CARBIDE | 0~+0.005 | h6

B.512

EDP	DC	OAL	APMX	TCL	DCON	ZEFP	Type
8900582	5,82	80	32	0,8	6	6	3
8900583	5,83	80	32	0,8	6	6	3
8900584	5,84	80	32	0,8	6	6	3
8900585	5,85	80	32	0,8	6	6	3
8900586	5,86	80	32	0,8	6	6	3
8900587	5,87	80	32	0,8	6	6	3
8900588	5,88	80	32	0,8	6	6	3
8900589	5,89	80	32	0,8	6	6	3
8900590	5,9	80	32	0,8	6	6	3
8900591	5,91	80	32	0,8	6	6	3
8900592	5,92	80	32	0,8	6	6	3
8900593	5,93	80	32	0,8	6	6	3
8900594	5,94	80	32	0,8	6	6	3
8900595	5,95	80	32	0,8	6	6	3
8900596	5,96	80	32	0,8	6	6	3
8900597	5,97	80	32	0,8	6	6	3
8900598	5,98	80	32	0,8	6	6	3
8900599	5,99	80	32	0,8	6	6	3
8900600	6	80	32	0,8	6	6	3
8900601	6,01	80	35	0,8	7	6	3
8900602	6,02	80	35	0,8	7	6	3
8900603	6,03	80	35	0,8	7	6	3
8900604	6,04	80	35	0,8	7	6	3
8900605	6,05	80	35	0,8	7	6	3
8900606	6,06	80	35	0,8	7	6	3
8900607	6,07	80	35	0,8	7	6	3
8900608	6,08	80	35	0,8	7	6	3
8900609	6,09	80	35	0,8	7	6	3
8900610	6,1	80	35	0,8	7	6	3
8900611	6,11	80	35	0,8	7	6	3
8900612	6,12	80	35	0,8	7	6	3
8900613	6,13	80	35	0,8	7	6	3
8900614	6,14	80	35	0,8	7	6	3
8900615	6,15	80	35	0,8	7	6	3
8900616	6,16	80	35	0,8	7	6	3
8900617	6,17	80	35	0,8	7	6	3
8900618	6,18	80	35	0,8	7	6	3
8900619	6,19	80	35	0,8	7	6	3
8900620	6,2	80	35	0,8	7	6	3
8900621	6,21	80	35	0,8	7	6	3
8900622	6,22	80	35	0,8	7	6	3
8900623	6,23	80	35	0,8	7	6	3
8900624	6,24	80	35	0,8	7	6	3
8900625	6,25	80	35	0,8	7	6	3
8900626	6,26	80	35	0,8	7	6	3
8900627	6,27	80	35	0,8	7	6	3

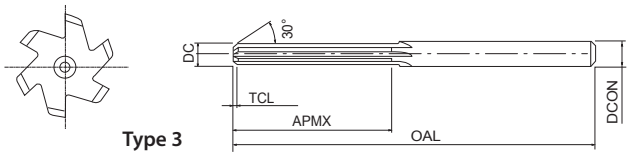
EDP	DC	OAL	APMX	TCL	DCON	ZEFP	Type
8900628	6,28	80	35	0,8	7	6	3
8900629	6,29	80	35	0,8	7	6	3
8900630	6,3	80	35	0,8	7	6	3
8900631	6,31	80	35	0,8	7	6	3
8900632	6,32	80	35	0,8	7	6	3
8900633	6,33	80	35	0,8	7	6	3
8900634	6,34	80	35	0,8	7	6	3
8900635	6,35	80	35	0,8	7	6	3
8900636	6,36	80	35	0,8	7	6	3
8900637	6,37	80	35	0,8	7	6	3
8900638	6,38	80	35	0,8	7	6	3
8900639	6,39	80	35	0,8	7	6	3
8900640	6,4	80	35	0,8	7	6	3
8900641	6,41	80	35	0,8	7	6	3
8900642	6,42	80	35	0,8	7	6	3
8900643	6,43	80	35	0,8	7	6	3
8900644	6,44	80	35	0,8	7	6	3
8900645	6,45	80	35	0,8	7	6	3
8900646	6,46	80	35	0,8	7	6	3
8900647	6,47	80	35	0,8	7	6	3
8900648	6,48	80	35	0,8	7	6	3
8900649	6,49	80	35	0,8	7	6	3
8900650	6,5	80	35	0,8	7	6	3
8900651	6,51	80	35	0,8	7	6	3
8900652	6,52	80	35	0,8	7	6	3
8900653	6,53	80	35	0,8	7	6	3
8900654	6,54	80	35	0,8	7	6	3
8900655	6,55	80	35	0,8	7	6	3
8900656	6,56	80	35	0,8	7	6	3
8900657	6,57	80	35	0,8	7	6	3
8900658	6,58	80	35	0,8	7	6	3
8900659	6,59	80	35	0,8	7	6	3
8900660	6,6	80	35	0,8	7	6	3
8900661	6,61	80	35	0,8	7	6	3
8900662	6,62	80	35	0,8	7	6	3
8900663	6,63	80	35	0,8	7	6	3
8900664	6,64	80	35	0,8	7	6	3
8900665	6,65	80	35	0,8	7	6	3
8900666	6,66	80	35	0,8	7	6	3
8900667	6,67	80	35	0,8	7	6	3
8900668	6,68	80	35	0,8	7	6	3
8900669	6,69	80	35	0,8	7	6	3
8900670	6,7	80	35	0,8	7	6	3
8900671	6,71	80	35	0,8	7	6	3
8900672	6,72	80	35	0,8	7	6	3
8900673	6,73	80	35	0,8	7	6	3

CRM

Carbide reamers

INDEX





Type 3

- First choice in quality and performance
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- From Ø 0,3 - 13,05 mm in 0,01 mm increments
- 1276 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | N Al | N AC, ADC | S Ti | H 25-35 HRC | H 35-45 HRC | H 45-52 HRC

CARBIDE | 0~+0.005 | h6

B.512

EDP	DC	OAL	APMX	TCL	DCON	ZEFP	Type
8900674	6,74	80	35	0,8	7	6	3
8900675	6,75	80	35	0,8	7	6	3
8900676	6,76	80	35	0,8	7	6	3
8900677	6,77	80	35	0,8	7	6	3
8900678	6,78	80	35	0,8	7	6	3
8900679	6,79	80	35	0,8	7	6	3
8900680	6,8	80	35	0,8	7	6	3
8900681	6,81	80	35	0,8	7	6	3
8900682	6,82	80	35	0,8	7	6	3
8900683	6,83	80	35	0,8	7	6	3
8900684	6,84	80	35	0,8	7	6	3
8900685	6,85	80	35	0,8	7	6	3
8900686	6,86	80	35	0,8	7	6	3
8900687	6,87	80	35	0,8	7	6	3
8900688	6,88	80	35	0,8	7	6	3
8900689	6,89	80	35	0,8	7	6	3
8900690	6,9	80	35	0,8	7	6	3
8900691	6,91	80	35	0,8	7	6	3
8900692	6,92	80	35	0,8	7	6	3
8900693	6,93	80	35	0,8	7	6	3
8900694	6,94	80	35	0,8	7	6	3
8900695	6,95	80	35	0,8	7	6	3
8900696	6,96	80	35	0,8	7	6	3
8900697	6,97	80	35	0,8	7	6	3
8900698	6,98	80	35	0,8	7	6	3
8900699	6,99	80	35	0,8	7	6	3
8900700	7	80	35	0,8	7	6	3
8900701	7,01	90	35	0,8	8	6	3
8900702	7,02	90	35	0,8	8	6	3
8900703	7,03	90	35	0,8	8	6	3
8900704	7,04	90	35	0,8	8	6	3
8900705	7,05	90	35	0,8	8	6	3
8900706	7,06	90	35	0,8	8	6	3
8900707	7,07	90	35	0,8	8	6	3
8900708	7,08	90	35	0,8	8	6	3
8900709	7,09	90	35	0,8	8	6	3
8900710	7,1	90	35	0,8	8	6	3
8900711	7,11	90	35	0,8	8	6	3
8900712	7,12	90	35	0,8	8	6	3
8900713	7,13	90	35	0,8	8	6	3
8900714	7,14	90	35	0,8	8	6	3
8900715	7,15	90	35	0,8	8	6	3
8900716	7,16	90	35	0,8	8	6	3
8900717	7,17	90	35	0,8	8	6	3
8900718	7,18	90	35	0,8	8	6	3
8900719	7,19	90	35	0,8	8	6	3

EDP	DC	OAL	APMX	TCL	DCON	ZEFP	Type
8900720	7,2	90	35	0,8	8	6	3
8900721	7,21	90	35	0,8	8	6	3
8900722	7,22	90	35	0,8	8	6	3
8900723	7,23	90	35	0,8	8	6	3
8900724	7,24	90	35	0,8	8	6	3
8900725	7,25	90	35	0,8	8	6	3
8900726	7,26	90	35	0,8	8	6	3
8900727	7,27	90	35	0,8	8	6	3
8900728	7,28	90	35	0,8	8	6	3
8900729	7,29	90	35	0,8	8	6	3
8900730	7,3	90	35	0,8	8	6	3
8900731	7,31	90	35	0,8	8	6	3
8900732	7,32	90	35	0,8	8	6	3
8900733	7,33	90	35	0,8	8	6	3
8900734	7,34	90	35	0,8	8	6	3
8900735	7,35	90	35	0,8	8	6	3
8900736	7,36	90	35	0,8	8	6	3
8900737	7,37	90	35	0,8	8	6	3
8900738	7,38	90	35	0,8	8	6	3
8900739	7,39	90	35	0,8	8	6	3
8900740	7,4	90	35	0,8	8	6	3
8900741	7,41	90	35	0,8	8	6	3
8900742	7,42	90	35	0,8	8	6	3
8900743	7,43	90	35	0,8	8	6	3
8900744	7,44	90	35	0,8	8	6	3
8900745	7,45	90	35	0,8	8	6	3
8900746	7,46	90	35	0,8	8	6	3
8900747	7,47	90	35	0,8	8	6	3
8900748	7,48	90	35	0,8	8	6	3
8900749	7,49	90	35	0,8	8	6	3
8900750	7,5	90	35	0,8	8	6	3
8900751	7,51	90	40	0,8	8	6	3
8900752	7,52	90	40	0,8	8	6	3
8900753	7,53	90	40	0,8	8	6	3
8900754	7,54	90	40	0,8	8	6	3
8900755	7,55	90	40	0,8	8	6	3
8900756	7,56	90	40	0,8	8	6	3
8900757	7,57	90	40	0,8	8	6	3
8900758	7,58	90	40	0,8	8	6	3
8900759	7,59	90	40	0,8	8	6	3
8900760	7,6	90	40	0,8	8	6	3
8900761	7,61	90	40	0,8	8	6	3
8900762	7,62	90	40	0,8	8	6	3
8900763	7,63	90	40	0,8	8	6	3
8900764	7,64	90	40	0,8	8	6	3
8900765	7,65	90	40	0,8	8	6	3

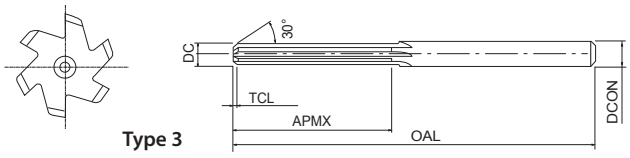


CRM

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Carbide reamers





Type 3

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P ◉ C <0,2% | P ◉ 0,25<C<0,4 | P ◉ C ≥ 0,45% | P ◉ SCM | M ○ INOX | K ◉ GG | N ◉ Al | N ◉ AC, ADC | S ○ Ti | H ◉ 25-35 HRC | H ◉ 35-45 HRC | H ○ 45-52 HRC

CARBIDE | 0~+0.005 | h6

B.512

EDP	DC	OAL	APMX	TCL	DCON	ZEFP	Type
8900766	7,66	90	40	0,8	8	6	3
8900767	7,67	90	40	0,8	8	6	3
8900768	7,68	90	40	0,8	8	6	3
8900769	7,69	90	40	0,8	8	6	3
8900770	7,7	90	40	0,8	8	6	3
8900771	7,71	90	40	0,8	8	6	3
8900772	7,72	90	40	0,8	8	6	3
8900773	7,73	90	40	0,8	8	6	3
8900774	7,74	90	40	0,8	8	6	3
8900775	7,75	90	40	0,8	8	6	3
8900776	7,76	90	40	0,8	8	6	3
8900777	7,77	90	40	0,8	8	6	3
8900778	7,78	90	40	0,8	8	6	3
8900779	7,79	90	40	0,8	8	6	3
8900780	7,8	90	40	0,8	8	6	3
8900781	7,81	90	40	0,8	8	6	3
8900782	7,82	90	40	0,8	8	6	3
8900783	7,83	90	40	0,8	8	6	3
8900784	7,84	90	40	0,8	8	6	3
8900785	7,85	90	40	0,8	8	6	3
8900786	7,86	90	40	0,8	8	6	3
8900787	7,87	90	40	0,8	8	6	3
8900788	7,88	90	40	0,8	8	6	3
8900789	7,89	90	40	0,8	8	6	3
8900790	7,9	90	40	0,8	8	6	3
8900791	7,91	90	40	0,8	8	6	3
8900792	7,92	90	40	0,8	8	6	3
8900793	7,93	90	40	0,8	8	6	3
8900794	7,94	90	40	0,8	8	6	3
8900795	7,95	90	40	0,8	8	6	3
8900796	7,96	90	40	0,8	8	6	3
8900797	7,97	90	40	0,8	8	6	3
8900798	7,98	90	40	0,8	8	6	3
8900799	7,99	90	40	0,8	8	6	3
8900800	8	90	40	0,8	8	6	3
8900801	8,01	90	40	1	9	6	3
8900802	8,02	90	40	1	9	6	3
8900803	8,03	90	40	1	9	6	3
8900804	8,04	90	40	1	9	6	3
8900805	8,05	90	40	1	9	6	3
8900806	8,06	90	40	1	9	6	3
8900807	8,07	90	40	1	9	6	3
8900808	8,08	90	40	1	9	6	3
8900809	8,09	90	40	1	9	6	3
8900810	8,1	90	40	1	9	6	3
8900811	8,11	90	40	1	9	6	3

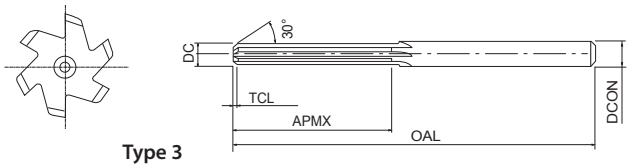
EDP	DC	OAL	APMX	TCL	DCON	ZEFP	Type
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8900813	8,13	90	40	1	9	6	3
8900814	8,14	90	40	1	9	6	3
8900815	8,15	90	40	1	9	6	3
8900816	8,16	90	40	1	9	6	3
8900817	8,17	90	40	1	9	6	3
8900818	8,18	90	40	1	9	6	3
8900819	8,19	90	40	1	9	6	3
8900820	8,2	90	40	1	9	6	3
8900821	8,21	90	40	1	9	6	3
8900822	8,22	90	40	1	9	6	3
8900823	8,23	90	40	1	9	6	3
8900824	8,24	90	40	1	9	6	3
8900825	8,25	90	40	1	9	6	3
8900826	8,26	90	40	1	9	6	3
8900827	8,27	90	40	1	9	6	3
8900828	8,28	90	40	1	9	6	3
8900829	8,29	90	40	1	9	6	3
8900830	8,3	90	40	1	9	6	3
8900831	8,31	90	40	1	9	6	3
8900832	8,32	90	40	1	9	6	3
8900833	8,33	90	40	1	9	6	3
8900834	8,34	90	40	1	9	6	3
8900835	8,35	90	40	1	9	6	3
8900836	8,36	90	40	1	9	6	3
8900837	8,37	90	40	1	9	6	3
8900838	8,38	90	40	1	9	6	3
8900839	8,39	90	40	1	9	6	3
8900840	8,4	90	40	1	9	6	3
8900841	8,41	90	40	1	9	6	3
8900842	8,42	90	40	1	9	6	3
8900843	8,43	90	40	1	9	6	3
8900844	8,44	90	40	1	9	6	3
8900845	8,45	90	40	1	9	6	3
8900846	8,46	90	40	1	9	6	3
8900847	8,47	90	40	1	9	6	3
8900848	8,48	90	40	1	9	6	3
8900849	8,49	90	40	1	9	6	3
8900850	8,5	90	40	1	9	6	3
8900851	8,51	90	40	1	9	6	3
8900852	8,52	90	40	1	9	6	3
8900853	8,53	90	40	1	9	6	3
8900854	8,54	90	40	1	9	6	3
8900855	8,55	90	40	1	9	6	3
8900856	8,56	90	40	1	9	6	3
8900857	8,57	90	40	1	9	6	3

CRM

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CARBIDE | 0~+0.005 | h6

B.512

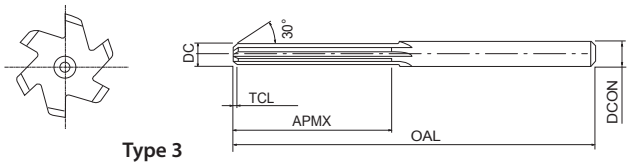
EDP	DC	OAL	APMX	TCL	DCON	ZEFP	Type
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8900859	8,59	90	40	1	9	6	3
8900860	8,6	90	40	1	9	6	3
8900861	8,61	90	40	1	9	6	3
8900862	8,62	90	40	1	9	6	3
8900863	8,63	90	40	1	9	6	3
8900864	8,64	90	40	1	9	6	3
8900865	8,65	90	40	1	9	6	3
8900866	8,66	90	40	1	9	6	3
8900867	8,67	90	40	1	9	6	3
8900868	8,68	90	40	1	9	6	3
8900869	8,69	90	40	1	9	6	3
8900870	8,7	90	40	1	9	6	3
8900871	8,71	90	40	1	9	6	3
8900872	8,72	90	40	1	9	6	3
8900873	8,73	90	40	1	9	6	3
8900874	8,74	90	40	1	9	6	3
8900875	8,75	90	40	1	9	6	3
8900876	8,76	90	40	1	9	6	3
8900877	8,77	90	40	1	9	6	3
8900878	8,78	90	40	1	9	6	3
8900879	8,79	90	40	1	9	6	3
8900880	8,8	90	40	1	9	6	3
8900881	8,81	90	40	1	9	6	3
8900882	8,82	90	40	1	9	6	3
8900883	8,83	90	40	1	9	6	3
8900884	8,84	90	40	1	9	6	3
8900885	8,85	90	40	1	9	6	3
8900886	8,86	90	40	1	9	6	3
8900887	8,87	90	40	1	9	6	3
8900888	8,88	90	40	1	9	6	3
8900889	8,89	90	40	1	9	6	3
8900890	8,9	90	40	1	9	6	3
8900891	8,91	90	40	1	9	6	3
8900892	8,92	90	40	1	9	6	3
8900893	8,93	90	40	1	9	6	3
8900894	8,94	90	40	1	9	6	3
8900895	8,95	90	40	1	9	6	3
8900896	8,96	90	40	1	9	6	3
8900897	8,97	90	40	1	9	6	3
8900898	8,98	90	40	1	9	6	3
8900899	8,99	90	40	1	9	6	3
8900900	9	90	40	1	9	6	3
8900901	9,01	100	40	1	10	6	3
8900902	9,02	100	40	1	10	6	3
8900903	9,03	100	40	1	10	6	3

EDP	DC	OAL	APMX	TCL	DCON	ZEFP	Type
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8900906	9,06	100	40	1	10	6	3
8900907	9,07	100	40	1	10	6	3
8900908	9,08	100	40	1	10	6	3
8900909	9,09	100	40	1	10	6	3
8900910	9,1	100	40	1	10	6	3
8900911	9,11	100	40	1	10	6	3
8900912	9,12	100	40	1	10	6	3
8900913	9,13	100	40	1	10	6	3
8900914	9,14	100	40	1	10	6	3
8900915	9,15	100	40	1	10	6	3
8900916	9,16	100	40	1	10	6	3
8900917	9,17	100	40	1	10	6	3
8900918	9,18	100	40	1	10	6	3
8900919	9,19	100	40	1	10	6	3
8900920	9,2	100	40	1	10	6	3
8900921	9,21	100	40	1	10	6	3
8900922	9,22	100	40	1	10	6	3
8900923	9,23	100	40	1	10	6	3
8900924	9,24	100	40	1	10	6	3
8900925	9,25	100	40	1	10	6	3
8900926	9,26	100	40	1	10	6	3
8900927	9,27	100	40	1	10	6	3
8900928	9,28	100	40	1	10	6	3
8900929	9,29	100	40	1	10	6	3
8900930	9,3	100	40	1	10	6	3
8900931	9,31	100	40	1	10	6	3
8900932	9,32	100	40	1	10	6	3
8900933	9,33	100	40	1	10	6	3
8900934	9,34	100	40	1	10	6	3
8900935	9,35	100	40	1	10	6	3
8900936	9,36	100	40	1	10	6	3
8900937	9,37	100	40	1	10	6	3
8900938	9,38	100	40	1	10	6	3
8900939	9,39	100	40	1	10	6	3
8900940	9,4	100	40	1	10	6	3
8900941	9,41	100	40	1	10	6	3
8900942	9,42	100	40	1	10	6	3
8900943	9,43	100	40	1	10	6	3
8900944	9,44	100	40	1	10	6	3
8900945	9,45	100	40	1	10	6	3
8900946	9,46	100	40	1	10	6	3
8900947	9,47	100	40	1	10	6	3
8900948	9,48	100	40	1	10	6	3
8900949	9,49	100	40	1	10	6	3

CRM

Carbide reamers





Type 3

- First choice in quality and performance
- Carbide straight reamer, bright finish
- From Ø 0,3 - 13,05 mm in 0,01 mm increments
- 1276 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | N Al | N AC, ADC | S Ti | H 25-35 HRC | H 35-45 HRC | H 45-52 HRC

CARBIDE | 0~+0.005 | h6

B.512

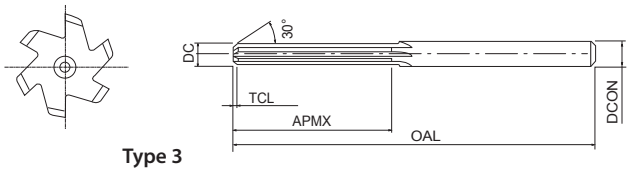
EDP	DC	OAL	APMX	TCL	DCON	ZEFP	Type
8900950	9,5	100	40	1	10	6	3
8900951	9,51	100	45	1	10	6	3
8900952	9,52	100	45	1	10	6	3
8900953	9,53	100	45	1	10	6	3
8900954	9,54	100	45	1	10	6	3
8900955	9,55	100	45	1	10	6	3
8900956	9,56	100	45	1	10	6	3
8900957	9,57	100	45	1	10	6	3
8900958	9,58	100	45	1	10	6	3
8900959	9,59	100	45	1	10	6	3
8900960	9,6	100	45	1	10	6	3
8900961	9,61	100	45	1	10	6	3
8900962	9,62	100	45	1	10	6	3
8900963	9,63	100	45	1	10	6	3
8900964	9,64	100	45	1	10	6	3
8900965	9,65	100	45	1	10	6	3
8900966	9,66	100	45	1	10	6	3
8900967	9,67	100	45	1	10	6	3
8900968	9,68	100	45	1	10	6	3
8900969	9,69	100	45	1	10	6	3
8900970	9,7	100	45	1	10	6	3
8900971	9,71	100	45	1	10	6	3
8900972	9,72	100	45	1	10	6	3
8900973	9,73	100	45	1	10	6	3
8900974	9,74	100	45	1	10	6	3
8900975	9,75	100	45	1	10	6	3
8900976	9,76	100	45	1	10	6	3
8900977	9,77	100	45	1	10	6	3
8900978	9,78	100	45	1	10	6	3
8900979	9,79	100	45	1	10	6	3
8900980	9,8	100	45	1	10	6	3
8900981	9,81	100	45	1	10	6	3
8900982	9,82	100	45	1	10	6	3
8900983	9,83	100	45	1	10	6	3
8900984	9,84	100	45	1	10	6	3
8900985	9,85	100	45	1	10	6	3
8900986	9,86	100	45	1	10	6	3
8900987	9,87	100	45	1	10	6	3
8900988	9,88	100	45	1	10	6	3
8900989	9,89	100	45	1	10	6	3
8900990	9,9	100	45	1	10	6	3
8900991	9,91	100	45	1	10	6	3
8900992	9,92	100	45	1	10	6	3
8900993	9,93	100	45	1	10	6	3
8900994	9,94	100	45	1	10	6	3
8900995	9,95	100	45	1	10	6	3

EDP	DC	OAL	APMX	TCL	DCON	ZEFP	Type
8900996	9,96	100	45	1	10	6	3
8900997	9,97	100	45	1	10	6	3
8900998	9,98	100	45	1	10	6	3
8900999	9,99	100	45	1	10	6	3
8901000	10	100	45	1	10	6	3
8901001	10,01	100	45	1	11	6	3
8901002	10,02	100	45	1	11	6	3
8901003	10,03	100	45	1	11	6	3
8901004	10,04	100	45	1	11	6	3
8901005	10,05	100	45	1	11	6	3
8901006	10,06	100	45	1	11	6	3
8901007	10,07	100	45	1	11	6	3
8901008	10,08	100	45	1	11	6	3
8901009	10,09	100	45	1	11	6	3
8901010	10,1	100	45	1	11	6	3
8901011	10,11	100	45	1	11	6	3
8901012	10,12	100	45	1	11	6	3
8901013	10,13	100	45	1	11	6	3
8901014	10,14	100	45	1	11	6	3
8901015	10,15	100	45	1	11	6	3
8901016	10,16	100	45	1	11	6	3
8901017	10,17	100	45	1	11	6	3
8901018	10,18	100	45	1	11	6	3
8901019	10,19	100	45	1	11	6	3
8901020	10,2	100	45	1	11	6	3
8901021	10,21	100	45	1	11	6	3
8901022	10,22	100	45	1	11	6	3
8901023	10,23	100	45	1	11	6	3
8901024	10,24	100	45	1	11	6	3
8901025	10,25	100	45	1	11	6	3
8901026	10,26	100	45	1	11	6	3
8901027	10,27	100	45	1	11	6	3
8901028	10,28	100	45	1	11	6	3
8901029	10,29	100	45	1	11	6	3
8901030	10,3	100	45	1	11	6	3
8901031	10,31	100	45	1	11	6	3
8901032	10,32	100	45	1	11	6	3
8901033	10,33	100	45	1	11	6	3
8901034	10,34	100	45	1	11	6	3
8901035	10,35	100	45	1	11	6	3
8901036	10,36	100	45	1	11	6	3
8901037	10,37	100	45	1	11	6	3
8901038	10,38	100	45	1	11	6	3
8901039	10,39	100	45	1	11	6	3
8901040	10,4	100	45	1	11	6	3
8901041	10,41	100	45	1	11	6	3

CRM

Carbide reamers





Type 3

- First choice in quality and performance
- Carbide straight reamer, bright finish
- From Ø 0,3 - 13,05 mm in 0,01 mm increments
- 1276 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | N Al | N AC, ADC | S Ti | H 25-35 HRC | H 35-45 HRC | H 45-52 HRC

CARBIDE | 0~+0.005 | h6

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EDP	DC	OAL	APMX	TCL	DCON	ZEFP	Type
8901042	10,42	100	45	1	11	6	3
8901043	10,43	100	45	1	11	6	3
8901044	10,44	100	45	1	11	6	3
8901045	10,45	100	45	1	11	6	3
8901046	10,46	100	45	1	11	6	3
8901047	10,47	100	45	1	11	6	3
8901048	10,48	100	45	1	11	6	3
8901049	10,49	100	45	1	11	6	3
8901050	10,5	100	45	1	11	6	3
8901051	10,51	100	45	1	11	6	3
8901052	10,52	100	45	1	11	6	3
8901053	10,53	100	45	1	11	6	3
8901054	10,54	100	45	1	11	6	3
8901055	10,55	100	45	1	11	6	3
8901056	10,56	100	45	1	11	6	3
8901057	10,57	100	45	1	11	6	3
8901058	10,58	100	45	1	11	6	3
8901059	10,59	100	45	1	11	6	3
8901060	10,6	100	45	1	11	6	3
8901061	10,61	100	45	1	11	6	3
8901062	10,62	100	45	1	11	6	3
8901063	10,63	100	45	1	11	6	3
8901064	10,64	100	45	1	11	6	3
8901065	10,65	100	45	1	11	6	3
8901066	10,66	100	45	1	11	6	3
8901067	10,67	100	45	1	11	6	3
8901068	10,68	100	45	1	11	6	3
8901069	10,69	100	45	1	11	6	3
8901070	10,7	100	45	1	11	6	3
8901071	10,71	100	45	1	11	6	3
8901072	10,72	100	45	1	11	6	3
8901073	10,73	100	45	1	11	6	3
8901074	10,74	100	45	1	11	6	3
8901075	10,75	100	45	1	11	6	3
8901076	10,76	100	45	1	11	6	3
8901077	10,77	100	45	1	11	6	3
8901078	10,78	100	45	1	11	6	3
8901079	10,79	100	45	1	11	6	3
8901080	10,8	100	45	1	11	6	3
8901081	10,81	100	45	1	11	6	3
8901082	10,82	100	45	1	11	6	3
8901083	10,83	100	45	1	11	6	3
8901084	10,84	100	45	1	11	6	3
8901085	10,85	100	45	1	11	6	3
8901086	10,86	100	45	1	11	6	3
8901087	10,87	100	45	1	11	6	3

EDP	DC	OAL	APMX	TCL	DCON	ZEFP	Type
8901088	10,88	100	45	1	11	6	3
8901089	10,89	100	45	1	11	6	3
8901090	10,9	100	45	1	11	6	3
8901091	10,91	100	45	1	11	6	3
8901092	10,92	100	45	1	11	6	3
8901093	10,93	100	45	1	11	6	3
8901094	10,94	100	45	1	11	6	3
8901095	10,95	100	45	1	11	6	3
8901096	10,96	100	45	1	11	6	3
8901097	10,97	100	45	1	11	6	3
8901098	10,98	100	45	1	11	6	3
8901099	10,99	100	45	1	11	6	3
8901100	11	100	45	1	11	6	3
8901101	11,01	110	45	1	12	6	3
8901102	11,02	110	45	1	12	6	3
8901103	11,03	110	45	1	12	6	3
8901104	11,04	110	45	1	12	6	3
8901105	11,05	110	45	1	12	6	3
8901106	11,06	110	45	1	12	6	3
8901107	11,07	110	45	1	12	6	3
8901108	11,08	110	45	1	12	6	3
8901109	11,09	110	45	1	12	6	3
8901110	11,1	110	45	1	12	6	3
8901111	11,11	110	45	1	12	6	3
8901112	11,12	110	45	1	12	6	3
8901113	11,13	110	45	1	12	6	3
8901114	11,14	110	45	1	12	6	3
8901115	11,15	110	45	1	12	6	3
8901116	11,16	110	45	1	12	6	3
8901117	11,17	110	45	1	12	6	3
8901118	11,18	110	45	1	12	6	3
8901119	11,19	110	45	1	12	6	3
8901120	11,2	110	45	1	12	6	3
8901121	11,21	110	45	1	12	6	3
8901122	11,22	110	45	1	12	6	3
8901123	11,23	110	45	1	12	6	3
8901124	11,24	110	45	1	12	6	3
8901125	11,25	110	45	1	12	6	3
8901126	11,26	110	45	1	12	6	3
8901127	11,27	110	45	1	12	6	3
8901128	11,28	110	45	1	12	6	3
8901129	11,29	110	45	1	12	6	3
8901130	11,3	110	45	1	12	6	3
8901131	11,31	110	45	1	12	6	3
8901132	11,32	110	45	1	12	6	3
8901133	11,33	110	45	1	12	6	3

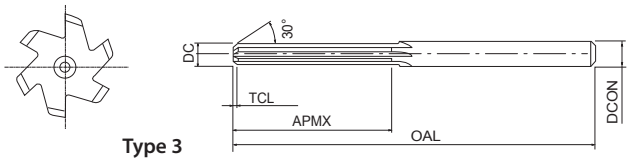


CRM

INDEX

Carbide reamers





Type 3

- First choice in quality and performance
- Carbide straight reamer, bright finish
- From Ø 0,3 - 13,05 mm in 0,01 mm increments
- 1276 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | N Al | N AC, ADC | S Ti | H 25-35 HRC | H 35-45 HRC | H 45-52 HRC

CARBIDE | 0~+0.005 | h6

B.512

EDP	DC	OAL	APMX	TCL	DCON	ZEFP	Type
8901134	11,34	110	45	1	12	6	3
8901135	11,35	110	45	1	12	6	3
8901136	11,36	110	45	1	12	6	3
8901137	11,37	110	45	1	12	6	3
8901138	11,38	110	45	1	12	6	3
8901139	11,39	110	45	1	12	6	3
8901140	11,4	110	45	1	12	6	3
8901141	11,41	110	45	1	12	6	3
8901142	11,42	110	45	1	12	6	3
8901143	11,43	110	45	1	12	6	3
8901144	11,44	110	45	1	12	6	3
8901145	11,45	110	45	1	12	6	3
8901146	11,46	110	45	1	12	6	3
8901147	11,47	110	45	1	12	6	3
8901148	11,48	110	45	1	12	6	3
8901149	11,49	110	45	1	12	6	3
8901150	11,5	110	45	1	12	6	3
8901151	11,51	110	45	1	12	6	3
8901152	11,52	110	45	1	12	6	3
8901153	11,53	110	45	1	12	6	3
8901154	11,54	110	45	1	12	6	3
8901155	11,55	110	45	1	12	6	3
8901156	11,56	110	45	1	12	6	3
8901157	11,57	110	45	1	12	6	3
8901158	11,58	110	45	1	12	6	3
8901159	11,59	110	45	1	12	6	3
8901160	11,6	110	45	1	12	6	3
8901161	11,61	110	45	1	12	6	3
8901162	11,62	110	45	1	12	6	3
8901163	11,63	110	45	1	12	6	3
8901164	11,64	110	45	1	12	6	3
8901165	11,65	110	45	1	12	6	3
8901166	11,66	110	45	1	12	6	3
8901167	11,67	110	45	1	12	6	3
8901168	11,68	110	45	1	12	6	3
8901169	11,69	110	45	1	12	6	3
8901170	11,7	110	45	1	12	6	3
8901171	11,71	110	45	1	12	6	3
8901172	11,72	110	45	1	12	6	3
8901173	11,73	110	45	1	12	6	3
8901174	11,74	110	45	1	12	6	3
8901175	11,75	110	45	1	12	6	3
8901176	11,76	110	45	1	12	6	3
8901177	11,77	110	45	1	12	6	3
8901178	11,78	110	45	1	12	6	3
8901179	11,79	110	45	1	12	6	3

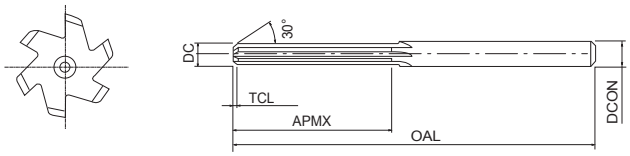
EDP	DC	OAL	APMX	TCL	DCON	ZEFP	Type
8901180	11,8	110	45	1	12	6	3
8901181	11,81	110	50	1	12	6	3
8901182	11,82	110	50	1	12	6	3
8901183	11,83	110	50	1	12	6	3
8901184	11,84	110	50	1	12	6	3
8901185	11,85	110	50	1	12	6	3
8901186	11,86	110	50	1	12	6	3
8901187	11,87	110	50	1	12	6	3
8901188	11,88	110	50	1	12	6	3
8901189	11,89	110	50	1	12	6	3
8901190	11,9	110	50	1	12	6	3
8901191	11,91	110	50	1	12	6	3
8901192	11,92	110	50	1	12	6	3
8901193	11,93	110	50	1	12	6	3
8901194	11,94	110	50	1	12	6	3
8901195	11,95	110	50	1	12	6	3
8901196	11,96	110	50	1	12	6	3
8901197	11,97	110	50	1	12	6	3
8901198	11,98	110	50	1	12	6	3
8901199	11,99	110	50	1	12	6	3
8901200	12	110	50	1	12	6	3
8901201	12,01	110	50	1	13	6	3
8901202	12,02	110	50	1	13	6	3
8901203	12,03	110	50	1	13	6	3
8901204	12,04	110	50	1	13	6	3
8901205	12,05	110	50	1	13	6	3
8901206	12,06	110	50	1	13	6	3
8901207	12,07	110	50	1	13	6	3
8901208	12,08	110	50	1	13	6	3
8901209	12,09	110	50	1	13	6	3
8901210	12,1	110	50	1	13	6	3
8901211	12,11	110	50	1	13	6	3
8901212	12,12	110	50	1	13	6	3
8901213	12,13	110	50	1	13	6	3
8901214	12,14	110	50	1	13	6	3
8901215	12,15	110	50	1	13	6	3
8901216	12,16	110	50	1	13	6	3
8901217	12,17	110	50	1	13	6	3
8901218	12,18	110	50	1	13	6	3
8901219	12,19	110	50	1	13	6	3
8901220	12,2	110	50	1	13	6	3
8901221	12,21	110	50	1	13	6	3
8901222	12,22	110	50	1	13	6	3
8901223	12,23	110	50	1	13	6	3
8901224	12,24	110	50	1	13	6	3
8901225	12,25	110	50	1	13	6	3

CRM

INDEX

Carbide reamers





Type 3

- First choice in quality and performance
- Carbide straight reamer, bright finish
- From Ø 0,3 - 13,05 mm in 0,01 mm increments
- 1276 sizes

P C <0,2% | P 0,25<C<0,4 | P C ≥ 0,45% | P SCM | M INOX | K GG | N Al | N AC, ADC | S Ti | H 25-35 HRC | H 35-45 HRC | H 45-52 HRC

CARBIDE | 0~+0.005 | h6

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EDP	DC	OAL	APMX	TCL	DCON	ZEFP	Type
8901226	12,26	110	50	1	13	6	3
8901227	12,27	110	50	1	13	6	3
8901228	12,28	110	50	1	13	6	3
8901229	12,29	110	50	1	13	6	3
8901230	12,3	110	50	1	13	6	3
8901231	12,31	110	50	1	13	6	3
8901232	12,32	110	50	1	13	6	3
8901233	12,33	110	50	1	13	6	3
8901234	12,34	110	50	1	13	6	3
8901235	12,35	110	50	1	13	6	3
8901236	12,36	110	50	1	13	6	3
8901237	12,37	110	50	1	13	6	3
8901238	12,38	110	50	1	13	6	3
8901239	12,39	110	50	1	13	6	3
8901240	12,4	110	50	1	13	6	3
8901241	12,41	110	50	1	13	6	3
8901242	12,42	110	50	1	13	6	3
8901243	12,43	110	50	1	13	6	3
8901244	12,44	110	50	1	13	6	3
8901245	12,45	110	50	1	13	6	3
8901246	12,46	110	50	1	13	6	3
8901247	12,47	110	50	1	13	6	3
8901248	12,48	110	50	1	13	6	3
8901249	12,49	110	50	1	13	6	3
8901250	12,5	110	50	1	13	6	3
8901251	12,51	110	50	1	13	6	3
8901252	12,52	110	50	1	13	6	3
8901253	12,53	110	50	1	13	6	3
8901254	12,54	110	50	1	13	6	3
8901255	12,55	110	50	1	13	6	3
8901256	12,56	110	50	1	13	6	3
8901257	12,57	110	50	1	13	6	3
8901258	12,58	110	50	1	13	6	3
8901259	12,59	110	50	1	13	6	3
8901260	12,6	110	50	1	13	6	3
8901261	12,61	110	50	1	13	6	3
8901262	12,62	110	50	1	13	6	3
8901263	12,63	110	50	1	13	6	3
8901264	12,64	110	50	1	13	6	3
8901265	12,65	110	50	1	13	6	3
8901266	12,66	110	50	1	13	6	3
8901267	12,67	110	50	1	13	6	3
8901268	12,68	110	50	1	13	6	3
8901269	12,69	110	50	1	13	6	3
8901270	12,7	110	50	1	13	6	3
8901271	12,71	110	50	1	13	6	3

EDP	DC	OAL	APMX	TCL	DCON	ZEFP	Type
8901272	12,72	110	50	1	13	6	3
8901273	12,73	110	50	1	13	6	3
8901274	12,74	110	50	1	13	6	3
8901275	12,75	110	50	1	13	6	3
8901276	12,76	110	50	1	13	6	3
8901277	12,77	110	50	1	13	6	3
8901278	12,78	110	50	1	13	6	3
8901279	12,79	110	50	1	13	6	3
8901280	12,8	110	50	1	13	6	3
8901281	12,81	110	50	1	13	6	3
8901282	12,82	110	50	1	13	6	3
8901283	12,83	110	50	1	13	6	3
8901284	12,84	110	50	1	13	6	3
8901285	12,85	110	50	1	13	6	3
8901286	12,86	110	50	1	13	6	3
8901287	12,87	110	50	1	13	6	3
8901288	12,88	110	50	1	13	6	3
8901289	12,89	110	50	1	13	6	3
8901290	12,9	110	50	1	13	6	3
8901291	12,91	110	50	1	13	6	3
8901292	12,92	110	50	1	13	6	3
8901293	12,93	110	50	1	13	6	3
8901294	12,94	110	50	1	13	6	3
8901295	12,95	110	50	1	13	6	3
8901296	12,96	110	50	1	13	6	3
8901297	12,97	110	50	1	13	6	3
8901298	12,98	110	50	1	13	6	3
8901299	12,99	110	50	1	13	6	3
8901300	13	110	50	1	13	6	3
8901301	13,01	110	50	1	14	6	3
8901302	13,02	110	50	1	14	6	3
8901303	13,03	110	50	1	14	6	3
8901304	13,04	110	50	1	14	6	3
8901305	13,05	110	50	1	14	6	3

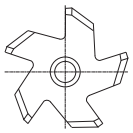
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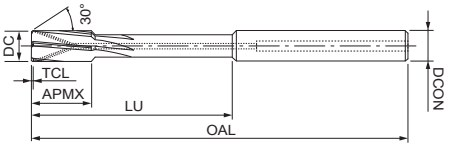
Carbide reamers

INDEX

NEW







- Carbide low right-hand helix reamer
- Multilayer AlCrN coating
- For high speed reaming in various materials
- Side through coolant
- 86 sizes





B.514

EDP	DC	OAL	APMX	LU	TCL	DCON	ZEFP
4843802970	2,97	70	12	40	0,3	3	5
4843802980	2,98	70	12	40	0,3	3	5
4843802990	2,99	70	12	40	0,3	3	5
4843803000	3	70	12	40	0,3	3	5
4843803010	3,01	70	12	40	0,3	3	5
4843803020	3,02	70	12	40	0,3	3	5
4843803030	3,03	70	12	40	0,3	3	5
4843803250	3,25	75	12	40	0,3	4	5
4843803500	3,5	75	12	40	0,3	4	5
4843803700	3,7	75	12	40	0,3	4	5
4843803800	3,8	75	12	40	0,3	4	5
4843803970	3,97	75	12	40	0,3	4	5
4843803980	3,98	75	12	40	0,3	4	5
4843803990	3,99	75	12	40	0,3	4	5
4843804000	4	75	12	40	0,3	4	5
4843804010	4,01	75	12	40	0,3	4	5
4843804020	4,02	75	12	40	0,3	4	5
4843804030	4,03	75	12	40	0,3	4	5
4843804170	4,17	75	12	40	0,3	6	5
4843804500	4,5	75	12	40	0,3	6	5
4843804650	4,65	75	12	40	0,3	6	5
4843804800	4,8	75	12	40	0,3	6	5
4843804970	4,97	75	12	40	0,3	6	5
4843804980	4,98	75	12	40	0,3	6	5
4843804990	4,99	75	12	40	0,3	6	5
4843805000	5	75	12	40	0,3	6	5
4843805010	5,01	75	12	40	0,3	6	5
4843805020	5,02	75	12	40	0,3	6	5
4843805030	5,03	75	12	40	0,3	6	5
4843805100	5,1	75	12	40	0,3	6	5
4843805500	5,5	75	12	40	0,3	6	5
4843805550	5,55	75	12	40	0,3	6	5
4843805680	5,68	75	12	40	0,3	6	5
4843805810	5,81	75	12	40	0,3	6	5
4843805970	5,97	75	12	40	0,3	6	5
4843805980	5,98	75	12	40	0,3	6	5
4843805990	5,99	75	12	40	0,3	6	5
4843806000	6	75	12	40	0,3	6	5
4843806010	6,01	75	12	40	0,3	6	5
4843806020	6,02	75	12	40	0,3	6	5
4843806030	6,03	75	12	40	0,3	6	5
4843806500	6,5	100	16	65	0,3	8	5
4843806550	6,55	100	16	65	0,3	8	5
4843806680	6,68	100	16	65	0,3	8	5
4843807000	7	100	16	65	0,3	8	5
4843807400	7,4	100	16	65	0,3	8	5

EDP	DC	OAL	APMX	LU	TCL	DCON	ZEFP
4843807500	7,5	100	16	65	0,3	8	5
4843807550	7,55	100	16	65	0,3	8	5
4843807680	7,68	100	16	65	0,3	8	5
4843807810	7,81	100	16	65	0,3	8	5
4843807970	7,97	100	16	65	0,3	8	5
4843807980	7,98	100	16	65	0,3	8	5
4843807990	7,99	100	16	65	0,3	8	5
4843808000	8	100	16	65	0,3	8	5
4843808010	8,01	100	16	65	0,3	8	5
4843808020	8,02	100	16	65	0,3	8	5
4843808030	8,03	100	16	65	0,3	8	5
4843808400	8,4	100	16	65	0,3	10	5
4843808500	8,5	100	16	65	0,3	10	5
4843809000	9	100	16	65	0,3	10	5
4843809300	9,3	100	16	65	0,3	10	5
4843809410	9,41	100	16	65	0,3	10	5
4843809500	9,5	100	16	65	0,3	10	5
4843809550	9,55	100	16	65	0,3	10	5
4843809970	9,97	100	16	65	0,3	10	5
4843809980	9,98	100	16	65	0,3	10	5
4843809990	9,99	100	16	65	0,3	10	5
4843810000	10	100	16	65	0,3	10	5
4843810010	10,01	100	16	65	0,3	10	5
4843810020	10,02	100	16	65	0,3	10	5
4843810030	10,03	100	16	65	0,3	10	5
4843810300	10,3	130	20	85	0,5	12	5
4843810500	10,5	130	20	85	0,5	12	5
4843811000	11	130	20	85	0,5	12	5
4843811150	11,15	130	20	85	0,5	12	5
4843811300	11,3	130	20	85	0,5	12	5
4843811430	11,43	130	20	85	0,5	12	5
4843811500	11,5	130	20	85	0,5	12	5
4843811560	11,56	130	20	85	0,5	12	5
4843811970	11,97	130	20	85	0,5	12	5
4843811980	11,98	130	20	85	0,5	12	5
4843811990	11,99	130	20	85	0,5	12	5
4843812000	12	130	20	85	0,5	12	5
4843812010	12,01	130	20	85	0,5	12	5
4843812020	12,02	130	20	85	0,5	12	5
4843812030	12,03	130	20	85	0,5	12	5

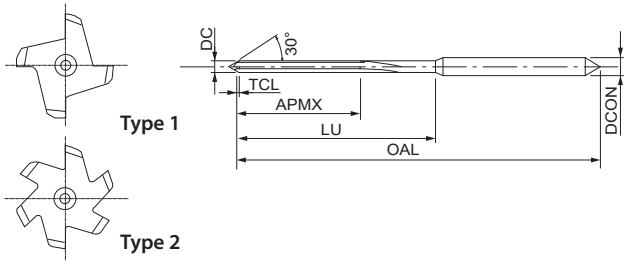
AL-CRM

Carbide reamers

INDEX

NEW





- Carbide straight-fluted reamer
- DLC coating
- For non-ferrous materials
- 98 sizes







EDP	DC	OAL	APMX	LU	TCL	DCON	ZEFP	Type
4843901970	1,97	60	15	27	0,4	3	4	1
4843901980	1,98	60	15	27	0,4	3	4	1
4843901990	1,99	60	15	27	0,4	3	4	1
4843902000	2	60	15	27	0,4	3	4	1
4843902010	2,01	60	20	32	0,5	3	4	1
4843902020	2,02	60	20	32	0,5	3	4	1
4843902030	2,03	60	20	32	0,5	3	4	1
4843902130	2,13	60	20	32	0,5	3	4	1
4843902320	2,32	60	20	32	0,5	3	4	1
4843902420	2,42	60	20	32	0,5	3	4	1
4843902500	2,5	60	20	32	0,5	3	4	1
4843902800	2,8	60	20	32	0,5	3	4	1
4843902970	2,97	70	20	40	0,5	3	4	1
4843902980	2,98	70	20	40	0,5	3	4	1
4843902990	2,99	70	20	40	0,5	3	4	1
4843903000	3	70	20	40	0,5	3	4	1
4843903010	3,01	70	20	40	0,5	3	4	1
4843903020	3,02	70	20	40	0,5	3	4	1
4843903030	3,03	70	20	40	0,5	3	4	1
4843903250	3,25	75	20	40	0,5	4	4	1
4843903500	3,5	75	20	40	0,5	4	4	1
4843903700	3,7	75	20	40	0,5	4	4	1
4843903800	3,8	75	20	40	0,5	4	4	1
4843903970	3,97	75	20	40	0,5	4	4	1
4843903980	3,98	75	20	40	0,5	4	4	1
4843903990	3,99	75	20	40	0,5	4	4	1
4843904000	4	75	20	40	0,5	4	4	1
4843904010	4,01	75	20	40	0,5	4	4	1
4843904020	4,02	75	20	40	0,5	4	4	1
4843904030	4,03	75	20	40	0,5	4	4	1
4843904170	4,17	75	25	40	0,5	6	6	2
4843904500	4,5	75	25	40	0,5	6	6	2
4843904650	4,65	75	25	40	0,5	6	6	2
4843904800	4,8	75	25	40	0,5	6	6	2
4843904970	4,97	75	25	40	0,5	6	6	2
4843904980	4,98	75	25	40	0,5	6	6	2
4843904990	4,99	75	25	40	0,5	6	6	2
4843905000	5	75	25	40	0,5	6	6	2
4843905010	5,01	75	25	40	0,5	6	6	2
4843905020	5,02	75	25	40	0,5	6	6	2
4843905030	5,03	75	25	40	0,5	6	6	2
4843905100	5,1	75	25	40	0,8	6	6	2
4843905500	5,5	75	25	40	0,8	6	6	2
4843905550	5,55	75	25	40	0,8	6	6	2
4843905680	5,68	75	25	40	0,8	6	6	2
4843905810	5,81	75	25	40	0,8	6	6	2

EDP	DC	OAL	APMX	LU	TCL	DCON	ZEFP	Type
4843905970	5,97	75	25	40	0,8	6	6	2
4843905980	5,98	75	25	40	0,8	6	6	2
4843905990	5,99	75	25	40	0,8	6	6	2
4843906000	6	75	25	40	0,8	6	6	2
4843906010	6,01	75	25	40	0,8	6	6	2
4843906020	6,02	75	25	40	0,8	6	6	2
4843906030	6,03	75	25	40	0,8	6	6	2
4843906500	6,5	100	25	60	0,8	8	6	2
4843906550	6,55	100	25	60	0,8	8	6	2
4843906680	6,68	100	25	60	0,8	8	6	2
4843907000	7	100	25	60	0,8	8	6	2
4843907400	7,4	100	25	60	0,8	8	6	2
4843907500	7,5	100	25	60	0,8	8	6	2
4843907550	7,55	100	25	60	0,8	8	6	2
4843907680	7,68	100	25	60	0,8	8	6	2
4843907810	7,81	100	25	60	0,8	8	6	2
4843907970	7,97	100	25	60	0,8	8	6	2
4843907980	7,98	100	25	60	0,8	8	6	2
4843907990	7,99	100	25	60	0,8	8	6	2
4843908000	8	100	25	60	0,8	8	6	2
4843908010	8,01	100	25	60	0,8	8	6	2
4843908020	8,02	100	25	60	0,8	8	6	2
4843908030	8,03	100	25	60	0,8	8	6	2
4843908400	8,4	100	30	60	1	10	6	2
4843908500	8,5	100	30	60	1	10	6	2
4843909000	9	100	30	60	1	10	6	2
4843909300	9,3	100	30	60	1	10	6	2
4843909410	9,41	100	30	60	1	10	6	2
4843909500	9,5	100	30	60	1	10	6	2
4843909550	9,55	100	30	60	1	10	6	2
4843909970	9,97	100	30	60	1	10	6	2
4843909980	9,98	100	30	60	1	10	6	2
4843909990	9,99	100	30	60	1	10	6	2
4843910000	10	100	30	60	1	10	6	2
4843910010	10,01	100	30	60	1	10	6	2
4843910020	10,02	100	30	60	1	10	6	2
4843910030	10,03	100	30	60	1	10	6	2
4843910300	10,3	130	30	85	1	12	6	2
4843910500	10,5	130	30	85	1	12	6	2
4843911000	11	130	30	85	1	12	6	2
4843911150	11,15	130	30	85	1	12	6	2
4843911300	11,3	130	30	85	1	12	6	2
4843911430	11,43	130	30	85	1	12	6	2
4843911500	11,5	130	30	85	1	12	6	2
4843911560	11,56	130	30	85	1	12	6	2
4843911970	11,97	130	30	85	1	12	6	2



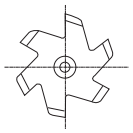
AL-CRM

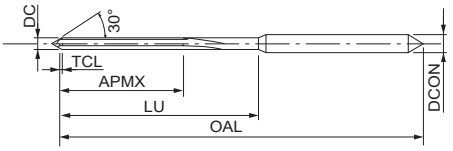
Carbide reamers

INDEX

NEW







- Carbide straight-fluted reamer
- DLC coating
- For non-ferrous materials
- 98 sizes









EDP	DC	OAL	APMX	LU	TCL	DCON	ZEFP	Type
4843911980	11,98	130	30	85	1	12	6	2
4843911990	11,99	130	30	85	1	12	6	2
4843912000	12	130	30	85	1	12	6	2
4843912010	12,01	130	30	85	1	12	6	2
4843912020	12,02	130	30	85	1	12	6	2
4843912030	12,03	130	30	85	1	12	6	2

EDP	DC	OAL	APMX	LU	TCL	DCON	ZEFP	Type

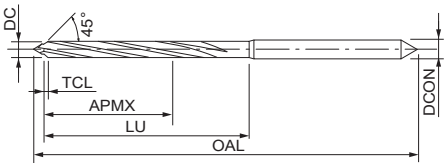
H-CRM

Carbide reamers

NEW







- Carbide low right-hand helix reamer
- FX coating
- For stainless steel, titanium alloys and hardened material up to 60HRC
- 98 sizes





B.514

EDP	DC	OAL	APMX	LU	TCL	DCON	ZEFP
4844001970	1,97	60	15	27	0,4	3	4
4844001980	1,98	60	15	27	0,4	3	4
4844001990	1,99	60	15	27	0,4	3	4
4844002000	2	60	15	27	0,4	3	4
4844002010	2,01	60	20	32	0,5	3	4
4844002020	2,02	60	20	32	0,5	3	4
4844002030	2,03	60	20	32	0,5	3	4
4844002130	2,13	60	20	32	0,5	3	4
4844002320	2,32	60	20	32	0,5	3	4
4844002420	2,42	60	20	32	0,5	3	4
4844002500	2,5	60	20	32	0,5	3	4
4844002800	2,8	60	20	32	0,5	3	4
4844002970	2,97	70	25	40	0,5	3	4
4844002980	2,98	70	25	40	0,5	3	4
4844002990	2,99	70	25	40	0,5	3	4
4844003000	3	70	25	40	0,5	3	4
4844003010	3,01	70	25	40	0,5	3	4
4844003020	3,02	70	25	40	0,5	3	4
4844003030	3,03	70	25	40	0,5	3	4
4844003250	3,25	75	25	40	0,5	4	4
4844003500	3,5	75	25	40	0,5	4	4
4844003700	3,7	75	25	40	0,5	4	4
4844003800	3,8	75	25	40	0,5	4	4
4844003970	3,97	75	25	40	0,5	4	4
4844003980	3,98	75	25	40	0,5	4	4
4844003990	3,99	75	25	40	0,5	4	4
4844004000	4	75	25	40	0,5	4	4
4844004010	4,01	75	25	40	0,5	4	4
4844004020	4,02	75	25	40	0,5	4	4
4844004030	4,03	75	25	40	0,5	4	4
4844004170	4,17	75	25	40	0,5	6	4
4844004500	4,5	75	25	40	0,5	6	4
4844004650	4,65	75	25	40	0,5	6	4
4844004800	4,8	75	25	40	0,5	6	4
4844004970	4,97	75	25	40	0,5	6	4
4844004980	4,98	75	25	40	0,5	6	4
4844004990	4,99	75	25	40	0,5	6	4
4844005000	5	75	25	40	0,5	6	4
4844005010	5,01	75	25	40	0,5	6	4
4844005020	5,02	75	25	40	0,5	6	4
4844005030	5,03	75	25	40	0,5	6	4
4844005100	5,1	75	25	40	0,8	6	4
4844005500	5,5	75	25	40	0,8	6	4
4844005550	5,55	75	25	40	0,8	6	4
4844005680	5,68	75	25	40	0,8	6	4
4844005810	5,81	75	25	40	0,8	6	4

EDP	DC	OAL	APMX	LU	TCL	DCON	ZEFP
4844005970	5,97	75	25	40	0,8	6	4
4844005980	5,98	75	25	40	0,8	6	4
4844005990	5,99	75	25	40	0,8	6	4
4844006000	6	75	25	40	0,8	6	4
4844006010	6,01	75	25	40	0,8	6	4
4844006020	6,02	75	25	40	0,8	6	4
4844006030	6,03	75	25	40	0,8	6	4
4844006500	6,5	100	45	65	0,8	8	4
4844006550	6,55	100	45	65	0,8	8	4
4844006680	6,68	100	45	65	0,8	8	4
4844007000	7	100	45	65	0,8	8	4
4844007400	7,4	100	45	65	0,8	8	4
4844007500	7,5	100	45	65	0,8	8	4
4844007550	7,55	100	45	65	0,8	8	4
4844007680	7,68	100	45	65	0,8	8	4
4844007810	7,81	100	45	65	0,8	8	4
4844007970	7,97	100	45	65	0,8	8	4
4844007980	7,98	100	45	65	0,8	8	4
4844007990	7,99	100	45	65	0,8	8	4
4844008000	8	100	45	65	0,8	8	4
4844008010	8,01	100	45	65	0,8	8	4
4844008020	8,02	100	45	65	0,8	8	4
4844008030	8,03	100	45	65	0,8	8	4
4844008400	8,4	100	45	65	1	10	4
4844008500	8,5	100	45	65	1	10	4
4844009000	9	100	45	65	1	10	4
4844009300	9,3	100	45	65	1	10	4
4844009410	9,41	100	45	65	1	10	4
4844009500	9,5	100	45	65	1	10	4
4844009550	9,55	100	45	65	1	10	4
4844009970	9,97	100	45	65	1	10	4
4844009980	9,98	100	45	65	1	10	4
4844009990	9,99	100	45	65	1	10	4
4844010000	10	100	45	65	1	10	4
4844010010	10,01	100	45	65	1	10	4
4844010020	10,02	100	45	65	1	10	4
4844010030	10,03	100	45	65	1	10	4
4844010300	10,3	130	65	85	1	12	4
4844010500	10,5	130	65	85	1	12	4
4844011000	11	130	65	85	1	12	4
4844011150	11,15	130	65	85	1	12	4
4844011300	11,3	130	65	85	1	12	4
4844011430	11,43	130	65	85	1	12	4
4844011500	11,5	130	65	85	1	12	4
4844011560	11,56	130	65	85	1	12	4
4844011970	11,97	130	65	85	1	12	4



H-CRM

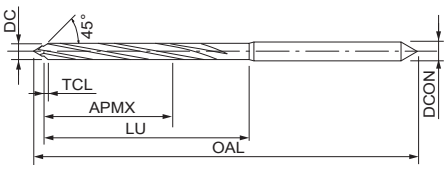
Carbide reamers

INDEX

NEW







- Carbide low right-hand helix reamer
- FX coating
- For stainless steel, titanium alloys and hardened material up to 60HRC
- 98 sizes

P SCM | M INOX | S Ti | H 25-35 HRC | H 35-45 HRC | H 45-52 HRC | H ~60 HRC

CARBIDE | FX | 0~+0.005 | h6

B.514

EDP	DC	OAL	APMX	LU	TCL	DCON	ZEFP
4844011980	11,98	130	65	85	1	12	4
4844011990	11,99	130	65	85	1	12	4
4844012000	12	130	65	85	1	12	4
4844012010	12,01	130	65	85	1	12	4
4844012020	12,02	130	65	85	1	12	4
4844012030	12,03	130	65	85	1	12	4

EDP	DC	OAL	APMX	LU	TCL	DCON	ZEFP

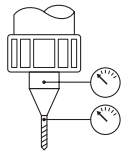
CUTTING CONDITIONS

Drilling | Solid | Cutting conditions

ADO-MICRO 2D/5D

	Mild Steel - Low Carbon Steel SS400 - S10C ~150HB ~500 N/mm²		Carbon Steel S35C - S50C ~210HB ~710 N/mm²		Alloy Steel SCM - SCr - sncm 710 ~900 N/mm²		Alloy Steel SCM - SCr - sncm 710 ~900 N/mm²		Austenitic Stainless Steel SUS303 - SUS304 SUS316 - SUS316L		Special Alloy Steel SUJ2 - SUS440	
Vc	20~40~60m/min		20~40~60m/min		20~40~60m/min		20~30~40m/min		20~30~70m/min		25~35~45m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
0,7	18.200	0,007 ~ 0,021	18.200	0,007 ~ 0,021	18.200	0,014 ~ 0,028	13.600	0,014 ~ 0,028	13.600	0,007 ~ 0,021	15.900	0,007 ~ 0,021
1	12.700	0,01 ~ 0,03	12.700	0,01 ~ 0,03	12.700	0,02 ~ 0,04	9.500	0,02 ~ 0,04	9.500	0,01 ~ 0,03	11.100	0,01 ~ 0,03
1,5	8.500	0,015 ~ 0,045	8.500	0,015 ~ 0,045	8.500	0,03 ~ 0,06	6.400	0,03 ~ 0,06	6.400	0,015 ~ 0,045	7.400	0,015 ~ 0,045
2	6.400	0,02 ~ 0,06	6.400	0,02 ~ 0,06	6.400	0,04 ~ 0,08	4.800	0,04 ~ 0,08	4.800	0,02 ~ 0,06	5.600	0,02 ~ 0,06

	Cast Iron FC250 ~350N/mm²		Ductile Cast Iron FCD450 - FCD600 400 ~600 N/mm²		Aluminium Alloy AC4C - ADC		Aluminium A5052 - A7075		Titanium Alloy		Heat Resistant Alloy Inconel 718	
Vc	20~50~60m/min		30~40~50m/min		30~50~70m/min		20~40~60m/min		40~50~60m/min		5~10~15m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
0,7	22.700	0,014 ~ 0,028	18.200	0,014 ~ 0,028	22.700	0,014 ~ 0,042	18.200	0,007 ~ 0,021	22.700	0,011 ~ 0,018	4.500	0,004 ~ 0,014
1	15.900	0,02 ~ 0,04	12.700	0,02 ~ 0,04	15.900	0,02 ~ 0,06	12.700	0,01 ~ 0,03	15.900	0,015 ~ 0,025	3.200	0,005 ~ 0,02
1,5	10.600	0,03 ~ 0,06	8.500	0,03 ~ 0,06	10.600	0,03 ~ 0,09	8.500	0,015 ~ 0,045	10.600	0,023 ~ 0,038	2.100	0,008 ~ 0,03
2	8.000	0,04 ~ 0,08	6.400	0,04 ~ 0,08	8.000	0,04 ~ 0,12	6.400	0,02 ~ 0,06	8.000	0,03 ~ 0,05	1.600	0,01 ~ 0,04

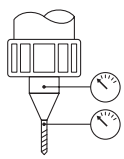


1. This cutting condition chart is based on the usage of water-soluble coolant and internal oil supply.
2. Please use quality water-soluble coolant with a dilution factor of approximately 20 times.
3. Please use a precision filter (approximation of 3µm to 5µm) to prevent the oil holes from clogging.
4. Although the recommended coolant pressure is 3 MPa or more, please adjust accordingly if the level of flow volume is unsatisfactory due to the type and concentration of cutting oil used.
5. For accurate mounting, acceptable deflection of the body cylindrical part at the shank end should be less than 0.002µm, as shown in the illustrated figure.
6. For work material with poor chip evacuation characteristic, please perform step drilling as required.
7. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.

ADO-MICRO 12D/15D/20D/25D/30D

	Mild Steel - Low Carbon Steel SS400 - S10C ~150HB ~500 N/mm²		Carbon Steel S35C - S50C ~210HB ~710 N/mm²		Alloy Steel SCM - SCr - sncm 710 ~900 N/mm²		Alloy Steel SCM - SCr - sncm 710 ~900 N/mm²		Austenitic Stainless Steel SUS303 - SUS304 SUS316 - SUS316L		Special Alloy Steel SUJ2 - SUS440	
Vc	20~40~60m/min		20~40~60m/min		20~40~60m/min		20~30~40m/min		20~30~70m/min		25~35~45m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
1	12.700	0,01 ~ 0,03	12.700	0,01 ~ 0,03	12.700	0,02 ~ 0,04	9.500	0,02 ~ 0,04	9.500	0,01 ~ 0,03	11.100	0,01 ~ 0,03
1,5	8.500	0,015 ~ 0,045	8.500	0,015 ~ 0,045	8.500	0,03 ~ 0,06	6.400	0,03 ~ 0,06	6.400	0,015 ~ 0,045	7.400	0,015 ~ 0,045
2	6.400	0,02 ~ 0,06	6.400	0,02 ~ 0,06	6.400	0,04 ~ 0,08	4.800	0,04 ~ 0,08	4.800	0,02 ~ 0,06	5.600	0,02 ~ 0,06

	Cast Iron FC250 ~350N/mm²		Ductile Cast Iron FCD450 - FCD600 400 ~600 N/mm²		Aluminium Alloy AC4C - ADC		Aluminium A5052 - A7075		Titanium Alloy		Heat Resistant Alloy Inconel 718	
Vc	20~50~60m/min		30~40~50m/min		30~50~70m/min		20~40~60m/min		40~50~60m/min		5~10~15m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
1	15.900	0,02 ~ 0,04	12.700	0,02 ~ 0,04	15.900	0,02 ~ 0,06	12.700	0,01 ~ 0,03	15.900	0,015 ~ 0,025	3.200	0,005 ~ 0,02
1,5	10.600	0,03 ~ 0,06	8.500	0,03 ~ 0,06	10.600	0,03 ~ 0,09	8.500	0,015 ~ 0,045	10.600	0,023 ~ 0,038	2.100	0,008 ~ 0,03
2	8.000	0,04 ~ 0,08	6.400	0,04 ~ 0,08	8.000	0,04 ~ 0,12	6.400	0,02 ~ 0,06	8.000	0,03 ~ 0,05	1.600	0,01 ~ 0,04



1. This cutting condition chart is based on the usage of water-soluble coolant and internal oil supply.
2. Please use quality water-soluble coolant with a dilution factor of approximately 20 times.
3. Please use a precision filter (approximation of 3µm to 5µm) to prevent the oil holes from clogging.
4. Although the recommended coolant pressure is 3 MPa or more, please adjust accordingly if the level of flow volume is unsatisfactory due to the type and concentration of cutting oil used.
5. For accurate mounting, acceptable deflection of the body cylindrical part at the shank end should be less than 0.002µm, as shown in the illustrated figure.
6. For work material with poor chip evacuation characteristic, please perform step drilling as required.
7. From 12D type included, please use a 2D type drill to prepare a pilot hole prior to processing.
8. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.

CUTTING CONDITIONS

Drilling | Solid | Cutting conditions

WX-MS-GDS



	Carbon Steel Ck15 • Ck50 ~900 N/mm²		SCM SCM440 ~1060 N/mm²		Special Alloy SUJ2 • SUS 440		Kovart FE-NI-CO		Cu C1020 • C26		Al A5052 • 7075		AC AC4C • ADC	
Vc	20 ~ 80 m/min		20 ~ 56 m/min		20 ~ 36 m/min		20 ~ 45 m/min		20 ~ 45 m/min		32 ~ 80 m/min		32 ~ 63 m/min	
Ø	S (min^{-1})	F (mm/rev)	S (min^{-1})	F (mm/rev)	S (min^{-1})	F (mm/rev)	S (min^{-1})	F (mm/rev)	S (min^{-1})	F (mm/rev)	S (min^{-1})	F (mm/rev)	S (min^{-1})	F (mm/rev)
0,2	25.000	0,002	25.000	0,002	25.000	0,002	25.000	0,002	25.000	0,002	25.000	0,004	25.000	0,002
0,3	20.000	0,003	20.000	0,003	20.000	0,003	20.000	0,003	20.000	0,003	20.000	0,007	20.000	0,003
0,5	15.000	0,007	14.000	0,007	13.000	0,007	13.000	0,007	13.000	0,007	15.000	0,015	15.000	0,007
1	12.000	0,02	11.000	0,02	10.000	0,02	6.400	0,01	6.400	0,01	12.000	0,03	12.000	0,01
1,5	10.000	0,02~0,04	8.400	0,02~0,04	6.800	0,03~0,05	4.800	0,012~0,03	4.800	0,012~0,03	10.000	0,03~0,08	10.000	0,012~0,030
2	8.000	0,03~0,05	6.500	0,03~0,05	5.000	0,04~0,06	4.000	0,016~0,04	4.000	0,016~0,04	8.000	0,04~0,1	8.000	0,016~0,04
3	5.500	0,07~0,07	4.500	0,04~0,07	3.400	0,06~0,09	3.000	0,024~0,06	3.000	0,024~0,06	6.500	0,06~0,15	6.500	0,024~0,06
4	4.000	0,06~0,10	3.200	0,06~0,10	2.500	0,08~0,12	2.500	0,03~0,08	2.500	0,03~0,08	5.000	0,08~0,20	5.000	0,03~0,08
5	3.200	0,07~0,12	2.600	0,07~0,12	2.000	0,10~0,15	2.000	0,04~0,10	2.000	0,04~0,10	4.200	0,10~0,25	4.000	0,04~0,10

MRS-GDL



	Martensitic Stainless Steel SUS420J2 • SUS440C		Austenitic Stainless Steel SUS303 • SUS304 • SUS316 • SUS316L		Ferritic Stainless Steel SUS430 • SUS430F		Precipitation Hardening Stainless Steel SUS630	
Vc	20 ~ 50 m/min		15 ~ 40 m/min		20 ~ 50 m/min		15 ~ 40 m/min	
Ø	S (min^{-1})	F (mm/rev)	S (min^{-1})	F (mm/rev)	S (min^{-1})	F (mm/rev)	S (min^{-1})	F (mm/rev)
0,5	12.700 ~ 31.800	0,005 ~ 0,015	9.500 ~ 25.400	0,005 ~ 0,015	12.700 ~ 31.800	0,005 ~ 0,015	9.500 ~ 25.400	0,005 ~ 0,015
1	6.300 ~ 15.900	0,010 ~ 0,030	4.700 ~ 12.700	0,010 ~ 0,030	6.300 ~ 15.900	0,010 ~ 0,030	4.700 ~ 12.700	0,010 ~ 0,030
1,5	4.200 ~ 10.600	0,015 ~ 0,045	3.100 ~ 8.400	0,015 ~ 0,045	4.200 ~ 10.600	0,015 ~ 0,045	3.100 ~ 8.400	0,015 ~ 0,045
2	3.180 ~ 7.900	0,020 ~ 0,060	2.300 ~ 6.300	0,020 ~ 0,060	3.180 ~ 7.900	0,020 ~ 0,060	2.300 ~ 6.300	0,020 ~ 0,060
2,5	2.500 ~ 6.300	0,025 ~ 0,075	1.900 ~ 5.000	0,025 ~ 0,075	2.500 ~ 6.300	0,025 ~ 0,075	1.900 ~ 5.000	0,025 ~ 0,075
3	2.100 ~ 5.300	0,030 ~ 0,090	1.500 ~ 4.200	0,030 ~ 0,090	2.100 ~ 5.300	0,030 ~ 0,090	1.500 ~ 4.200	0,030 ~ 0,090

CUTTING CONDITIONS

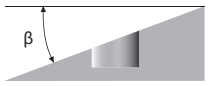
Drilling | Solid | Cutting conditions

ADF-2D

	Low Carbon Steel - Alloy Steel (C<0.3%) SS400 • SCM ~710N/mm²		Carbon Steel S35C • S50C ~210HB ~710N/mm²		Alloy Steel SCM • SCr • SNCM 28~35HRC 900~1,100N/mm²		Plastic Mold Steel NAK80 ~40HRC		Stainless Steel SUS304 480 ~ 800N/mm²	
Vc	30~100m/min		30~100m/min		30~90m/min		20~40m/min		10~30m/min	
Ø	Speed (min^{-1})	Feed Rate (mm/rev.)	Speed (min^{-1})	Feed Rate (mm/rev.)	Speed (min^{-1})	Feed Rate (mm/rev.)	Speed (min^{-1})	Feed Rate (mm/rev.)	Speed (min^{-1})	Feed Rate (mm/rev.)
0,2	40.000	0,001 ~ 0,006	40.000	0,001 ~ 0,006	40.000	0,001 ~ 0,006	40.000	0,001 ~ 0,004	40.000	0,001 ~ 0,004
0,5	28.700	0,003 ~ 0,015	28.700	0,003 ~ 0,015	25.500	0,003 ~ 0,015	19.000	0,003 ~ 0,01	15.900	0,003 ~ 0,01
1	17,500	0,005 ~ 0,03	17,500	0,005 ~ 0,03	15.900	0,005 ~ 0,03	9.550	0,005 ~ 0,02	8.000	0,005 ~ 0,02
1,5	13,800	0,008 ~ 0,045	13,800	0,008 ~ 0,045	12.700	0,008 ~ 0,045	6.350	0,008 ~ 0,03	5.300	0,008 ~ 0,03
2	12.700	0,01 ~ 0,06	12.700	0,01 ~ 0,06	9.550	0,01 ~ 0,06	4.750	0,01 ~ 0,04	-	-
3	8.500	0,015 ~ 0,09	8.500	0,015 ~ 0,09	6.350	0,015 ~ 0,09	3.200	0,015 ~ 0,06	-	-
4	6.350	0,02 ~ 0,12	6.350	0,02 ~ 0,12	4.750	0,02 ~ 0,12	2.400	0,02 ~ 0,08	-	-
6	4.250	0,03 ~ 0,18	4.250	0,03 ~ 0,18	3.200	0,03 ~ 0,18	1.600	0,03 ~ 0,12	-	-
8	3.200	0,04 ~ 0,24	3.200	0,04 ~ 0,24	2.400	0,04 ~ 0,24	1.200	0,04 ~ 0,16	-	-
10	2.550	0.05 ~ 0.3	2.550	0.05 ~ 0.3	1.900	0.05 ~ 0.3	950	0.05 ~ 0.2	-	-
12	2.100	0.06 ~ 0.3	2.100	0.06 ~ 0.3	1.600	0.06 ~ 0.3	800	0.06 ~ 0.24	-	-
14	1.800	0.07 ~ 0.35	1.800	0.07 ~ 0.35	1.350	0.07 ~ 0.35	700	0.07 ~ 0.28	-	-
16	1.600	0.08 ~ 0.36	1.600	0.08 ~ 0.36	1.200	0.08 ~ 0.36	600	0.08 ~ 0.32	-	-
18	1.400	0.09 ~ 0.38	1.400	0.09 ~ 0.38	1.050	0.09 ~ 0.38	550	0.09 ~ 0.36	-	-
20	1.250	0.1 ~ 0.4	1.250	0.1 ~ 0.4	950	0.1 ~ 0.4	500	0.1 ~ 0.4	-	-

	Special Alloy Steel - Hardened Steel - Prehardened Steel FC250 ~45HRC		Cast Iron FC250 ~350N/mm²		Ductile Cast Iron FCD600 400 ~600N/mm²		Aluminium A5052 • A7075 ~350N/mm²		Aluminium Alloy AC4C • ADC 400~600N/mm²	
Vc	20~30m/min		30~120m/min		30~80m/min		30~200m/min		30~200m/min	
Ø	Speed (min^{-1})	Feed Rate (mm/rev.)	Speed (min^{-1})	Feed Rate (mm/rev.)	Speed (min^{-1})	Feed Rate (mm/rev.)	Speed (min^{-1})	Feed Rate (mm/rev.)	Speed (min^{-1})	Feed Rate (mm/rev.)
0,2	40.000	0,001 ~ 0,004	40.000	0,001 ~ 0,006	40.000	0,001 ~ 0,006	40.000	0,001 ~ 0,006	40.000	0,001 ~ 0,006
0,5	15.900	0,003 ~ 0,01	32.000	0,003 ~ 0,015	25.000	0,003 ~ 0,015	35.000	0,003 ~ 0,015	35.000	0,003 ~ 0,015
1	7.950	0,005 ~ 0,02	22.500	0,005 ~ 0,03	15.900	0,005 ~ 0,03	30.000	0,005 ~ 0,03	30.000	0,005 ~ 0,03
1,5	5.300	0,008 ~ 0,03	17.000	0,008 ~ 0,045	11.500	0,008 ~ 0,045	25.000	0,008 ~ 0,045	25.000	0,008 ~ 0,045
2	4.000	0,01 ~ 0,03	14.300	0,01 ~ 0,06	10.350	0,01 ~ 0,06	22.300	0,01 ~ 0,06	22.300	0,01 ~ 0,06
3	2.650	0,015 ~ 0,045	9.550	0,015 ~ 0,09	6.900	0,015 ~ 0,09	14.850	0,015 ~ 0,09	14.850	0,015 ~ 0,09
4	2.000	0,02 ~ 0,06	7.150	0,02 ~ 0,12	5.150	0,02 ~ 0,12	11.150	0,02 ~ 0,12	11.150	0,02 ~ 0,12
6	1.350	0,03 ~ 0,09	4.750	0,03 ~ 0,18	3.450	0,03 ~ 0,18	7.450	0,03 ~ 0,18	7.450	0,03 ~ 0,18
8	1.000	0,04 ~ 0,12	3.600	0,04 ~ 0,24	2.600	0,04 ~ 0,24	5.550	0,04 ~ 0,24	5.550	0,04 ~ 0,24
10	800	0,05 ~ 0,15	2.850	0,05 ~ 0,3	2.050	0,05 ~ 0,3	4.450	0,05 ~ 0,3	4.450	0,05 ~ 0,3
12	650	0,06 ~ 0,18	2.400	0,06 ~ 0,3	1.700	0,06 ~ 0,3	3.700	0,06 ~ 0,36	3.700	0,06 ~ 0,36
14	550	0,07 ~ 0,21	2.050	0,07 ~ 0,35	1.500	0,07 ~ 0,35	3.200	0,07 ~ 0,42	3.200	0,07 ~ 0,42
16	500	0,08 ~ 0,24	1.800	0,08 ~ 0,36	1.300	0,08 ~ 0,36	2.800	0,08 ~ 0,48	2.800	0,08 ~ 0,48
18	450	0,09 ~ 0,27	1.600	0,09 ~ 0,38	1.150	0,09 ~ 0,38	2.500	0,09 ~ 0,54	2.500	0,09 ~ 0,54
20	400	0,1 ~ 0,3	1.450	0,1 ~ 0,4	1.050	0,1 ~ 0,4	2.250	0,1 ~ 0,6	2,250	0,1 ~ 0,6

1. Water-soluble coolant may be applied as noted in the above table only under the premise that the work surface has been flattened by milling.
2. When using non-water soluble oil or water-emulsifiable (over 20 times dilution), reduce cutting speed by 30%.
3. Use a rigid and precise machine and holder.
4. Please minimize tool hang over as much as possible during machining.
5. Adjust the rotational speed and the feed rate in accordance with conditions such as the machining shape, machine rigidity, or work holding.
6. Please set up the drill so that the runout of the cutting edge is under 0.01 mm.
7. When machining an inclined plane,adjust the rotational speed and the feed rate in accordance with the angle of the incline (β).
   - When the machining incline angle(β) is less than 30°, please reduce the feed to 40~60%.
   - When the machining incline angle(β) is over 30°, please reduce the speed to 60~80% , the feed to 20~40%.
8. Please use step drilling in pilot holes to improve cutting chip separation.
9. If it is necessary to ensure the locating precision of the hole to be machined, adjust the rotational speed and the feed rate as indicated above (in accordance with the machining precision requirement).



CUTTING CONDITIONS

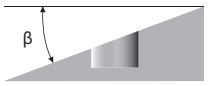
Drilling | Solid | Cutting conditions

ADFLS-2D

	Low Carbon Steel - Alloy Steel (C<0.3%) SS400 • SCM ~710N/mm²		Carbon Steel S35C • S50C ~210HB ~710N/mm²		Alloy Steel SCM • SCr • SNCM 28~35HRC 900~1,100N/mm²		Plastic Mold Steel NAK80 ~40HRC		Special Alloy Steel-Hardened Steel-Pre-hardened steel SKD61 ~50HRC	
Vc	60~100m/min		60~100m/min		30~90m/min		20~40m/min		20~30m/min	
Ø	Speed (min^{-1})	Feed Rate (mm/rev.)	Speed (min^{-1})	Feed Rate (mm/rev.)	Speed (min^{-1})	Feed Rate (mm/rev.)	Speed (min^{-1})	Feed Rate (mm/rev.)	Speed (min^{-1})	Feed Rate (mm/rev.)
3	8.500	0,045 ~ 0,075	8.500	0,045 ~ 0,075	6.350	0,045 ~ 0,075	3.200	0,045 ~ 0,06	2.650	0,03 ~ 0,06
4	6.350	0,06 ~ 0,1	6.350	0,06 ~ 0,1	4.750	0,06 ~ 0,1	2.400	0,06 ~ 0,08	2.000	0,04 ~ 0,08
6	4.250	0,09 ~ 0,15	4.250	0,09 ~ 0,15	3.200	0,09 ~ 0,15	1.600	0,09 ~ 0,12	1.350	0,06 ~ 0,12
8	3.200	0,12 ~ 0,2	3.200	0,12 ~ 0,2	2.400	0,12 ~ 0,2	1.200	0,12 ~ 0,16	1.000	0,08 ~ 0,16
10	2.550	0,15 ~ 0,25	2.550	0,15 ~ 0,25	1.900	0,15 ~ 0,25	950	0,15 ~ 0,2	800	0,1 ~ 0,2
12	2.100	0,18 ~ 0,3	2.100	0,18 ~ 0,3	1.600	0,18 ~ 0,3	800	0,18 ~ 0,24	650	0,12 ~ 0,24
14	1.800	0,21 ~ 0,35	1.800	0,21 ~ 0,35	900	0,21 ~ 0,35	700	0,21 ~ 0,28	550	0,14 ~ 0,28
16	1.600	0,24 ~ 0,4	1.600	0,24 ~ 0,4	800	0,24 ~ 0,4	600	0,24 ~ 0,32	500	0,16 ~ 0,32
18	1.400	0,27 ~ 0,45	1.400	0,27 ~ 0,45	700	0,27 ~ 0,45	550	0,27 ~ 0,36	450	0,18 ~ 0,36
20	1.250	0,3 ~ 0,5	1.250	0,3 ~ 0,5	650	0,3 ~ 0,5	500	0,3 ~ 0,4	400	0,2 ~ 0,4

	Cast Iron FC250 ~350N/mm²		Ductile Cast Iron FCD600 400 ~600N/mm²		Aluminium A5052 • A7075 ~350N/mm²		Aluminium Alloy AC4C • ADC 400~600N/mm²	
Vc	60~120m/min		50~80m/min		80~200m/min		80~200m/min	
Ø	Speed (min^{-1})	Feed Rate (mm/rev.)	Speed (min^{-1})	Feed Rate (mm/rev.)	Speed (min^{-1})	Feed Rate (mm/rev.)	Speed (min^{-1})	Feed Rate (mm/rev.)
3	9.550	0,06 ~ 0,09	6.900	0,06 ~ 0,09	14.850	0,015 ~ 0,09	14.850	0,015 ~ 0,09
4	7.150	0,08 ~ 0,12	5.150	0,08 ~ 0,12	11.150	0,02 ~ 0,12	11.150	0,02 ~ 0,12
6	4.750	0,12 ~ 0,18	3.450	0,12 ~ 0,18	7.450	0,03 ~ 0,18	7.450	0,03 ~ 0,18
8	3.600	0,16 ~ 0,24	2.600	0,16 ~ 0,24	5.550	0,04 ~ 0,24	5.550	0,04 ~ 0,24
10	2.850	0,2 ~ 0,3	2.050	0,2 ~ 0,3	4.450	0,05 ~ 0,3	4.450	0,05 ~ 0,3
12	2.400	0,24 ~ 0,36	1.700	0,24 ~ 0,36	3.700	0,06 ~ 0,36	3.700	0,06 ~ 0,36
14	2.050	0,28 ~ 0,42	1.500	0,28 ~ 0,42	3.200	0,07 ~ 0,42	3.200	0,07 ~ 0,42
16	1.800	0,32 ~ 0,48	1.300	0,32 ~ 0,48	2.800	0,08 ~ 0,48	2.800	0,08 ~ 0,48
18	1.600	0,36 ~ 0,54	1.150	0,36 ~ 0,54	2.500	0,09 ~ 0,54	2.500	0,09 ~ 0,54
20	1.450	0,4 ~ 0,6	1.050	0,4 ~ 0,6	2.250	0,1 ~ 0,6	2.250	0,1 ~ 0,6

1. To process flat surfaces, prior Centre-drilling with a larger diameter is required.
2. Water-soluble coolant may be applied as noted in the above table only under the premise that the work surface has been flattened by milling.
3. When using non-water soluble oil or water-emulsifiable (over 20 times dilution), reduce cutting speed by 30%.
4. Use a rigid and precise machine and holder.
5. Please minimize tool hang over as much as possible during machining.
6. Adjust the rotational speed and the feed rate in accordance with conditions such as the machining shape, machine rigidity, or work holding.
7. Please set up the drill so that the runout of the cutting edge is under 0.01 mm.
8. When machining an inclined plane,adjust the rotational speed and the feed rate in accordance with the angle of the incline (β).
   - When the machining incline angle(β) is less than 30°, please reduce the feed to 40~60%.
   - When the machining incline angle(β) is over 30°, please reduce the speed to 60~80% , the feed to 20~40%.
9. Please use step drilling in pilot holes to improve cutting chip separation.
10. If it is necessary to ensure the locating precision of the hole to be machined, adjust the rotational speed and the feed rate as indicated above (in accordance with the machining precision requirement).



CUTTING CONDITIONS

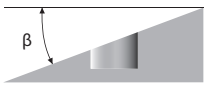
Drilling | Solid | Cutting conditions

ADFO-3D

	Low Carbon Steel - Alloy Steel (C<0.3%) SS400 • SCM ~710N/mm²		Carbon Steel S35C • S50C ~210HB ~710N/mm²		Alloy Steel SCM • SCr • SNCM 28~35HRC 900~1,100N/mm²		Plastic Mold Steel NAK80 ~40HRC		Stainless Steel SUS304 480~800N/mm²	
Vc	80~120m/min		80~120m/min		50~90m/min		20~40m/min		40~60m/min	
Ø	Speed (min^{-1})	Feed Rate (mm/rev.)	Speed (min^{-1})	Feed Rate (mm/rev.)	Speed (min^{-1})	Feed Rate (mm/rev.)	Speed (min^{-1})	Feed Rate (mm/rev.)	Speed (min^{-1})	Feed Rate (mm/rev.)
3	10.600	0,045 ~ 0,09	10.600	0,045 ~ 0,09	7.450	0,045 ~ 0,09	3,200	0,045 ~ 0,09	5.300	0,045 ~ 0,09
4	8.000	0,045 ~ 0,12	8.000	0,045 ~ 0,12	5.550	0,045 ~ 0,12	2,400	0,045 ~ 0,12	4.000	0,045 ~ 0,12
6	5.300	0,06 ~ 0,18	5.300	0,06 ~ 0,18	3.700	0,06 ~ 0,18	1,600	0,06 ~ 0,18	2.650	0,06 ~ 0,18
8	4.000	0,08 ~ 0,24	4.000	0,08 ~ 0,24	2.800	0,08 ~ 0,24	1,200	0,08 ~ 0,24	2.000	0,08 ~ 0,24
10	3.200	0,10 ~ 0,30	3.200	0,10 ~ 0,30	2.250	0,10 ~ 0,30	950	0,10 ~ 0,30	1.600	0,10 ~ 0,30
12	2.650	0,12 ~ 0,36	2.650	0,12 ~ 0,36	1.850	0,12 ~ 0,36	800	0,12 ~ 0,36	1.350	0,12 ~ 0,36
14	2.250	0,14 ~ 0,42	2.250	0,14 ~ 0,42	1.600	0,14 ~ 0,42	700	0,14 ~ 0,42	1.150	0,14 ~ 0,42
16	2.000	0,16 ~ 0,48	2.000	0,16 ~ 0,48	1.400	0,16 ~ 0,48	600	0,16 ~ 0,48	1.000	0,16 ~ 0,48
18	1.750	0,18 ~ 0,54	1.750	0,18 ~ 0,54	1.250	0,18 ~ 0,54	550	0,18 ~ 0,54	900	0,18 ~ 0,54
20	1.600	0,20 ~ 0,60	1.600	0,20 ~ 0,60	1.100	0,20 ~ 0,60	500	0,20 ~ 0,60	800	0,20 ~ 0,60

	Cast Iron FC250 ~350N/mm²		Ductile Cast Iron FCD600 400 ~600N/mm²		Aluminium A5052 • A7075 ~350N/mm²		Aluminium Alloy AC4C • ADC 400~600N/mm²	
Vc	80~120m/min		60~100m/min		120~200m/min		120~200m/min	
Ø	Speed (min^{-1})	Feed Rate (mm/rev.)	Speed (min^{-1})	Feed Rate (mm/rev.)	Speed (min^{-1})	Feed Rate (mm/rev.)	Speed (min^{-1})	Feed Rate (mm/rev.)
3	10.600	0,045 ~ 0,09	8.500	0,045 ~ 0,09	17.000	0,045 ~ 0,09	17.000	0,045 ~ 0,09
4	8.000	0,045 ~ 0,12	6.350	0,045 ~ 0,12	12.750	0,045 ~ 0,12	12.750	0,045 ~ 0,12
6	5.300	0,06 ~ 0,18	4.250	0,06 ~ 0,18	8.500	0,06 ~ 0,18	8.500	0,06 ~ 0,18
8	4.000	0,08 ~ 0,24	3.200	0,08 ~ 0,24	6.350	0,08 ~ 0,24	6.350	0,08 ~ 0,24
10	3.200	0,10 ~ 0,30	2.550	0,10 ~ 0,30	5.100	0,10 ~ 0,30	5.100	0,10 ~ 0,30
12	2.650	0,12 ~ 0,36	2.100	0,12 ~ 0,36	4.250	0,12 ~ 0,36	4.250	0,12 ~ 0,36
14	2.250	0,14 ~ 0,42	1.800	0,14 ~ 0,42	3.650	0,14 ~ 0,42	3.650	0,14 ~ 0,42
16	2.000	0,16 ~ 0,48	1.600	0,16 ~ 0,48	3.200	0,16 ~ 0,48	3.200	0,16 ~ 0,48
18	1.750	0,18 ~ 0,54	1.400	0,18 ~ 0,54	2.850	0,18 ~ 0,54	2.850	0,18 ~ 0,54
20	1.600	0,20 ~ 0,60	1.250	0,20 ~ 0,60	2.550	0,20 ~ 0,60	2.550	0,20 ~ 0,60

1. Water-soluble coolant may be applied as noted in the above table only under the premise that the work surface has been flattened by milling.
2. Use a rigid and precise machine and holder.
3. Please minimize overhang length as much as possible during machining.
4. Adjust the rotational speed and the feed in accordance with conditions such as the machining shape, machine rigidity, or work holding.
5. Please set up the drill so that the runout of the cutting edge is under 0.02 mm.
6. Please select a cutting fluid that is most suitable for the work material with minimal smoke formation.
7. In the case of dry machining, please use air blow to remove chips to prevent clogging. Please do not machine stainless steel dry.
8. When machining an inclined plane, adjust the rotational speed and the feed in accordance with the angle of the incline (β).
   When the machining incline angle (β) is less than 30°, please reduce the feed to 40-60%.
   When the machining incline angle (β) is over 30°, please reduce the speed to 60-80% , the feed to 20-40%.
9. Please use step drilling in pilot holes to improve cutting chip separation.
10. If it is necessary to ensure the locating precision of the hole to be machined, adjust the rotational speed and the feed as indicated above (in accordance with the machining precision requirement).
11. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.



AD-2D/AD-4D

Standard drilling

	C<0,35% (C<0,35%) St40 • SCM ~710 N/mm2		C≥0,35% (C≥0,35%) CK50 ~1060 N/mm2		Special Alloy SUJ2		SUS Serie SUS300 Serie SUS400		Hardened Steel SKD61 43 HRC		Hardened Steel 43 ~ 48 HRC		GG GG25 ~ 350 N/mm²		GGG GGG40 ~ 500 N/mm²		AL, AC
Vc	63 ~ 100 m/min		63 ~ 100 m/min		50 ~ 71 m/min		25 ~ 40 m/min		40 ~ 63 m/min		32 ~ 45 m/min		63 ~ 100 m/min		50 ~ 80 m/min		120 ~ 220 m/min
Ø	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	F (mm/rev.)
2	11.000	0,06~0,08	11.000	0,06~0,08	9.000	0,06~0,08	4.700	0,06~0,08	7.600	0,06~0,08	6.000	0,06~0,08	12.000	0,06~0,08	10.000	0,06~0,08	
3	8.000	0,09~0,12	8.000	0,09~0,12	6.000	0,09~0,12	3.200	0,09~0,12	5.000	0,09~0,12	4.000	0,09~0,12	8.000	0,09~0,12	6.900	0,09~0,12	0,09~0,28
4	6.300	0,10~0,15	6.300	0,10~0,15	4.750	0,10~0,15	2.400	0,10~0,15	3.800	0,10~0,15	3.000	0,10~0,15	6.300	0,10~0,15	5.200	0,10~0,15	0,10~0,38
5	5.000	0,12~0,18	5.000	0,12~0,18	3.800	0,12~0,18	1.900	0,12~0,18	3.000	0,12~0,18	2.450	0,12~0,18	5.000	0,12~0,18	4.100	0,12~0,18	0,12-0,40
6	4.200	0,14~0,20	4.200	0,14~0,20	3.200	0,14~0,20	1.600	0,14~0,20	2.550	0,14~0,20	2.050	0,14~0,20	4.200	0,14~0,20	3.450	0,14~0,20	0,14~0,48
8	3.200	0,16~0,24	3.200	0,16~0,24	2.400	0,16~0,24	1.200	0,16~0,24	1.900	0,16~0,24	1.550	0,16~0,24	3.200	0,16~0,24	2.600	0,16~0,24	0,16~0,53
10	2.550	0,18~0,27	2.550	0,18~0,27	1.900	0,18~0,27	950	0,18~0,27	1.550	0,18~0,27	1.250	0,18~0,27	2.600	0,18~0,27	2.100	0,18~0,27	0,18-0,63
12	2.100	0,20~0,30	2.100	0,20~0,30	1.600	0,20~0,30	800	0,20~0,30	1.300	0,20~0,30	1.050	0,20~0,30	2.200	0,20~0,30	1.750	0,20~0,30	0,20~0,75
14	1.800	0,22~0,35	1.800	0,22~0,35	1.350	0,22~0,35	700	0,22~0,35	1.100	0,22~0,35	880	0,22~0,35	1.800	0,22~0,35	1.500	0,22~0,35	0,22-0,81
16	1.600	0,25~0,36	1.600	0,25~0,36	1.200	0,25~0,36	600	0,25~0,36	950	0,25~0,36	770	0,25~0,36	1.600	0,25~0,36	1.300	0,25~0,36	0,25-0,85
18	1.400	0,28~0,38	1.400	0,28~0,38	1.050	0,28~0,38	530	0,28~0,38	850	0,28~0,38	680	0,28~0,38	1.400	0,28~0,38	1.200	0,28~0,38	0,28~0,90
20	1.300	0,30~0,40	1.300	0,30~0,40	960	0,30~0,40	480	0,30~0,40	760	0,30~0,40	610	0,30~0,40	1.300	0,30~0,40	1.050	0,30~0,40	0,30~0,98

CUTTING CONDITIONS

Drilling | Solid | Cutting conditions

ADO-SUS-3D/5D/8D

	Carbon Steel S50C		Alloy Steel SCM440		Alloy Steel SCM440 • 30HRC		Stainless Steel SUS304~SUS316		Super Duplex SUS630 • 17-4PH • 15-5PH		Ti Alloy		AL, AC	
Vc	80 ~ 120 m/min		80 ~ 120 m/min		60 ~ 90 m/min		60 ~ 100 m/min		30 ~ 60 m/min		20 ~ 50 m/min		150 ~ 300 m/min	
Ø	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)
2	12.700	0,04~0,08	12.700	0,04~0,08	11.900	0,04~0,08	12.700	0,04~0,08	9.500	0,04~0,08	6.400	0,04~0,08	30.000	0,08~0,12
3	10.600	0,06~0,12	10.600	0,06~0,12	7.400	0,06~0,12	8.500	0,06~0,12	4.800	0,06~0,09	3.700	0,05~0,09	21.000	0,12~0,18
4	8.000	0,08~0,16	8.000	0,08~0,16	5.600	0,08~0,16	6.400	0,08~0,16	3.600	0,08~0,12	2.800	0,06~0,12	16.000	0,16~0,24
5	6.400	0,10~0,20	6.400	0,10~0,20	4.500	0,10~0,20	5.100	0,10~0,20	2.900	0,10~0,15	2.200	0,08~0,15	12.500	0,20~0,30
6	5.300	0,12~0,24	5.300	0,12~0,24	3.700	0,12~0,24	4.200	0,12~0,24	2.400	0,12~0,18	1.900	0,09~0,18	10.500	0,24~0,36
7	4.500	0,14~0,26	4.500	0,14~0,26	3.200	0,14~0,26	3.600	0,14~0,26	2.000	0,14~0,21	1.600	0,11~0,21	9.000	0,28~0,42
8	4.000	0,16~0,28	4.000	0,16~0,28	2.800	0,16~0,28	3.200	0,16~0,28	1.800	0,16~0,24	1.400	0,12~0,24	8.000	0,32~0,48
9	3.500	0,18~0,30	3.500	0,18~0,30	2.500	0,18~0,30	2.800	0,18~0,30	1.600	0,18~0,27	1.200	0,14~0,27	7.000	0,36~0,54
10	3.200	0,20~0,30	3.200	0,20~0,30	2.200	0,20~0,30	2.500	0,20~0,30	1.400	0,20~0,30	1.100	0,15~0,30	6.400	0,40~0,60
11	2.900	0,20~0,30	2.900	0,20~0,30	2.000	0,20~0,30	2.300	0,20~0,30	1.300	0,20~0,30	1.000	0,15~0,30	5.800	0,44~0,66
12	2.700	0,21~0,30	2.700	0,21~0,30	1.900	0,21~0,30	2.100	0,21~0,30	1.200	0,21~0,30	900	0,16~0,30	5.300	0,48~0,72
13	2.400	0,21~0,33	2.400	0,21~0,33	1.700	0,21~0,33	2.000	0,21~0,33	1.100	0,21~0,33	900	0,18~0,33	4.900	0,52~0,78
14	2.300	0,22~0,35	2.300	0,22~0,35	1.600	0,22~0,35	1.800	0,22~0,35	1.000	0,22~0,35	800	0,19~0,35	4.550	0,56~0,84
16	2.000	0,25~0,36	2.000	0,25~0,36	1.400	0,25~0,36	1.600	0,25~0,36	900	0,25~0,36	700	0,22~0,36	4.000	0,64~0,96
18	1.800	0,28~0,38	1.800	0,28~0,38	1.200	0,28~0,38	1.400	0,28~0,38	800	0,28~0,38	600	0,24~0,38	3.500	0,72~1,08
20	1.600	0,30~0,40	1.600	0,30~0,40	1.100	0,30~0,40	1.300	0,30~0,40	700	0,30~0,40	600	0,27~0,40	3.200	0,80~1,20

ADO-3D/5D/ADO-PLT

	Carbon Steel S50C		Alloy Steel SCM440		Alloy Steel SCM440 • 30HRC		Cast Iron FC250		Ductile Cast IRON FCD700		Stainless Steel SUS304		AL, AC	
Vc	80 ~ 120 m/min		80 ~ 120 m/min		60 ~ 90 m/min		80 ~ 120 m/min		60 ~ 100 m/min		40 ~ 70 m/min		150 ~ 300 m/min	
Ø	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)
2	12.700	0,04~0,08	12.700	0,04~0,08	11.100	0,04~0,08	12.700	0,04~0,08	12.700	0,04~0,08	9.500	0,04~0,08	30.000	0,06~0,10
3	10.600	0,06~0,12	10.600	0,06~0,12	7.400	0,06~0,12	10.600	0,06~0,12	8.500	0,06~0,12	6.400	0,06~0,12	21.000	0,09~0,15
4	8.000	0,08~0,16	8.000	0,08~0,16	5.600	0,08~0,16	8.000	0,08~0,16	6.400	0,08~0,16	4.800	0,08~0,16	16.000	0,12~0,20
5	6.400	0,10~0,20	6.400	0,10~0,20	4.500	0,10~0,20	6.400	0,10~0,20	5.100	0,10~0,20	3.800	0,10~0,20	12.500	0,15~0,25
6	5.300	0,12~0,24	5.300	0,12~0,24	3.700	0,12~0,24	5.300	0,12~0,24	4.200	0,12~0,24	3.200	0,12~0,24	10.500	0,18~0,30
7	4.500	0,14~0,26	4.500	0,14~0,26	3.200	0,14~0,26	4.500	0,14~0,26	3.600	0,14~0,26	2.700	0,14~0,26	9.000	0,21~0,35
8	4.000	0,16~0,28	4.000	0,16~0,28	2.800	0,16~0,28	4.000	0,16~0,28	3.200	0,16~0,28	2.400	0,16~0,28	8.000	0,24~0,40
9	3.500	0,18~0,30	3.500	0,18~0,30	2.500	0,18~0,30	3.500	0,18~0,30	2.800	0,18~0,30	2.100	0,18~0,30	7.000	0,27~0,45
10	3.200	0,20~0,30	3.200	0,20~0,30	2.200	0,20~0,30	3.200	0,20~0,30	2.500	0,20~0,30	1.900	0,20~0,30	6.400	0,30~0,50
11	2.900	0,20~0,30	2.900	0,20~0,30	2.000	0,20~0,30	2.900	0,20~0,30	2.300	0,20~0,30	1.700	0,20~0,30	5.800	0,33~0,55
12	2.700	0,21~0,30	2.700	0,21~0,30	1.900	0,21~0,30	2.700	0,21~0,30	2.100	0,21~0,30	1.600	0,21~0,30	5.300	0,36~0,60
13	2.400	0,21~0,33	2.400	0,21~0,33	1.700	0,21~0,33	2.400	0,21~0,33	2.000	0,21~0,33	1.500	0,21~0,33	4.900	0,39~0,65
14	2.300	0,22~0,35	2.300	0,22~0,35	1.600	0,22~0,35	2.300	0,22~0,35	1.800	0,22~0,35	1.400	0,22~0,35	4.550	0,42~0,70
16	2.000	0,25~0,36	2.000	0,25~0,36	1.400	0,25~0,36	2.000	0,25~0,36	1.600	0,25~0,36	1.200	0,25~0,36	4.000	0,48~0,80
18	1.800	0,28~0,38	1.800	0,28~0,38	1.200	0,28~0,38	1.800	0,28~0,38	1.400	0,28~0,38	1.100	0,28~0,38	3.500	0,54~0,90
20	1.600	0,30~0,40	1.600	0,30~0,40	1.100	0,30~0,40	1.600	0,30~0,40	1.300	0,30~0,40	1.000	0,30~0,40	3.200	0,60~1,00

TRS-HO-10D

	Mild Steel - Low Carbon Steel St-52 ~150HB ~500 N/mm²		Carbon Steel C45 ~210HB ~710 N/mm²		Alloys Steel 42CrMo4 16~28HRC 710~900 N/mm²		Alloys Steel 42CrMo4 16~28HRC 900~110 N/mm²		Cast Iron GG-25 ~350 N/mm²		Ductile Cast Iron GGG-60 400~600 N/mm²	
Vc	80 ~ 120 m/min		80 ~ 120 m/min		60 ~ 100 m/min		60 ~ 90 m/min		80 ~ 150 m/min		60 ~ 120 m/min	
Ø	S (min^{-1}) 10D	F (mm/rev.)	S (min^{-1}) 10D	F (mm/rev.)	S (min^{-1}) 10D	F (mm/rev.)	S (min^{-1}) 10D	F (mm/rev.)	S (min^{-1}) 10D	F (mm/rev.)	S (min^{-1}) 10D	F (mm/rev.)
5	6.400	0,18 ~ 0,25	6.400	0,18 ~ 0,25	4.800	0,18 ~ 0,25	5.700	0,18 ~ 0,25	6.400	0,18 ~ 0,30	6.400	0,18 ~ 0,25
6	5.300	0,21 ~ 0,30	5.300	0,21 ~ 0,30	4.000	0,21 ~ 0,30	4.800	0,21 ~ 0,30	5.300	0,21 ~ 0,36	5.300	0,21 ~ 0,30
7	4.500	0,25 ~ 0,35	4.500	0,25 ~ 0,35	3.400	0,25 ~ 0,35	4.100	0,25 ~ 0,35	4.500	0,25 ~ 0,42	4.500	0,25 ~ 0,35
8	4.000	0,28 ~ 0,40	4.000	0,28 ~ 0,40	3.000	0,28 ~ 0,40	3.600	0,28 ~ 0,40	4.000	0,28 ~ 0,48	4.000	0,28 ~ 0,40
9	3.500	0,32 ~ 0,45	3.500	0,32 ~ 0,45	2.700	0,32 ~ 0,45	3.200	0,32 ~ 0,45	3.500	0,32 ~ 0,54	3.500	0,32 ~ 0,45
10	3.200	0,35 ~ 0,50	3.200	0,35 ~ 0,50	2.400	0,35 ~ 0,50	2.900	0,35 ~ 0,50	3.200	0,35 ~ 0,60	3.200	0,35 ~ 0,50
11	2.900	0,39 ~ 0,55	2.900	0,39 ~ 0,55	2.200	0,39 ~ 0,50	2.600	0,39 ~ 0,50	2.900	0,39 ~ 0,66	2.900	0,39 ~ 0,55
12	2.700	0,42 ~ 0,60	2.700	0,42 ~ 0,60	2.000	0,42 ~ 0,54	2.400	0,42 ~ 0,54	2.700	0,42 ~ 0,72	2.700	0,42 ~ 0,60

CUTTING CONDITIONS

Drilling | Solid | Cutting conditions

ADO-TRS-3D/5D



	Mild Steel - Low Carbon Steel SS400 - S10C ~150HB ~500 N/mm²		Carbon Steel S35C - S50C ~210HB ~710 N/mm²		Alloy Steel SCM - SCr - sncm 710 ~900 N/mm²	
Vc	80 ~ 120 m/min		80 ~ 120 m/min		60 ~ 100 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
3	10.000	0,11 ~ 0,15	10.000	0,11 ~ 0,15	8.500	0,11 ~ 0,15
4	8.000	0,14 ~ 0,2	8.000	0,14 ~ 0,2	6.400	0,14 ~ 0,2
5	6.400	0,18 ~ 0,25	6.400	0,18 ~ 0,25	5.100	0,18 ~ 0,25
6	5.300	0,21 ~ 0,3	5.300	0,21 ~ 0,3	4.200	0,21 ~ 0,3
7	4.500	0,25 ~ 0,35	4.500	0,25 ~ 0,35	3.600	0,25 ~ 0,35
8	4.000	0,28 ~ 0,4	4.000	0,28 ~ 0,4	3.200	0,28 ~ 0,4
9	3.500	0,32 ~ 0,45	3.500	0,32 ~ 0,45	2.800	0,32 ~ 0,45
10	3.200	0,35 ~ 0,5	3.200	0,35 ~ 0,5	2.500	0,35 ~ 0,5
11	2.900	0,39 ~ 0,55	2.900	0,39 ~ 0,55	2.300	0,39 ~ 0,55
12	2.700	0,42 ~ 0,6	2.700	0,42 ~ 0,6	2.100	0,42 ~ 0,6
13	2.400	0,46 ~ 0,65	2.400	0,46 ~ 0,65	2.000	0,46 ~ 0,65
14	2.300	0,49 ~ 0,7	2.300	0,49 ~ 0,7	1.800	0,49 ~ 0,7
15	2.100	0,53 ~ 0,75	2.100	0,53 ~ 0,7	1.700	0,53 ~ 0,7
16	2.000	0,56 ~ 0,8	2.000	0,56 ~ 0,72	1.600	0,56 ~ 0,72
17	1.900	0,6 ~ 0,85	1.900	0,6 ~ 0,77	1.500	0,6 ~ 0,77
18	1.800	0,63 ~ 0,9	1.800	0,63 ~ 0,81	1.400	0,63 ~ 0,81
19	1.700	0,67 ~ 0,9	1.700	0,67 ~ 0,86	1.300	0,67 ~ 0,86
20	1.600	0,7 ~ 0,9	1.600	0,7 ~ 0,9	1.300	0,7 ~ 0,9



	Alloy Steel SCM - SCr - sncm 900 ~1.100 N/mm²		Cast Iron FC250 ~350N/mm²		Ductile Cast Iron FCD450 - FCD600 400 ~600 N/mm²		AL, AC	
Vc	60 ~ 90 m/min		80 ~ 120 m/min		60 ~ 100 m/min		150 ~ 300 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
3	8.000	0,11 ~ 0,15	10.000	0,11 ~ 0,18	8.500	0,11 ~ 0,15	30000	0,08 ~ 0,12
4	6.000	0,14 ~ 0,2	8.000	0,14 ~ 0,24	6.400	0,14 ~ 0,2	21000	0,12 ~ 0,18
5	4.800	0,18 ~ 0,25	6.400	0,18 ~ 0,3	5.100	0,18 ~ 0,25	16000	0,16 ~ 0,24
6	4.000	0,21 ~ 0,3	5.300	0,21 ~ 0,36	4.200	0,21 ~ 0,3	12500	0,2 ~ 0,3
7	3.400	0,25 ~ 0,35	4.500	0,25 ~ 0,42	3.600	0,25 ~ 0,35	10500	0,24 ~ 0,36
8	3.000	0,28 ~ 0,4	4.000	0,28 ~ 0,48	3.200	0,28 ~ 0,4	9000	0,28 ~ 0,42
9	2.700	0,32 ~ 0,45	3.500	0,32 ~ 0,54	2.800	0,32 ~ 0,45	8000	0,32 ~ 0,48
10	2.400	0,35 ~ 0,5	3.200	0,35 ~ 0,6	2.500	0,35 ~ 0,5	7000	0,36 ~ 0,54
11	2.200	0,39 ~ 0,55	2.900	0,39 ~ 0,66	2.300	0,39 ~ 0,55	6400	0,4 ~ 0,6
12	2.000	0,42 ~ 0,6	2.700	0,42 ~ 0,72	2.100	0,42 ~ 0,6	5800	0,44 ~ 0,66
13	1.800	0,46 ~ 0,65	2.400	0,46 ~ 0,78	2.000	0,46 ~ 0,65	5300	0,48 ~ 0,72
14	1.700	0,49 ~ 0,7	2.300	0,49 ~ 0,84	1.800	0,49 ~ 0,7	4900	0,52 ~ 0,78
15	1.600	0,53 ~ 0,70	2.100	0,53 ~ 0,75	1.700	0,53 ~ 0,7	4550	0,56 ~ 0,84
16	1.500	0,56 ~ 0,72	2.000	0,56 ~ 0,8	1.600	0,56 ~ 0,72	4000	0,64 ~ 0,96
17	1.400	0,6 ~ 0,77	1.900	0,6 ~ 0,85	1.500	0,6 ~ 0,77	3500	0,72 ~ 1,08
18	1.300	0,63 ~ 0,81	1.800	0,63 ~ 0,9	1.400	0,63 ~ 0,81	3200	0,8 ~ 1,2
19	1.300	0,67 ~ 0,86	1.700	0,67 ~ 0,95	1.300	0,67 ~ 0,86	1.300	0,67 ~ 0,86
20	1.200	0,7 ~ 0,9	1.600	0,7 ~ 1	1.300	0,7 ~ 0,9	1.300	0,7 ~ 0,9

1. The indicated speeds and feeds are for drilling with water-soluble coolant.
2. Water-soluble high density coolant (less than 20 times dilution) is recommended.
3. When using non-water-soluble or water-soluble coolant (over 20 times dilution), reduce cutting speed by 30%.
4. Equip the drill with a scratch- and dust-free collet and minimize drill deflection to less than 0.02mm.
5. Fasten the work material to reduce the possibility of work deformation, deflection of machined surface, or vibration.
6. A clogged oil hole can lead to breakage. Make sure that a filter is attached to the oil feeder.

CUTTING CONDITIONS

Drilling | Solid | Cutting conditions

ADO-10D/15D/20D/25D/30D

	Mild Steel - Low Carbon Steel SS400 • S10C ~150HB ~500 N/mm²		Carbon Steel S35C • S50C ~210HB ~710 N/mm²		Alloys Steel SCM • SCr • SNCM 16~28HRC 710~900 N/mm²		Cast Iron FC250 ~350 N/mm²		Ductile Cast Iron FCD450 • FCD600 400~600 N/mm²		Stainless Steel SUS400 400 ~ 800 N/mm²		AL, AC	
Vc	60 ~ 125 m/min		60 ~ 125 m/min		60 ~ 125 m/min		60 ~ 125 m/min		50 ~ 80 m/min		40 ~ 80 m/min		60 ~ 125 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
2	11.000	0,04 ~ 0,08	11.000	0,04 ~ 0,08	11.000	0,04 ~ 0,08	11.000	0,04 ~ 0,08	11.000	0,04 ~ 0,08	8.000	0,04 ~ 0,08	11.000	0,04 ~ 0,08
3	7.500	0,06 ~ 0,12	7.500	0,06 ~ 0,12	7.500	0,06 ~ 0,12	7.500	0,06 ~ 0,12	7.500	0,06 ~ 0,12	5.300	0,06 ~ 0,12	7.500	0,06 ~ 0,12
4	6.400	0,08 ~ 0,16	6.400	0,08 ~ 0,16	6.400	0,08 ~ 0,16	6.400	0,08 ~ 0,16	5.600	0,08 ~ 0,16	5.000	0,08 ~ 0,16	6.400	0,08 ~ 0,16
5	5.800	0,10 ~ 0,20	5.800	0,10 ~ 0,20	5.800	0,10 ~ 0,20	5.800	0,10 ~ 0,20	4.500	0,10 ~ 0,20	4.500	0,10 ~ 0,20	5.800	0,10 ~ 0,20
6	4.800	0,12 ~ 0,24	4.800	0,12 ~ 0,24	4.800	0,12 ~ 0,24	4.800	0,12 ~ 0,24	3.800	0,12 ~ 0,24	3.800	0,12 ~ 0,24	4.800	0,12 ~ 0,24
8	3.600	0,16 ~ 0,28	3.600	0,16 ~ 0,28	3.600	0,16 ~ 0,28	3.600	0,16 ~ 0,28	2.800	0,16 ~ 0,28	2.800	0,16 ~ 0,28	3.600	0,16 ~ 0,28
10	2.900	0,20 ~ 0,35	2.900	0,20 ~ 0,35	2.900	0,20 ~ 0,35	2.900	0,20 ~ 0,35	2.300	0,20 ~ 0,35	2.300	0,20 ~ 0,35	2.900	0,20 ~ 0,35
12	2.400	0,24 ~ 0,42	2.400	0,24 ~ 0,42	2.400	0,24 ~ 0,42	2.400	0,24 ~ 0,42	1.900	0,24 ~ 0,42	1.900	0,24 ~ 0,42	2.400	0,24 ~ 0,42

ADO-40D/50D

	Mild Steel - Low Carbon Steel SS400 - S10C ~150HB ~500 N/mm²		Carbon Steel S35C - S50C ~210HB ~710 N/mm²		Alloy Steel SCM - SCr - sncm 16~28HRC 710 ~900 N/mm²		Alloy Steel (C ≥0,3%) SCM440 28~35HRC 900~1,060N/mm²	
Vc	60~90m/min		60~90m/min		50~80m/min		40~70m/min	
Ø	S (min⁻¹)	f (mm/rev.)	S (min⁻¹)	f (mm/rev.)	S (min⁻¹)	f (mm/rev.)	S (min⁻¹)	f (mm/rev.)
3	7.500	0,06 ~ 0,12	7.500	0,06 ~ 0,12	6.400	0,06 ~ 0,12	5.300	0,06 ~ 0,11
4	5.600	0,08 ~ 0,16	5.600	0,08 ~ 0,16	4.800	0,08 ~ 0,16	4.000	0,08 ~ 0,14
5	4.500	0,1 ~ 0,2	4.500	0,1 ~ 0,2	3.800	0,1 ~ 0,2	3.200	0,1 ~ 0,17
6	3.700	0,12 ~ 0,24	3.700	0,12 ~ 0,24	3.200	0,12 ~ 0,24	2.700	0,12 ~ 0,21
8	2.800	0,16 ~ 0,28	2.800	0,16 ~ 0,28	2.400	0,16 ~ 0,28	2.000	0,16 ~ 0,24
10	2.300	0,2 ~ 0,35	2.300	0,2 ~ 0,35	1.900	0,2 ~ 0,35	1.600	0,2 ~ 0,3

	Cast Iron FC250 ~350N/mm²		Ductile Cast Iron FCD450 - FCD600 400 ~600 N/mm²		Stainless Steel SUS300/400 480 ~800 N/mm²		AL, AC	
Vc	60~90m/min		50~80m/min		40~60m/min		60~90m/min	
Ø	S (min⁻¹)	f (mm/rev.)	S (min⁻¹)	f (mm/rev.)	S (min⁻¹)	f (mm/rev.)	S (min⁻¹)	f (mm/rev.)
3	7.500	0,06 ~ 0,12	6.400	0,06 ~ 0,12	5.300	0,06 ~ 0,12	7.500	0,06 ~ 0,12
4	5.600	0,08 ~ 0,16	4.800	0,08 ~ 0,16	4.000	0,08 ~ 0,16	5.600	0,08 ~ 0,16
5	4.500	0,1 ~ 0,2	3.800	0,1 ~ 0,2	3.200	0,1 ~ 0,2	4.500	0,1 ~ 0,2
6	3.700	0,12 ~ 0,24	3.200	0,12 ~ 0,24	2.700	0,12 ~ 0,24	3.700	0,12 ~ 0,24
8	2.800	0,16 ~ 0,28	2.400	0,16 ~ 0,28	2.000	0,16 ~ 0,28	2.800	0,16 ~ 0,28
10	2.300	0,2 ~ 0,35	1.900	0,2 ~ 0,35	1.600	0,2 ~ 0,35	2.300	0,2 ~ 0,35

1. The indicated speeds and feeds are for drilling with water-soluble coolant or MQL (mist drilling in stainless steels is not recommended).
2. Water-soluble high density coolant (20-30 times dilution) is recommended.
3. When using non-water-soluble coolant, set the cutting speed between 70-100% of the lowest limit.
4. Make a pilot hole before using in accordance with the recommended operation.
5. A clogged oil hole can lead to breakage. Make sure that a filter is attached to the oil feeder.
6. Peck drilling of 1D - 2D is strongly recommended.

*If it is difficult to process or if the straightness of the hole needed to be improved, use the coolant-through carbide drill ADO-20/30D after drilling a pilot hole, then process with the ADO-40/50D. When processing with 3 tools, the ADO-40/50D may be used at a more aggressive cutting condition than those listed above.

CAO-GDXL

Standard drilling

	AC ADC • AC		Al A20... • A70...		Al A50... • A60...		Cu C1020 • C1100		Cu CrCu	
Vc	80 ~ 200 m/min		60 ~ 120 m/min		80 ~ 200 m/min		80 ~ 200 m/min		60 ~ 120 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
3	12.800	0,09~0,15	10.700	0,09~0,15	12.800	0,06~0,12	12.800	0,06~0,12	10.700	0,05~0,09
4	9.600	0,12~0,20	8.000	0,12~0,20	9.600	0,08~0,16	9.600	0,08~0,16	8.000	0,06~0,10
5	7.700	0,15~0,25	6.400	0,15~0,25	7.700	0,10~0,20	7.700	0,10~0,20	6.400	0,06~0,10
6	6.400	0,18~0,30	5.400	0,18~0,30	6.400	0,12~0,20	6.400	0,12~0,20	5.400	0,06~0,10
8	4.800	0,20~0,40	4.000	0,20~0,40	4.800	0,12~0,25	4.800	0,12~0,25	4.000	0,08~0,15
10	3.900	0,25~0,50	3.200	0,25~0,50	3.900	0,15~0,25	3.900	0,15~0,25	3.200	0,08~0,15

CUTTING CONDITIONS

HYP-HP-3D/HYP-HPO-3D/-HE/-HB

Standard drilling

	Steel			Cu	A5052 /A7075	Al < 13% Si
	< 700 N/mm²	< 850 N/mm²	< 1000 N/mm²			< 130 HB
Vc	100 ~ 150 m/min	80 ~ 120 m/min	70 ~ 110 m/min	50 ~ 90 m/min	60 ~ 110 m/min	120 ~ 220 m/min
Ø	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)
3	0,09~0,12	0,09~0,12	0,09~0,12	0,02~0,03	0,09~0,20	0,09~0,28
4	0,10~0,15	0,10~0,15	0,10~0,15	0,02~0,04	0,10~0,24	0,10~0,38
5	0,12~0,18	0,12~0,18	0,12~0,18	0,03~0,05	0,12~0,28	0,12~0,40
6	0,14~0,20	0,14~0,20	0,14~0,20	0,03~0,06	0,14~0,34	0,14~0,48
8	0,16~0,24	0,16~0,24	0,16~0,24	0,04~0,08	0,16~0,38	0,16~0,53
10	0,18~0,27	0,18~0,27	0,18~0,27	0,05~0,10	0,18~0,45	0,18~0,63
12	0,20~0,30	0,20~0,30	0,20~0,30	0,06~0,12	0,20~0,53	0,20~0,75
14	0,22~0,35	0,22~0,35	0,22~0,35	0,08~0,16	0,22~0,57	0,22~0,81
16	0,25~0,36	0,25~0,36	0,25~0,36	0,10~0,18	0,25~0,61	0,25~0,85
18	0,28~0,38	0,28~0,38	0,28~0,38	0,12~0,20	0,28~0,63	0,28~0,90
20	0,30~0,40	0,30~0,40	0,30~0,40	0,20~0,28	0,28~0,68	0,30~0,98

	GG (G)		SUS	High-Alloy Steel	Special Alloys	Hardened Steel
	< 180 HB	< 300 HB	< 820 HB	< 1200 N/mm²	< 30 HRC	< 60 HRC
Vc	150 ~ 200 m/min	100 ~ 150 m/min	40 ~ 50 m/min	50 ~ 60 m/min	15 ~ 25 m/min	15 ~ 25 m/min
Ø	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)
3	0,12~0,15	0,12~0,15	0,09~0,12	0,07~0,11	0,05~0,09	0,03~0,05
4	0,13~0,18	0,13~0,18	0,10~0,15	0,08~0,13	0,06~0,10	0,04~0,06
5	0,15~0,22	0,15~0,22	0,12~0,18	0,10~0,15	0,08~0,12	0,05~0,07
6	0,18~0,25	0,18~0,25	0,14~0,20	0,12~0,18	0,09~0,15	0,05~0,07
8	0,20~0,30	0,20~0,30	0,16~0,24	0,14~0,22	0,12~0,20	0,06~0,08
10	0,23~0,33	0,23~0,33	0,18~0,27	0,15~0,25	0,13~0,23	0,07~0,10
12	0,25~0,38	0,25~0,38	0,20~0,30	0,17~0,26	0,14~0,24	0,09~0,12
14	0,30~0,43	0,30~0,43	0,22~0,35	0,18~0,30	0,15~0,26	0,10~0,13
16	0,35~0,50	0,35~0,50	0,25~0,36	0,20~0,32	0,16~0,26	0,10~0,13
18	0,38~0,55	0,38~0,55	0,28~0,38	0,23~0,33	0,18~0,28	0,12~0,16
20	0,40~0,63	0,40~0,63	0,30~0,40	0,25~0,35	0,20~0,30	0,14~0,18

HYP-HP-5D/HYP-HPO-5D/-HE/-HB/HYP-HPO-8D

Standard drilling

	Steel			Cu	A5052 /A7075	Al < 13% Si
	< 700 N/mm²	< 850 N/mm²	< 1000 N/mm²			< 130 HB
Vc	100 ~ 150 m/min	80 ~ 120 m/min	70 ~ 110 m/min	50 ~ 90 m/min	60 ~ 110 m/min	120 ~ 220 m/min
Ø	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)
1	0,01~0,03	0,01~0,03	0,01~0,03	0,007~0,01	0,01~0,03	0,02~0,06
2	0,02~0,06	0,02~0,06	0,02~0,06	0,014~0,02	0,02~0,06	0,04~0,12
3	0,09~0,12	0,09~0,12	0,09~0,12	0,02~0,03	0,09~0,20	0,09~0,28
4	0,10~0,15	0,10~0,15	0,10~0,15	0,02~0,04	0,10~0,24	0,10~0,38
5	0,12~0,18	0,12~0,18	0,12~0,18	0,03~0,05	0,12~0,28	0,12~0,40
6	0,14~0,20	0,14~0,20	0,14~0,20	0,03~0,06	0,14~0,34	0,14~0,48
8	0,16~0,24	0,16~0,24	0,16~0,24	0,04~0,08	0,16~0,38	0,16~0,53
10	0,18~0,27	0,18~0,27	0,18~0,27	0,05~0,10	0,18~0,45	0,18~0,63
12	0,20~0,30	0,20~0,30	0,20~0,30	0,06~0,12	0,20~0,53	0,20~0,75
14	0,22~0,35	0,22~0,35	0,22~0,35	0,08~0,16	0,22~0,57	0,22~0,81
16	0,25~0,36	0,25~0,36	0,25~0,36	0,10~0,18	0,25~0,61	0,25~0,85
18	0,28~0,38	0,28~0,38	0,28~0,38	0,12~0,20	0,28~0,63	0,28~0,90
20	0,30~0,40	0,30~0,40	0,30~0,40	0,20~0,28	0,28~0,68	0,30~0,98

	GG (G)		SUS	High-Alloy Steel	Special Alloys	H ardened Steel
	< 180 HB	< 300 HB	< 820 HB	< 1200 N/mm²	< 30 HRC	< 60 HRC
Vc	150 ~ 200 m/min	100 ~ 150 m/min	40 ~ 50 m/min	50 ~ 60 m/min	15 ~ 25 m/min	15 ~ 25 m/min
Ø	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)	F (mm/rev.)
1	0,02~0,04	0,02~0,04	0,01~0,03	0,01~0,03	0,015~0,03	0,01~0,015
2	0,04~0,08	0,04~0,08	0,02~0,06	0,02~0,06	0,03~0,06	0,02~0,03
3	0,12~0,15	0,12~0,15	0,09~0,12	0,07~0,11	0,05~0,09	0,03~0,05
4	0,13~0,18	0,13~0,18	0,10~0,15	0,08~0,13	0,06~0,10	0,04~0,06
5	0,15~0,22	0,15~0,22	0,12~0,18	0,10~0,15	0,08~0,12	0,05~0,07
6	0,18~0,25	0,18~0,25	0,14~0,20	0,12~0,18	0,09~0,15	0,05~0,07
8	0,20~0,30	0,20~0,30	0,16~0,24	0,14~0,22	0,12~0,20	0,06~0,08
10	0,23~0,33	0,23~0,33	0,18~0,27	0,15~0,25	0,13~0,23	0,07~0,10
12	0,25~0,38	0,25~0,38	0,20~0,30	0,17~0,26	0,14~0,24	0,09~0,12
14	0,30~0,43	0,30~0,43	0,22~0,35	0,18~0,30	0,15~0,26	0,10~0,13
16	0,35~0,50	0,35~0,50	0,25~0,36	0,20~0,32	0,16~0,26	0,10~0,13
18	0,38~0,55	0,38~0,55	0,28~0,38	0,23~0,33	0,18~0,28	0,12~0,16
20	0,40~0,63	0,40~0,63	0,30~0,40	0,25~0,35	0,20~0,30	0,14~0,18

CUTTING CONDITIONS

Drilling | Solid | Cutting conditions

HYP-AL-3D

	Cast Aluminum		Aluminum Alloy		Copper Alloy		Magnesium Alloy	
Vc	80 ~ 200 m/min		80 ~ 150 m/min		40 ~ 100 m/min		60 ~ 100 m/min	
Ø	S (min^{-1})	F (mm/rev)	S (min^{-1})	F (mm/rev)	S (min^{-1})	F (mm/rev)	S (min^{-1})	F (mm/rev)
1	25000	0,02 ~ 0,08	25000	0,02 ~ 0,05	22300	0,008 ~ 0,02	25000	0,02 ~ 0,05
2	22300	0,04 ~ 0,16	18300	0,04 ~ 0,10	11100	0,016 ~ 0,04	12700	0,04 ~ 0,10
3	14900	0,06 ~ 0,24	12200	0,06 ~ 0,15	7400	0,024 ~ 0,06	8500	0,06 ~ 0,15
4	11100	0,08 ~ 0,32	9200	0,08 ~ 0,20	5600	0,032 ~ 0,08	6400	0,08 ~ 0,20
6	7400	0,12 ~ 0,48	6100	0,12 ~ 0,30	3700	0,048 ~ 0,12	4200	0,12 ~ 0,30
8	5600	0,16 ~ 0,64	4600	0,16 ~ 0,40	2800	0,064 ~ 0,16	3200	0,16 ~ 0,40
10	4500	0,20 ~ 0,80	3700	0,20 ~ 0,50	2200	0,080 ~ 0,20	2500	0,20 ~ 0,50
12	3700	0,24 ~ 0,96	3100	0,24 ~ 0,60	1900	0,096 ~ 0,24	2100	0,24 ~ 0,60

HYP-ALO-5D

	Cast Aluminum		Aluminum Alloy		Copper Alloy		Magnesium Alloy	
Vc	120 ~ 250 m/min		80 ~ 200 m/min		40 ~ 120 m/min		60 ~ 130 m/min	
Ø	S (min^{-1})	F (mm/rev)	S (min^{-1})	F (mm/rev)	S (min^{-1})	F (mm/rev)	S (min^{-1})	F (mm/rev)
1	25000	0,02 ~ 0,08	25000	0,02 ~ 0,05	25000	0,008 ~ 0,02	25000	0,02 ~ 0,05
2	29500	0,04 ~ 0,16	22300	0,04 ~ 0,10	12700	0,016 ~ 0,04	15100	0,04 ~ 0,10
3	19600	0,06 ~ 0,24	14900	0,06 ~ 0,15	8500	0,024 ~ 0,06	10100	0,06 ~ 0,15
4	14700	0,08 ~ 0,32	11100	0,08 ~ 0,20	6400	0,032 ~ 0,08	7600	0,08 ~ 0,20
6	9800	0,12 ~ 0,48	7400	0,12 ~ 0,30	4200	0,048 ~ 0,12	5000	0,12 ~ 0,30
8	7400	0,16 ~ 0,64	5600	0,16 ~ 0,40	3200	0,064 ~ 0,16	3800	0,16 ~ 0,40
10	5900	0,20 ~ 0,80	4500	0,20 ~ 0,50	2500	0,080 ~ 0,20	3000	0,20 ~ 0,50
12	4900	0,24 ~ 0,96	3700	0,24 ~ 0,60	2100	0,096 ~ 0,24	2500	0,24 ~ 0,60

D-STAD

	CFRP	
Vc	50 ~ 100 m/min	
Ø	RPM	F (mm/rev.)
4	4.000 ~ 8.000	0,03 ~ 0,05
6	2.600 ~ 5.300	0,04 ~ 0,075
6,35	2.500 ~ 5.000	0,04 ~ 0,075
8	2.000 ~ 4.000	0,05 ~ 0,08

WH55-5D

	SKD61 Special Alloy Steel • Hardened Steel • Pre-hardened steel 40 ~ 45 HRC		DAC55, DH31S, SKD61, SKD11, STAVAX			
			45 ~ 50 HRC		50 ~ 56 HRC	
Vc	30 ~ 50 m/min		20 ~ 30 m/min		20 ~ 30 m/min	
Ø	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)
2	6.400	0,02 ~ 0,04	4.000	0,02 ~ 0,04	4.000	0,02 ~ 0,04
3	4.200	0,03 ~ 0,06	2.700	0,03 ~ 0,06	2.700	0,03 ~ 0,06
4	3.200	0,04 ~ 0,08	2.000	0,04 ~ 0,08	2.000	0,04 ~ 0,08
5	2.500	0,05 ~ 0,10	1.600	0,05 ~ 0,10	1.600	0,05 ~ 0,10
6	2.100	0,06 ~ 0,12	1.300	0,06 ~ 0,12	1.300	0,06 ~ 0,12
7	1.800	0,07 ~ 0,14	1.100	0,07 ~ 0,14	1.100	0,07 ~ 0,14
8	1.600	0,08 ~ 0,16	1.000	0,08 ~ 0,16	1.000	0,08 ~ 0,16
9	1.400	0,09 ~ 0,18	900	0,09 ~ 0,18	900	0,09 ~ 0,18
10	1.300	0,10 ~ 0,20	800	0,10 ~ 0,20	800	0,10 ~ 0,20
11	1.150	0,11 ~ 0,22	720	0,11 ~ 0,22	720	0,11 ~ 0,22
12	1.100	0,12 ~ 0,24	700	0,12 ~ 0,24	700	0,12 ~ 0,24

CUTTING CONDITIONS

WHO55-5D

	SKD61 Special Alloy Steel • Hardened Steel • Pre-hardened steel 40 ~ 45 HRC		DAC55, DH31S, SKD61, SKD11, STAVAX				Inconel 38 ~ 43 HRC	
			45 ~ 50 HRC		50 ~ 56 HRC			
Vc	30 ~ 50 m/min		20 ~ 30 m/min		20 ~ 30 m/min		10 ~ 30 m/min	
Ø	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)
3,3	3.900	0,033 ~ 0,066	2.400	0,033 ~ 0,066	2.400	0,033 ~ 0,066	1.900	0,033 ~ 0,066
4	3.200	0,04 ~ 0,08	2.000	0,04 ~ 0,08	2.000	0,04 ~ 0,08	1.600	0,04 ~ 0,08
5	2.500	0,05 ~ 0,10	1.600	0,05 ~ 0,10	1.600	0,05 ~ 0,10	1.300	0,05 ~ 0,10
6	2.100	0,06 ~ 0,12	1.300	0,06 ~ 0,12	1.300	0,06 ~ 0,12	1.100	0,06 ~ 0,12
7	1.800	0,07 ~ 0,14	1.100	0,07 ~ 0,14	1.100	0,07 ~ 0,14	900	0,07 ~ 0,14
8	1.600	0,08 ~ 0,16	1.000	0,08 ~ 0,16	1.000	0,08 ~ 0,16	800	0,08 ~ 0,16
9	1.400	0,09 ~ 0,18	900	0,09 ~ 0,18	900	0,09 ~ 0,18	700	0,09 ~ 0,18
10	1.300	0,10 ~ 0,20	800	0,10 ~ 0,20	800	0,10 ~ 0,20	600	0,10 ~ 0,20
11	1.150	0,11 ~ 0,22	720	0,11 ~ 0,22	720	0,11 ~ 0,22	600	0,11 ~ 0,22
12	1.100	0,12 ~ 0,24	700	0,12 ~ 0,24	700	0,12 ~ 0,24	500	0,12 ~ 0,24

WH70-DRL

	SKD11 • SKT • SUS440 55 ~ 60HRC		SKH • SKD11 • SKS 60 ~ 70HRC	
Vc	10 ~ 16 m/min		8 ~ 13 m/min	
Ø	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)
2	2.000	~ 0,04	1.900	~ 0,04
3	1.330	~ 0,04	1.250	~ 0,04
4	1.000	~ 0,04	950	~ 0,04
5	800	~ 0,04	750	~ 0,04
6	670	~ 0,04	630	~ 0,04
8	500	~ 0,04	480	~ 0,04
10	400	~ 0,04	380	~ 0,04
12	330	~ 0,04	320	~ 0,04
14,1	280	~ 0,04	270	~ 0,04
16,1	250	~ 0,04	240	~ 0,04
17,6	235	~ 0,04	190	~ 0,04
18,6	220	~ 0,04	180	~ 0,04

CUTTING CONDITIONS

Drilling | Solid | Cutting conditions

VPH-GDS

	~ 35HRC • 35~45 HRC • 45~50 HRC • 50~70 HRC						SKD				SCM	
	34~43 HRC 1060~1400 N/mm²		43~48 HRC 1400~1600 N/mm²		48~53 HRC 1600~1900 N/mm²		SKD11 ~1060 N/mm²		SKD61 ~900 N/mm²		100Cr6 710~900 N/mm²	
Vc	12 ~ 18 m/min		6 ~ 10 m/min		5 ~ 8 m/min		10 ~ 16 m/min		12 ~ 20 m/min		25 ~ 32 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
0,5	8.000	0,005~0,013	5.000	0,005~0,01	3.800	0,005~0,01	6.400	0,01~0,025	7.600	0,01~0,025	15.000	0,01~0,025
1	4.000	0,01~0,03	2.500	0,01~0,02	1.800	0,01~0,02	3.200	0,03~0,045	5.000	0,03~0,045	8.000	0,03~0,045
2	2.550	0,02~0,05	1.250	0,02~0,04	1.050	0,02~0,04	2.100	0,06~0,09	2.550	0,06~0,09	4.500	0,06~0,09
3	1.700	0,03~0,08	850	0,03~0,06	700	0,03~0,06	1.400	0,10~0,13	1.700	0,10~0,13	3.000	0,10~0,13
4	1.250	0,04~0,10	640	0,04~0,08	520	0,04~0,08	1.030	0,11~0,15	1.270	0,11~0,15	2.250	0,11~0,15
5	1.000	0,05~0,13	510	0,05~0,10	400	0,05~0,10	830	0,12~0,18	1.020	0,12~0,18	1.800	0,12~0,18
6	850	0,06~0,15	430	0,06~0,12	350	0,06~0,12	690	0,13~0,19	850	0,13~0,19	1.500	0,13~0,19
7	730	0,07~0,18	360	0,07~0,14	260	0,07~0,14	600	0,15~0,22	730	0,15~0,22	1.300	0,15~0,22
8	640	0,08~0,20	320	0,08~0,16	230	0,08~0,16	520	0,16~0,24	640	0,16~0,24	1.100	0,16~0,24
9	570	0,09~0,23	280	0,09~0,18	210	0,09~0,18	460	0,18~0,26	570	0,18~0,26	1.000	0,18~0,26
10	510	0,10~0,25	260	0,10~0,20	200	0,10~0,20	410	0,20~0,28	510	0,20~0,28	900	0,20~0,28
11	460	0,11~0,28	230	0,11~0,22	180	0,11~0,22	380	0,22~0,31	460	0,22~0,31	820	0,22~0,31
12	430	0,12~0,30	210	0,12~0,24	170	0,12~0,24	350	0,24~0,34	430	0,24~0,34	760	0,24~0,34
13	400	0,13~0,32	200	0,13~0,26	160	0,13~0,26	320	0,26~0,36	390	0,26~0,36	700	0,26~0,36

	Ti Alloy Ti-6Al-4V (32~38 HRC)		Inconel Inconel 718 (38~43 HRC)		Carbon Steel CK50 500 ~ 710 N/mm²		C≤0,2% 41CrMo4 ~500 N/mm²		GG GG25 ~350 N/mm²	
Vc	6 ~ 10 m/min		6 ~ 8 m/min		25 ~ 36 m/min		38 ~ 50 m/min		40 ~ 63 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
0,5	5.000	0,005~0,01	3.800	0,005~0,01	15.000	0,015~0,025	Note*	0,005~0,01	Note*	0,005~0,01
1	2.400	0,01~0,02	2.000	0,01~0,02	8.000	0,03~0,045	12.000	0,01~0,02	12.000	0,01~0,02
2	1.200	0,02~0,04	1.100	0,02~0,04	5.000	0,06~0,09	6.350	0,06~0,09	8.400	0,08~0,11
3	800	0,03~0,06	740	0,03~0,06	3.400	0,10~0,13	4.250	0,10~0,13	5.600	0,11~0,16
4	700	0,04~0,08	550	0,04~0,08	2.550	0,11~0,15	3.200	0,11~0,15	4.220	0,13~0,19
5	500	0,05~0,10	450	0,05~0,10	2.050	0,12~0,18	2.550	0,12~0,18	3.370	0,16~0,22
6	440	0,06~0,12	370	0,06~0,12	1.700	0,13~0,19	2.100	0,13~0,19	2.800	0,19~0,26
7	350	0,07~0,14	320	0,07~0,14	1.450	0,15~0,22	1.800	0,15~0,22	2.400	0,20~0,28
8	320	0,08~0,16	280	0,08~0,16	1.270	0,16~0,24	1.600	0,16~0,24	2.100	0,21~0,30
9	280	0,09~0,18	250	0,09~0,18	1.130	0,18~0,26	1.400	0,18~0,26	1.900	0,23~0,33
10	260	0,10~0,20	220	0,10~0,20	1.000	0,20~0,28	1.270	0,20~0,28	1.700	0,25~0,36
11	230	0,11~0,22	200	0,11~0,22	930	0,22~0,31	1.150	0,22~0,31	1.550	0,28~0,39
12	210	0,12~0,24	190	0,12~0,24	850	0,24~0,34	1.060	0,24~0,34	1.400	0,30~0,42
13	200	0,13~0,26	170	0,13~0,26	790	0,26~0,36	980	0,26~0,36	1.300	0,31~0,42

*Note: For machines that cannot achieve the speeds indicated in the table please set rotation as high as possible.
Tool life may be decreased.

VP-GDR

	C≤0,2% CK15 • St40 ~500 N/mm²		C≥0,3% CK50 500~710 N/mm²		SCM 100Cr6 710~900 N/mm²		Special Alloy SKD61 ~28 HRC ~900 N/mm²		Special Alloy SKD11 28~34 HRC 900~1060 N/mm²		GG GG25 ~ 350 N/mm²		AC AC4C • ADC	
Vc	38 ~ 50 m/min		25 ~ 36 m/min		25 ~ 32 m/min		12 ~ 20 m/min		10 ~ 16 m/min		40 ~ 63 m/min		70 ~ 120 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
2	6.350	0,06~0,09	5.100	0,06~0,09	4.450	0,06~0,09	2.550	0,06~0,09	2.050	0,06~0,09	8.435	0,08~0,11	15.000	0,12~0,18
3	4.250	0,10~0,13	3.400	0,10~0,13	2.970	0,10~0,13	1.700	0,10~0,13	1.370	0,10~0,13	5.620	0,11~0,16	10.000	0,20~0,28
4	3.200	0,11~0,15	2.550	0,11~0,15	2.230	0,11~0,15	1.270	0,11~0,15	1.035	0,11~0,15	4.220	0,13~0,19	8.000	0,24~0,38
5	2.550	0,12~0,18	2.040	0,12~0,18	1.780	0,12~0,18	1.020	0,12~0,18	825	0,12~0,18	3.375	0,16~0,22	6.350	0,28~0,40
6	2.100	0,13~0,19	1.700	0,13~0,19	1.490	0,13~0,19	850	0,13~0,19	690	0,13~0,19	2.810	0,19~0,26	5.300	0,34~0,48
8	1.600	0,16~0,24	1.270	0,16~0,24	1.110	0,16~0,24	635	0,16~0,24	515	0,16~0,24	2.110	0,21~0,30	4.000	0,38~0,53
10	1.270	0,20~0,28	1.020	0,20~0,28	890	0,20~0,28	510	0,20~0,28	410	0,20~0,28	1.690	0,25~0,36	3.200	0,45~0,63
12	1.060	0,24~0,34	850	0,24~0,34	740	0,24~0,34	425	0,24~0,34	345	0,24~0,34	1.400	0,30~0,42	2.700	0,53~0,75
13	980	0,26~0,36	780	0,26~0,36	690	0,26~0,36	390	0,26~0,36	320	0,26~0,36	1.300	0,31~0,42	2.500	0,56~0,79
14	900	0,28~0,39	720	0,28~0,39	640	0,28~0,39	360	0,28~0,39	300	0,28~0,39	1.200	0,32~0,44	2.300	0,57~0,81
16	800	0,30~0,43	640	0,30~0,43	560	0,30~0,43	320	0,30~0,43	260	0,30~0,43	1.050	0,34~0,46	2.000	0,61~0,85
18	700	0,34~0,49	560	0,34~0,49	500	0,34~0,49	280	0,34~0,49	230	0,34~0,49	950	0,36~0,50	1.800	0,63~0,90
20	650	0,36~0,50	500	0,36~0,50	450	0,36~0,50	260	0,36~0,50	210	0,36~0,50	830	0,40~0,56	1.600	0,68~0,98
22	580	0,40~0,55	460	0,40~0,55	400	0,40~0,55	230	0,40~0,55	190	0,40~0,55	750	0,42~0,59	1.500	0,73~1,06
24	530	0,41~0,60	420	0,41~0,60	370	0,41~0,60	210	0,41~0,60	170	0,41~0,60	700	0,46~0,65	1.350	0,77~1,13
26	500	0,42~0,65	400	0,42~0,65	340	0,42~0,65	200	0,42~0,65	160	0,42~0,65	650	0,47~0,68	1.250	0,81~1,20
28	450	0,45~0,70	360	0,45~0,70	320	0,45~0,70	180	0,45~0,70	150	0,45~0,70	600	0,50~0,73	1.150	0,84~1,26
30	420	0,48~0,75	340	0,48~0,75	300	0,48~0,75	170	0,48~0,75	140	0,48~0,75	550	0,54~0,78	1.100	0,87~1,32
32	400	0,51~0,80	320	0,51~0,80	280	0,51~0,80	160	0,51~0,80	130	0,51~0,80	520	0,58~0,83	1.000	0,90~1,38

CUTTING CONDITIONS

Drilling | Solid | Cutting conditions

NEXUS-GDS/NEXUS-GDR



	SUS									
	AUSTENITIC SUS304 - 200		AUSTENITIC SUS304 - 200		MARTENSITIC SUS420 - 440		FERRITIC SUS430 - 405		PRECIPITATION SUS630 - 631	
Vc	12 ~ 15 m/min		15 ~ 25 m/min		15 ~ 25 m/min		15 ~ 30 m/min		10 ~ 20 m/min	
Ø	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)
1	4.460	0,01~0,018	6.370	0,02~0,04	6.370	0,01~0,02	7.000	0,01~0.03	4.770	0,01~0,03
2	2.230	0,02~0,036	3.180	0,05~0,07	3.180	0,02~0,04	3.500	0,03~0,05	2.390	0,03~0,05
3	1.490	0,03~0,054	2.120	0,06~0,09	2.120	0,03~0,06	2.330	0,04~0,06	1.590	0,04~0,06
4	1.030	0,04~0,08	1.590	0,08~0,12	1.590	0,04~0,08	1.750	0,06~0,08	1.190	0,06~0,08
5	830	0,05~0,10	1.270	0,10~0,15	1.270	0,05~0,10	1.400	0,08~0,10	950	0,08~0,10
6	690	0,06~0,12	1.060	0,12~0,18	1.060	0,06~0,12	1.170	0,09~0,12	800	0,09~0,12
8	480	0,08~0,16	800	0,16~0,24	800	0,08~0,16	880	0,12~0,16	600	0,12~0,16
10	380	0,10~ 0,20	640	0,20~0,28	640	0,10~0,20	700	0,15~0,20	480	0,15~0,20
12	320	0,12~0,24	530	0,24~0,34	530	0,12~0,24	580	0,18~0,24	400	0,18~0,24



	Al A5052 - 7075		AC AC4C - ADC		Cu C1020 - 2600		C≤0,2% S15C - SS400 ~500 N/mm²	
Vc	32 ~ 63 m/min		63 ~ 100 m/min		40 ~ 60 m/min		40 ~ 60 m/min	
Ø	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)
1	15.000	0,02~0,06	25.000	0,02~0,06	15.920	0,01~0,03	15.920	0,02~0,05
2	8.000	0,04~0,12	10.000	0,04~0,12	7.960	0,04~0,06	7.960	0,06~0,09
3	5.300	0,06~0,18	6.700	0,06~0,18	5.310	0,06~0,09	5.310	0,10~0,13
4	4.000	0,08~0,24	6.400	0,08~0,24	3.980	0,08~0,11	3.980	0,11~0,15
5	3.200	0,10~0,30	5.000	0,10~0,30	3.180	0,10~0,13	3.180	0,12~0,18
6	2.700	0,12~0,36	4.200	0,12~0,36	2.650	0,12~0,15	2.650	0,13~0,19
8	2.000	0,16~0,45	3.200	0,16~0,45	1.990	0,16~0,20	1.990	0,17~0,24
10	1.600	0,20~ 0,55	2.500	0,20~0,55	1.590	0,20~0,25	1.590	0,20~0,28
12	1.350	0,24~0,66	2.100	0,24~0,66	1.330	0,24~0,30	1.330	0,24~0,34

Drilling depth	≤4D	≤5D	≤6D
Coefficient for reducing speed	x0,9	x0,8	x0,8
D= drill dia			

CUTTING CONDITIONS

Drilling | Solid | Cutting conditions

V-SDR

	C≤0,2% CK15 • St40 ~500 N/mm²		Carbon Steel CK45 • CK50 500 ~ 710 N/mm²		SCM SCM • SNC • SNCM 710 ~ 900 N/mm²		Special Steel SKD61 35 HRC		Special Steel SKD11		GG GG25 ~ 350 N/mm²		AC AC4C • ADC	
Vc	22 ~ 40 m/min		16 ~ 30 m/min		12 ~ 25 m/min		8 ~ 16 m/min		6 ~ 12 m/min		22 ~ 40 m/min		50 ~ 100 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
2	5.700	0,02~0,08	4.000	0,02~0,08	3.500	0,02~0,08	1.900	0,02~0,08	1.600	0,02~0,08	5.700	0,07~0,10	10.000	0,07~0,10
3	3.850	0,03~0,10	2.800	0,03~0,10	2.400	0,03~0,10	1.320	0,03~0,10	1.060	0,03~0,10	3.850	0,11~0,14	10.000	0,11~0,14
4	2.900	0,04~0,13	2.100	0,04~0,13	1.800	0,04~0,13	950	0,04~0,13	800	0,04~0,13	2.900	0,12~0,17	7.500	0,12~0,17
5	2.260	0,05~0,15	1.600	0,05~0,15	1.400	0,05~0,15	750	0,05~0,15	630	0,05~0,15	2.260	0,14~0,20	6.300	0,14~0,20
6	1.900	0,06~0,17	1.320	0,06~0,17	1.180	0,06~0,17	630	0,06~0,17	530	0,06~0,17	1.900	0,17~0,24	5.000	0,17~0,24
8	1.400	0,08~0,21	1.000	0,08~0,21	900	0,08~0,21	480	0,08~0,21	400	0,08~0,21	1.400	0,19~0,28	4.000	0,19~0,28
10	1.120	0,10~0,22	800	0,10~0,22	710	0,10~0,22	380	0,10~0,22	320	0,10~0,22	1.120	0,22~0,33	3.150	0,22~0,33
12	950	0,12~0,27	670	0,12~0,27	600	0,12~0,27	320	0,12~0,27	270	0,12~0,27	950	0,26~0,38	2.650	0,26~0,38
13	880	0,13~0,29	620	0,13~0,29	550	0,13~0,29	300	0,13~0,29	250	0,13~0,29	880	0,27~0,39	2.450	0,27~0,39

EX-SUS-GDS/EX-SUS-GDR

	SUS Austenitic SUS304 SUS200		SUS Martensitic SUS420 SUS440		SUS Ferritic SUS430 SUS405		SUS Precipitation SUS630 SUS631		Al A5052 - 7075		AC AC4C - ADC		Cu C1020 - 2600		C≤0,2% CK15 - St40 ~500 N/mm²	
Vc	13 ~ 18 m/min		15 ~ 20 m/min		15 ~ 20 m/min		8 ~ 12 m/min		32 ~ 63 m/min		63 ~ 100 m/min		25 ~ 50 m/min		32 ~ 40 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
1	4.800	0,02~0,04	5.550	0,02~0,04	5.550	0,01~0,03	3.200	0,01~0,03	15.000	0,02~0,06	25.000	0,02~0,06	12.000	0,01~0,03	10.000	0,02~0,05
2	2.400	0,05~0,07	2.850	0,05~0,07	2.850	0,03~0,05	1.600	0,03~0,05	8.000	0,04~0,12	10.000	0,04~0,12	5.100	0,04~0,06	5.700	0,06~0,09
3	1.600	0,06~0,09	1.900	0,06~0,09	1.900	0,04~0,06	1.100	0,04~0,06	5.300	0,06~0,18	6.700	0,06~0,18	3.400	0,06~0,09	3.850	0,10~0,13
4	1.200	0,08~0,12	1.450	0,08~0,12	1.450	0,06~0,08	800	0,06~0,08	4.000	0,08~0,24	6.400	0,08~0,24	2.550	0,08~0,11	2.900	0,11~0,15
5	950	0,10~0,15	1.150	0,12~0,15	1.150	0,08~0,10	650	0,08~0,10	3.200	0,10~0,30	5.000	0,10~0,30	2.050	0,10~0,13	2.260	0,12~0,18
6	800	0,12~0,18	950	0,15~0,18	950	0,09~0,12	550	0,09~0,12	2.700	0,12~0,36	4.200	0,12~0,36	1.700	0,12~0,15	1.900	0,13~0,19
8	600	0,16~0,24	720	0,20~0,24	720	0,12~0,16	400	0,12~0,16	2.000	0,16~0,45	3.200	0,16~0,45	1.250	0,16~0,20	1.400	0,17~0,24
10	480	0,20~0,28	570	0,25~0,30	570	0,15~0,20	320	0,15~0,20	1.600	0,20~0,55	2.500	0,20~0,55	1.000	0,20~0,25	1.120	0,20~0,28
12	400	0,24~0,34	480	0,30~0,36	480	0,18~0,24	280	0,18~0,24	1.350	0,24~0,66	2.100	0,24~0,66	850	0,24~0,30	950	0,24~0,34
13	370	0,26~0,36	440	0,32~0,40	440	0,20~0,26	250	0,20~0,26	1.250	0,25~0,72	2.000	0,25~0,72	780	0,26~0,32	880	0,26~0,36
14	340	0,28~0,39	410	0,35~0,45	410	0,21~0,30	225	0,21~0,30	1.140	0,27~0,74	1.850	0,27~0,74	730	0,26~0,34	820	0,27~0,39
15	320	0,29~0,40	380	0,36~0,48	380	0,22~0,31	210	0,22~0,31	1.060	0,29~0,80	1.700	0,29~0,80	680	0,26~0,36	760	0,28~0,42
16	300	0,30~0,43	355	0,37~0,50	355	0,23~0,32	200	0,23~0,32	1.000	0,30~0,83	1.600	0,30~0,83	640	0,27~0,37	720	0,29~0,43
17	280	0,31~0,45	335	0,38~0,52	335	0,24~0,34	185	0,24~0,34	940	0,31~0,88	1.500	0,31~0,88	600	0,28~0,39	675	0,30~0,46
18	265	0,32~0,47	320	0,39~0,54	320	0,25~0,36	175	0,25~0,36	885	0,32~0,94	1.450	0,32~0,94	570	0,29~0,41	640	0,32~0,49
19	250	0,33~0,48	300	0,40~0,55	300	0,25~0,38	170	0,25~0,38	840	0,34~0,97	1.350	0,34~0,97	540	0,30~0,43	600	0,33~0,51
20	240	0,34~0,50	285	0,40~0,56	285	0,26~0,40	160	0,26~0,40	800	0,36~1,00	1.300	0,36~1,00	510	0,30~0,44	570	0,34~0,52

CUTTING CONDITIONS

Drilling | Solid | Cutting conditions

EX-GDS

	1.05Low Carbon Steel-Mild steel S15C-SS400 ~500N/mm²		Carbon steel S50c 500~700N/mm²		Alloy steel SCM-SCr 710~900N/mm²		Special alloy steel-hardened steel SKD61 ~900N/mm²		SKD11 900~1060N/mm²	
Vc	32~40m/min		22~30m/min		20~25m/min		10~16m/min		8~12m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
1	11.500	0,03~0,05	8.000	0,03~0,05	7.000	0,03~0,05	4.000	0,03~0,05	3.200	0,03~0,05
2	5.700	0,06~0,09	4.000	0,06~0,09	3.500	0,06~0,09	2.000	0,06~0,09	1.600	0,06~0,09
3	3.800	0,1~0,13	2.800	0,1~0,13	2.400	0,1~0,13	1.350	0,1~0,13	1.060	0,1~0,13
4	2.900	0,11~0,15	2.100	0,11~0,15	1.800	0,11~0,15	1.000	0,11~0,15	800	0,11~0,15
5	2.300	0,12~0,18	1.650	0,12~0,18	1.400	0,12~0,18	800	0,12~0,18	640	0,12~0,18
6	1.900	0,13~0,19	1.400	0,13~0,19	1.200	0,13~0,19	660	0,13~0,19	530	0,13~0,19
7	1.650	0,15~0,22	1.200	0,15~0,22	1.050	0,15~0,22	570	0,15~0,22	450	0,15~0,22
8	1.400	0,17~0,24	1.050	0,17~0,24	920	0,17~0,24	500	0,16~0,24	400	0,17~0,24
9	1.250	0,18~0,26	920	0,18~0,26	810	0,18~0,26	440	0,18~0,26	350	0,18~0,26
10	1.150	0,20~0,28	830	0,20~0,28	730	0,20~0,28	400	0,20~0,28	230	0,20~0,28
11	1.050	0,22~0,32	750	0,22~0,32	670	0,22~0,32	360	0,22~0,31	300	0,22~0,32
12	950	0,24~0,34	690	0,24~0,34	610	0,24~0,34	330	0,24~0,34	270	0,24~0,34
13	880	0,26~0,36	640	0,26~0,36	560	0,26~0,36	300	0,26~0,36	250	0,26~0,36

	Hardened steel 34~43HRC 1060~1400N/mm²		Hardened steel 43~48HRC 1400~1600N/mm²		Inconel 718 38~43HRC		Cast iron FC250 ~350N/mm²		Aluminium alloy casting ADC-AC	
Vc	10~15m/min		6~10m/min		6~8m/min		32~40m/min		63~100m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
1	3.800	0,01~0,03	2.500	0,01~0,02	2.500	0,01~0,02	10.000	0,04~0,06	20.000	0,06~0,09
2	1.900	0,02~0,05	1.250	0,02~0,04	1.250	0,02~0,04	5.700	0,08~0,11	10.000	0,12~0,18
3	1.250	0,03~0,08	850	0,03~0,06	850	0,03~0,06	3.800	0,11~0,16	10.000	0,18~0,26
4	960	0,04~0,1	640	0,04~0,08	630	0,04~0,08	2.900	0,13~0,19	7.500	0,24~0,34
5	760	0,05~0,13	510	0,05~0,10	500	0,05~0,10	2.300	0,16~0,22	6.300	0,28~0,40
6	640	0,06~0,15	430	0,06~0,12	430	0,06~0,12	1.900	0,19~0,26	5.000	0,34~0,48
7	550	0,07~0,18	360	0,07~0,14	360	0,07~0,14	1.650	0,20~0,28	4.450	0,36~0,50
8	480	0,08~0,20	320	0,08~0,16	320	0,08~0,16	1.450	0,21~0,31	4.000	0,38~0,53
9	430	0,09~0,23	280	0,09~0,18	280	0,09~0,18	1.270	0,23~0,33	3.450	0,41~0,58
10	380	0,10~0,25	260	0,10~0,20	260	0,10~0,20	1.150	0,25~0,35	3.150	0,45~0,63
11	350	0,11~0,28	230	0,11~0,22	230	0,11~0,22	1.050	0,27~0,38	2.850	0,48~0,69
12	320	0,12~0,30	210	0,12~0,24	210	0,12~0,24	960	0,30~0,42	2.650	0,53~0,75
13	300	0,13~0,32	200	0,13~0,26	200	0,13~0,26	880	0,31~0,42	2.400	0,56~0,79

EX-GDR

	1.05Low Carbon Steel-Mild steel S15C-SS400 ~500N/mm²		Carbon steel S50c 500~700N/mm²		Alloy steel SCM-SCr 710~900N/mm²		Special alloy steel-hardened steel SKD61 ~900N/mm²		SKD11 900~1060N/mm²		Cast iron FC250 ~350N/mm²		Aluminium alloy casting ADC-AC	
Vc	32~40m/min		22~30m/min		20~25m/min		10~16m/min		8~12m/min		32~40m/min		63~100m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
2	5.700	0,06~0,09	4.000	0,06~0,09	3.500	0,06~0,09	1.900	0,06~0,09	1.600	0,06~0,09	5.700	0,08~0,11	10.000	0,12~0,18
3	3.850	0,1~0,13	2.800	0,1~0,13	2.400	0,1~0,13	1.320	0,1~0,13	1.060	0,1~0,13	3.850	0,11~0,16	10.000	0,20~0,28
4	2.900	0,11~0,15	2.100	0,11~0,15	1.800	0,11~0,15	950	0,11~0,15	800	0,11~0,15	2.900	0,13~0,19	7.500	0,24~0,34
5	2.260	0,12~0,18	1.600	0,12~0,18	1.400	0,12~0,18	750	0,12~0,18	630	0,12~0,18	2.260	0,16~0,22	6.300	0,28~0,40
6	1.900	0,13~0,19	1.320	0,13~0,19	1.180	0,13~0,19	630	0,13~0,19	530	0,13~0,19	1.900	0,19~0,26	5.000	0,34~0,48
8	1.400	0,17~0,24	1.000	0,17~0,24	900	0,17~0,24	480	0,17~0,24	400	0,17~0,24	1.400	0,21~0,30	4.000	0,38~0,53
10	1.120	0,20~0,28	800	0,20~0,28	710	0,20~0,28	380	0,20~0,28	320	0,20~0,28	1.120	0,25~0,35	3.150	0,45~0,63
12	950	0,24~0,34	670	0,24~0,34	600	0,24~0,34	320	0,24~0,34	270	0,24~0,34	950	0,30~0,42	2.650	0,53~0,75
13	880	0,26~0,36	610	0,26~0,36	540	0,26~0,36	290	0,26~0,36	240	0,26~0,36	880	0,31~0,42	2.400	0,56~0,79
14	820	0,28~0,39	570	0,28~0,39	500	0,28~0,39	270	0,28~0,39	230	0,28~0,39	820	0,32~0,44	2.250	0,57~0,81
16	720	0,30~0,43	500	0,30~0,43	440	0,30~0,43	240	0,30~0,43	200	0,30~0,43	720	0,34~0,46	1.950	0,61~0,85
18	640	0,34~0,49	440	0,34~0,49	390	0,34~0,49	210	0,34~0,49	180	0,34~0,49	640	0,36~0,50	1.750	0,63~0,90
20	570	0,36~0,50	400	0,36~0,50	350	0,36~0,50	190	0,36~0,50	160	0,36~0,50	570	0,40~0,56	1.550	0,68~0,98
22	520	0,40~0,55	360	0,40~0,55	320	0,40~0,55	170	0,40~0,55	150	0,40~0,55	520	0,42~0,59	1.400	0,73~1,06
24	480	0,41~0,60	330	0,41~0,60	290	0,41~0,60	160	0,41~0,60	135	0,41~0,60	480	0,46~0,65	1.300	0,77~1,13
26	440	0,42~0,65	310	0,42~0,65	270	0,42~0,65	150	0,42~0,65	120	0,42~0,65	440	0,47~0,68	1.200	0,81~1,20
28	410	0,45~0,70	290	0,45~0,70	250	0,45~0,70	140	0,45~0,70	110	0,45~0,70	410	0,50~0,73	1.100	0,84~1,26
30	380	0,48~0,75	270	0,48~0,75	230	0,48~0,75	130	0,48~0,75	105	0,48~0,75	380	0,54~0,78	1.000	0,87~1,32
32	360	0,51~0,80	250	0,51~0,80	220	0,51~0,80	120	0,51~0,80	100	0,51~0,80	360	0,58~0,83	950	0,9~1,38

CUTTING CONDITIONS

Drilling | Solid | Cutting conditions

V-HDO-GDR

	C≤0,2% St37 ~500 N/mm²		C≤0,3% CK50 500~710 N/mm²		SCM 100Cr6 750~1200 N/mm²		SUS SUS300 SUS400		SKD SKD61 ~ 35 HRC		SKD X40CrMoV51 35 ~ 40 HRC		GG GG25 - GGG40		AC AIMG3 - AIMG51	
Vc	32 ~ 63 m/min		22 ~ 36 m/min		20 ~ 32 m/min		16 ~ 24 m/min		10 ~ 18 m/min		8 ~ 12 m/min		32 ~ 50 m/min		63 ~ 125 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
6	2.100	0,13~0,19	1.550	0,13~0,19	1.400	0,13~0,19	1.050	0,13~0,19	740	0,13~0,19	530	0,06~0,12	2.200	0,19~0,26	5.000	0,34~0,48
8	1.600	0,17~0,24	1.150	0,17~0,24	1.050	0,17~0,24	800	0,17~0,24	550	0,17~0,24	400	0,08~0,16	1.650	0,21~0,30	3.750	0,38~0,53
10	1.250	0,20~0,28	920	0,20~0,28	830	0,20~0,28	640	0,20~0,28	445	0,20~0,28	320	0,10~0,20	1.300	0,25~0,36	3.000	0,45~0,63
12	1.050	0,24~0,34	770	0,24~0,34	700	0,24~0,34	530	0,24~0,34	370	0,24~0,34	265	0,12~0,24	1.100	0,30~0,42	2.500	0,53~0,75
14	900	0,28~0,39	660	0,28~0,39	600	0,28~0,39	450	0,28~0,39	320	0,28~0,39	230	0,16~0,29	950	0,32~0,44	2.150	0,57~0,81
16	800	0,30~0,43	580	0,30~0,43	520	0,30~0,43	400	0,30~0,43	280	0,30~0,43	200	0,16~0,29	820	0,34~0,46	1.900	0,61~0,85
18	700	0,34~0,49	510	0,34~0,49	460	0,34~0,49	350	0,34~0,49	250	0,34~0,49	180	0,18~0,32	730	0,36~0,50	1.700	0,63~0,90
20	650	0,36~0,50	460	0,36~0,50	415	0,36~0,50	320	0,36~0,50	220	0,36~0,50	160	0,18~0,34	650	0,40~0,56	1.500	0,68~0,98
22	580	0,40~0,55	420	0,40~0,55	380	0,40~0,55	290	0,40~0,55	200	0,40~0,55	145	0,20~0,37	600	0,42~0,59	1.400	0,73~1,06
24	530	0,41~0,60	380	0,41~0,60	350	0,41~0,60	270	0,41~0,60	185	0,41~0,60	130	0,20~0,38	550	0,46~0,65	1.250	0,77~1,13
26	490	0,42~0,65	360	0,42~0,65	320	0,42~0,65	250	0,42~0,65	170	0,42~0,65	120	0,21~0,42	500	0,47~0,68	1.150	0,81~1,20
28	450	0,45~0,70	330	0,45~0,70	300	0,45~0,70	230	0,45~0,70	160	0,45~0,70	115	0,21~0,45	470	0,50~0,73	1.100	0,84~1,26
30	420	0,48~0,75	310	0,48~0,75	280	0,48~0,75	210	0,48~0,75	150	0,48~0,75	105	0,24~0,46	450	0,54~0,78	1.000	0,87~1,32
32	400	0,51~0,80	300	0,51~0,80	260	0,51~0,80	200	0,51~0,80	140	0,51~0,80	100	0,22~0,48	410	0,58~0,83	950	0,90~1,38

TDXL

	C≤0,2% S50C • S35C 500 ~ 710 N/mm²		SCM SCr • SNCM 710 ~ 900 N/mm²		SKD SKD • SK • DH31 • DAC 710 ~ 900 N/mm²		GGG FCD400 • FCD500 ~ 500 N/mm²		GG FC200 • FC300 ~ 300 N/mm²	
Vc	20 ~ 24 m/min		18 ~ 22 m/min		12 ~ 16 m/min		16 ~ 20 m/min		18 ~ 24 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
1,6	4.000	0,016~0,03	4.000	0,016~0,03	2.700	0,016~0,03	3.600	0,01~0,03	4.150	0,03~0,05
2	3.200	0,02~0,05	3.200	0,02~0,04	2.200	0,02~0,04	2.850	0,01~0,04	3.350	0,04~0,06
3	2.200	0,03~0,08	2.200	0,03~0,08	1.500	0,03~0,07	1.900	0,02~0,08	2.250	0,06~0,10
4	1.600	0,04~0,10	1.600	0,04~0,10	1.150	0,04~0,09	1.460	0,02~0,10	1.650	0,08~0,13
5	1.300	0,05~0,13	1.300	0,05~0,13	900	0,05~0,12	1.150	0,03~0,13	1.350	0,10~0,16
6	1.100	0,06~0,15	1.100	0,06~0,15	750	0,06~0,14	955	0,04~0,15	1.100	0,12~0,19
8	800	0,08~0,20	800	0,08~0,20	550	0,08~0,18	715	0,05~0,20	835	0,16~0,26
10	650	0,10~0,25	650	0,10~0,25	450	0,10~0,23	575	0,06~0,25	670	0,20~0,32
12	550	0,13~0,30	550	0,12~0,30	380	0,12~0,28	475	0,07~0,30	555	0,24~0,38

EX-GDXL

	Carbon Steel CK15 • St40 ~500 N/mm²		Carbon Steel CK45 500 ~ 710 N/mm²		SCM 710 ~ 900 N/mm²		Special Alloy Steel SKD61 ~ 900 N/mm² ~ 28 HRC		Special Alloy Steel SKD11 ~ 1060 N/mm² 28 ~ 34 HRC		GG FC250 ~ 350 N/mm²		Al AC AC4C • ADC	
Vc	16 ~ 24 m/min		20 ~ 25 m/min		12 ~ 16 m/min		10 ~ 20 m/min		6 ~ 10 m/min		20 ~ 30 m/min		20 ~ 35 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
2	3.200	0,03~0,07	3.600	0,03~0,07	2.200	0,03~0,07	2.400	0,03~0,07	1.270	0,02~0,05	4.000	0,02~0,05	4.400	0,03~0,07
3	2.100	0,05~0,10	2.400	0,05~0,10	1.500	0,05~0,10	1.700	0,05~0,10	850	0,04~0,07	2.700	0,04~0,07	3.000	0,05~0,10
4	1.600	0,06~0,12	1.800	0,06~0,12	1.100	0,06~0,12	1.250	0,06~0,12	640	0,05~0,09	2.000	0,05~0,09	2.200	0,06~0,12
5	1.250	0,08~0,13	1.450	0,08~0,13	900	0,08~0,13	1.000	0,08~0,13	510	0,07~0,10	1.600	0,07~0,10	1.800	0,08~0,13
6	1.050	0,10~0,14	1.200	0,10~0,14	750	0,10~0,14	850	0,10~0,14	420	0,09~0,12	1.350	0,09~0,12	1.500	0,10~0,14
7	900	0,12~0,16	1.000	0,12~0,16	640	0,12~0,16	730	0,12~0,16	360	0,10~0,14	1.150	0,10~0,14	1.300	0,12~0,16
8	800	0,14~0,18	900	0,14~0,18	560	0,14~0,18	640	0,14~0,18	320	0,12~0,16	1.000	0,12~0,16	1.100	0,14~0,18
9	700	0,16~0,20	800	0,16~0,20	500	0,16~0,20	570	0,16~0,20	280	0,13~0,18	900	0,13~0,18	1.000	0,16~0,02
10	640	0,18~0,22	720	0,18~0,22	450	0,18~0,22	510	0,18~0,22	260	0,14~0,20	800	0,14~0,2	900	0,18~0,22
11	580	0,20~0,24	650	0,20~0,24	400	0,20~0,24	460	0,20~0,24	230	0,15~0,22	750	0,15~0,22	800	0,20~0,24
12	530	0,22~0,26	600	0,22~0,26	370	0,22~0,26	430	0,22~0,26	210	0,17~0,24	660	0,17~0,24	750	0,22~0,26
13	490	0,24~0,28	550	0,24~0,28	340	0,24~0,28	390	0,24~0,28	200	0,20~0,26	610	0,20~0,26	700	0,24~0,28

CUTTING CONDITIONS

Drilling | Solid | Cutting conditions

HYP-LDS

	C≤0,2% St40 ~ 500 N/mm²		Carbon Steel CK45 500 ~ 710 N/mm²		SCM SCM440 710 ~ 900 N/mm²		Special Steel SKD61 28 HRC		Special Steel SKD11 34 HRC		GG GG25 ~ 350 N/mm²		AC AC4D	
Vc	63 ~ 80 m/min		40 ~ 63 m/min		32 ~ 50 m/min		20 ~ 28 m/min		16 ~ 22 m/min		63 ~ 100 m/min		80 ~ 160 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
3	7.500	0,04~0,08	5.500	0,04~0,08	4.500	0,04~0,08	2.500	0,04~0,08	2.000	0,04~0,08	8.000	0,05~0,09	12.000	0,10~0,22
4	5.700	0,05~0,10	4.100	0,05~0,10	3.300	0,05~0,10	1.900	0,05~0,10	1.500	0,05~0,10	6.500	0,07~0,12	9.500	0,12~0,25
6	3.800	0,06~0,12	2.700	0,06~0,12	2.300	0,06~0,12	1.250	0,06~0,12	1.000	0,06~0,12	4.300	0,12~0,18	6.400	0,14~0,28
8	2.800	0,08~0,15	2.000	0,08~0,15	1.700	0,08~0,15	950	0,08~0,15	750	0,08~0,15	3.200	0,13~0,20	4.800	0,18~0,32
10	2.300	0,10~0,18	1.700	0,10~0,18	1.400	0,10~0,18	750	0,10~0,18	600	0,10~0,18	2.600	0,17~0,25	3.800	0,22~0,36
12	1.900	0,12~0,21	1.400	0,12~0,21	1.200	0,12~0,21	650	0,12~0,21	500	0,12~0,21	2.200	0,21~0,30	3.200	0,25~0,40
16	1.400	0,16~0,28	1.000	0,16~0,28	900	0,16~0,28	500	0,16~0,28	380	0,16~0,28	1.600	0,24~0,32	2.400	0,32~0,48
20	1.150	0,20~0,34	820	0,20~0,34	700	0,20~0,34	400	0,20~0,34	300	0,20~0,34	1.300	0,26~0,40	1.900	0,40~0,60
25	900	0,25~0,45	650	0,25~0,45	560	0,25~0,45	300	0,25~0,45	250	0,25~0,45	1.000	0,30~0,50	1.500	0,50~0,75

TIN-NC-LDS/NC-LDS

	C≤0,2% St40		Carbon Steel CK45		SCM SCM440		Special Steel SKD61 35 HRC		Special Steel SKD11 34 HRC		GG GG25 ~ 350 N/mm2		SUS SUS304		AC AC4D	
Vc	32 ~ 40 m/min		22 ~ 30 m/min		20 ~ 25 m/min		10 ~ 13 m/min		8 ~ 12 m/min		25 ~ 32 m/min		8 ~ 12 m/min		51 ~ 100 m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
3	3.850	0,04~0,08	2.800	0,04~0,08	2.400	0,04~0,08	1.220	0,04~0,08	1.060	0,04~0,08	3.100	0,04~0,09	1.060	0,04~0,08	8.000	0,10~0,22
4	2.900	0,05~0,10	2.100	0,05~0,10	1.800	0,05~0,10	910	0,05~0,10	800	0,05~0,10	2.400	0,05~0,12	800	0,05~0,10	6.000	0,12~0,25
6	1.900	0,06~0,12	1.320	0,06~0,12	1.180	0,06~0,12	610	0,06~0,12	530	0,06~0,12	1.600	0,06~0,18	530	0,06~0,12	4.000	0,14~0,28
8	1.400	0,08~0,15	1.000	0,08~0,15	900	0,08~0,15	450	0,08~0,15	400	0,08~0,15	1.200	0,08~0,20	400	0,08~0,15	3.000	0,18~0,32
10	1.120	0,10~0,18	800	0,10~0,18	710	0,10~0,18	360	0,10~0,18	320	0,10~0,18	950	0,10~0,25	320	0,10~0,18	2.400	0,22~0,36
12	950	0,12~0,21	670	0,12~0,21	600	0,12~0,21	300	0,12~0,21	270	0,12~0,21	800	0,12~0,30	270	0,12~0,21	2.000	0,25~0,40
16	720	0,16~0,28	520	0,16~0,28	450	0,16~0,28	220	0,16~0,28	200	0,16~0,28	600	0,16~0,32	200	0,16~0,28	1.500	0,32~0,48
20	560	0,20~0,34	400	0,20~0,34	360	0,20~0,34	180	0,20~0,34	160	0,20~0,34	480	0,20~0,40	160	0,20~0,34	1.200	0,40~0,60
25	450	0,25~0,45	320	0,25~0,45	290	0,25~0,45	150	0,25~0,45	130	0,25~0,45	380	0,25~0,50	130	0,25~0,45	960	0,50~0,75

HY-PRO-CARB

Centre drilling & Grooving

	C≤0,2% NK2020	SUS NK2020	Die steels NK2020	GG NK1010	Al NK1010
(rev./min)	3.000	2.000	3.000	3.200	4.000
F (mm/min)	80	50	50	200	150

Chamfering

	C≤0,2% NK2020	SUS NK2020	Die steels NK2020	GG NK1010	Al NK1010
(rev./min)	3.000	2.500	3.000	3.000	4.000
F (mm/min)	200	150	150	200	300

CUTTING CONDITIONS

D-DAD

	CFRP	
Vc	60 ~ 120 m/min	
Ø	Speed (min^{-1})	F (mm/rev.)
2,5	11.000	0,03 ~ 0,05
3,27	8.700	0,03 ~ 0,05
4,10	7.000	0,03 ~ 0,05
4,86	6.000	0,03 ~ 0,05
6,37	4.500	0,05 ~ 0,10
9,55	3.000	0,05 ~ 0,10

1. Although coolant is not required, please take adequate measurement against dust (use a vacuum system).
2. The machinability of CFRP varies based on resin type, resin content and clamping method. For thin laminates, reduce feed rate near hole penetration according to the above recommended cutting conditions.
3. Reduce cutting speed accordingly when machining thick laminates.
4. Cutting speed up to 200m/min is possible when drilling with approved coolant fluid.

D-GDN90

	CFRP	
Vc	60 ~ 120 m/min	
Ø	Speed (min^{-1})	F (mm/rev.)
2,5	11.000	0,03 ~ 0,05
3,27	8.700	0,03 ~ 0,05
4,10	7.000	0,03 ~ 0,05
4,86	6.000	0,03 ~ 0,05
6,37	4.500	0,05 ~ 0,10
9,55	3.000	0,05 ~ 0,10

1. Although coolant is not required, please take adequate measurement against dust (use a vacuum system).
2. The machinability of CFRP varies based on resin type, resin content and clamping method. For thin laminates, reduce feed rate near hole penetration according to the above recommended cutting conditions.
3. Reduce cutting speed accordingly when machining thick laminates.
4. Cutting speed up to 200m/min is possible when drilling with approved coolant fluid.

CUTTING CONDITIONS

AD-LDS / AD-LS-LDS

Centring



	Low Carbon Steel - Mild Steel SS400 ~500N/mm²		Carbon Steel S50C 500 ~ 710N/mm²		Alloy Steel SCM 710 ~ 900N/mm²		Special Alloy Steel-Hardened SKD61 ~28HRC ~ 900N/mm²	
Vc	63~80m/min		40~63m/min		32~50m/min		20~30m/min	
Ø	Speed (min⁻¹)	Feed Rate (mm/rev.)	Speed (min⁻¹)	Feed Rate (mm/rev.)	Speed (min⁻¹)	Feed Rate (mm/rev.)	Speed (min⁻¹)	Feed Rate (mm/rev.)
0,5	20.000	0,005 ~ 0,02	25.000	0,005 ~ 0,02	20.000	0,005 ~ 0,02	16.000	0,005 ~ 0,02
1	10.000	0,01 ~ 0,03	16.000	0,01 ~ 0,03	10.000	0,01 ~ 0,03	8.000	0,01 ~ 0,03
2	5.000	0,03 ~ 0,06	8.000	0,03 ~ 0,06	5.000	0,03 ~ 0,06	4.000	0,03 ~ 0,06
3	7.500	0,04 ~ 0,08	5.500	0,04 ~ 0,08	4.500	0,04 ~ 0,08	2.700	0,04 ~ 0,08
4	5.700	0,05 ~ 0,1	4.100	0,05 ~ 0,1	3.300	0,05 ~ 0,1	2.000	0,05 ~ 0,1
6	3.800	0,06 ~ 0,12	2.700	0,06 ~ 0,12	2.300	0,06 ~ 0,12	1.300	0,06 ~ 0,12
8	2.800	0,08 ~ 0,15	2.000	0,08 ~ 0,15	1.700	0,08 ~ 0,15	1.000	0,08 ~ 0,15
10	2.300	0,1 ~ 0,18	1.700	0,1 ~ 0,18	1.400	0,1 ~ 0,18	800	0,1 ~ 0,18
12	1.900	0,12 ~ 0,21	1.400	0,12 ~ 0,21	1.200	0,12 ~ 0,21	650	0,12 ~ 0,21



	Special Alloy Steel-Hardened SKD11 ~34HRC ~ 1060N/mm²		Tool Steel		Cast Iron - Ductile cast iron FCD250-FC400 ~ 500N/mm²		Aluminium - Alloy Casting ADC - AC4D	
Vc	16~22m/min		16~22m/min		63~100m/min		80~160m/min	
Ø	Speed (min⁻¹)	Feed Rate (mm/rev.)	Speed (min⁻¹)	Feed Rate (mm/rev.)	Speed (min⁻¹)	Feed Rate (mm/rev.)	Speed (min⁻¹)	Feed Rate (mm/rev.)
0,5	12.000	0,005 ~ 0,02	12.000	0,005 ~ 0,02	Note 2.	0,005 ~ 0,015	Note 2.	0,02 ~ 0,04
1	6.000	0,01 ~ 0,03	6.000	0,01 ~ 0,03	20.000	0,01 ~ 0,03	Note 2.	0,04 ~ 0,07
2	3.000	0,03 ~ 0,06	3.000	0,03 ~ 0,06	12.000	0,03 ~ 0,06	15.000	0,06 ~ 0,14
3	2.000	0,04 ~ 0,08	2.000	0,04 ~ 0,08	8.000	0,05 ~ 0,09	12.000	0,1 ~ 0,22
4	1.500	0,05 ~ 0,1	1.500	0,05 ~ 0,1	6.500	0,07 ~ 0,12	9.500	0,12 ~ 0,25
6	1.000	0,06 ~ 0,12	1.000	0,06 ~ 0,12	4.300	0,12 ~ 0,18	6.400	0,14 ~ 0,28
8	750	0,08 ~ 0,15	750	0,08 ~ 0,15	3.200	0,13 ~ 0,2	4.800	0,18 ~ 0,32
10	600	0,1 ~ 0,18	600	0,1 ~ 0,18	2.600	0,17 ~ 0,25	3.800	0,22 ~ 0,36
12	500	0,12 ~ 0,21	500	0,12 ~ 0,21	2.200	0,21 ~ 0,3	3.200	0,25 ~ 0,4

Note1. When using AD-LS-LDS, reduce the feed rate accordingly.
Note2. For machines that cannot achieve the speeds indicated in the table please set rotation as high as possible.

1. The indicated speeds and feeds are for drilling with water-soluble coolant.
2. When using non-water-soluble coolant, reduce the drilling speed by 20%.
3. When centering on a curved or inclined surface, reduce the feed rate accordingly.
4. Centering on Austenitic Stainless Steels is not recommended. For these procedures, use the TIN-NC-LDS or the NC-LDS.

Counter Sinking



	Low Carbon Steel - Mild Steel SS400 ~500N/mm²		Carbon Steel S50C 500 ~ 710N/mm²		Alloy Steel SCM 710 ~ 900N/mm²		Special Alloy Steel-Hardened SKD61 ~28HRC ~ 900N/mm²	
Vc	63~80m/min		40~63m/min		32~50m/min		20~30m/min	
Ø	Speed (min⁻¹)	Feed Rate (mm/rev.)	Speed (min⁻¹)	Feed Rate (mm/rev.)	Speed (min⁻¹)	Feed Rate (mm/rev.)	Speed (min⁻¹)	Feed Rate (mm/rev.)
0,5	20.000	0,005 ~ 0,05	25.000	0,005 ~ 0,05	20.000	0,005 ~ 0,05	16.000	0,005 ~ 0,05
1	10.000	0,01 ~ 0,1	16.000	0,01 ~ 0,1	10.000	0,01 ~ 0,1	8.000	0,01 ~ 0,01
2	5.000	0,02 ~ 0,18	8.000	0,02 ~ 0,18	5.000	0,02 ~ 0,18	4.000	0,02 ~ 0,18
3	7.500	0,04 ~ 0,24	5.500	0,04 ~ 0,24	4.500	0,04 ~ 0,24	2.700	0,04 ~ 0,24
4	5.700	0,04 ~ 0,24	4.100	0,04 ~ 0,24	3.300	0,04 ~ 0,24	2.000	0,04 ~ 0,24
6	3.800	0,06 ~ 0,36	2.700	0,06 ~ 0,36	2.300	0,06 ~ 0,36	1.300	0,06 ~ 0,36
8	2.800	0,08 ~ 0,38	2.000	0,08 ~ 0,38	1.700	0,08 ~ 0,38	1.000	0,08 ~ 0,38
10	2.300	0,1 ~ 0,4	1.700	0,1 ~ 0,4	1.400	0,1 ~ 0,4	800	0,1 ~ 0,4
12	1.900	0,12 ~ 0,42	1.400	0,12 ~ 0,42	1.200	0,12 ~ 0,42	650	0,12 ~ 0,42



	Special Alloy Steel-Hardened SKD11 ~34HRC ~ 1060N/mm²		Quenched and Tempered Steel 45~50HRC		Cast Iron - Ductile cast iron FCD250-FC400 ~ 500N/mm²		Aluminium - Alloy Casting ADC - AC4D	
Vc	20~30m/min		20~30m/min		63~100m/min		80~160m/min	
Ø	Speed (min⁻¹)	Feed Rate (mm/rev.)	Speed (min⁻¹)	Feed Rate (mm/rev.)	Speed (min⁻¹)	Feed Rate (mm/rev.)	Speed (min⁻¹)	Feed Rate (mm/rev.)
0,5	16.000	0,005 ~ 0,05	16.000	0,005 ~ 0,02	Note 2.	0,005 ~ 0,05	Note 2.	0,005 ~ 0,05
1	8.000	0,01 ~ 0,1	8.000	0,01 ~ 0,03	20.000	0,01 ~ 0,1	Note 2.	0,01 ~ 0,1
2	4.000	0,02 ~ 0,18	4.000	0,03 ~ 0,06	12.000	0,02 ~ 0,18	15.000	0,02 ~ 0,18
3	2.700	0,04 ~ 0,24	2.700	0,04 ~ 0,08	8.000	0,04 ~ 0,24	12.000	0,04 ~ 0,24
4	2.000	0,04 ~ 0,24	2.000	0,05 ~ 0,1	6.500	0,04 ~ 0,24	9.500	0,04 ~ 0,24
6	1.300	0,06 ~ 0,36	1.300	0,06 ~ 0,12	4.300	0,06 ~ 0,36	6.400	0,06 ~ 0,36
8	1.000	0,08 ~ 0,38	1.000	0,08 ~ 0,15	3.200	0,08 ~ 0,38	4.800	0,08 ~ 0,38
10	800	0,1 ~ 0,4	800	0,1 ~ 0,18	2.600	0,1 ~ 0,4	3.800	0,1 ~ 0,4
12	650	0,12 ~ 0,42	650	0,12 ~ 0,21	2.200	0,12 ~ 0,42	3.200	0,12 ~ 0,42

Note1. When using AD-LS-LDS, reduce the feed rate accordingly.
Note2. For machines that cannot achieve the speeds indicated in the table please set rotation as high as possible.

1. The indicated speeds and feeds are for drilling with water-soluble coolant.
2. When using non-water-soluble coolant, reduce the drilling speed by 20%.
3. When counter sinking on a curved or inclined surface, reduce the feed rate accordingly.
4. For high-speed machining, double the median value of the above cutting condition to use as upper limit.

CUTTING CONDITIONS

Drilling | Solid | Cutting conditions

CRM



	Low Carbon Steel S15C • SS400 AIS11015		Carbon Steel S45C • S50C AIS11045 • 1050		Alloy Steel SCM • SNC • SNCM		Alluminium Alloy A7075 • ADC DIN ALZnMgCul.5D	
Vc	12 ~ 20 m/min		10 ~ 16 m/min		8 ~ 12 m/min		15 ~ 30 m/min	
Ø	F (mm/rev.)	Removal Amount (mm)	F (mm/rev.)	Removal Amount (mm)	F (mm/rev.)	Removal Amount (mm)	F (mm/rev.)	Removal Amount (mm)
0,3	0,002~0,005	0,03~0,08	0,002~0,005	0,03~0,08	0,002~0,005	0,03~0,08	0,002~0,005	0,03~0,08
0,5	0,004~0,01	0,05~0,10	0,004~0,01	0,05~0,10	0,004~0,01	0,05~0,10	0,004~0,01	0,05~0,10
1	0,008~0,015	0,05~0,10	0,008~0,015	0,05~0,10	0,008~0,015	0,05~0,10	0,008~0,015	0,05~0,10
2	0,018~0,03	0,05~0,15	0,018~0,03	0,05~0,15	0,018~0,03	0,05~0,15	0,018~0,03	0,05~0,15
3	0,028~0,045	0,10~0,20	0,028~0,045	0,10~0,20	0,028~0,045	0,10~0,20	0,028~0,045	0,10~0,20
4	0,04~0,06	0,10~0,20	0,04~0,06	0,10~0,20	0,04~0,06	0,10~0,20	0,04~0,06	0,10~0,20
5	0,05~0,09	0,10~0,20	0,05~0,09	0,10~0,20	0,05~0,09	0,10~0,20	0,06~0,09	0,10~0,20
6	0,06~0,12	0,10~0,20	0,06~0,12	0,10~0,20	0,06~0,12	0,10~0,20	0,07~0,13	0,10~0,20
8	0,08~0,15	0,10~0,20	0,08~0,15	0,10~0,20	0,08~0,15	0,10~0,20	0,08~0,18	0,10~0,20
10	0,10~0,20	0,10~0,20	0,10~0,20	0,10~0,20	0,10~0,20	0,10~0,20	0,10~0,23	0,10~0,30
12	0,12~0,22	0,10~0,20	0,12~0,22	0,10~0,20	0,12~0,22	0,10~0,20	0,12~0,28	0,10~0,30
13	0,13~0,23	0,10~0,20	0,13~0,23	0,10~0,20	0,13~0,23	0,10~0,20	0,13~0,30	0,10~0,30



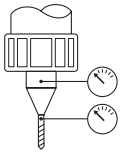
	Hardened Steel SKT • SKD				GG FC250		Copper C1100 DIN ECu57		Stainless Steel		Ti	
	~40HRC		~50 HRC									
Vc	6 ~ 12 m/min		4 ~ 10 m/min		8 ~ 16 m/min		10 ~ 25 m/min		6 ~ 8 m/min		6 ~ 8 m/min	
Ø	F (mm/rev.)	Removal Amount (mm)	F (mm/rev.)	Removal Amount (mm)	F (mm/rev.)	Removal Amount (mm)	F (mm/rev.)	Removal Amount (mm)	F (mm/rev.)	Removal Amount (mm)	F (mm/rev.)	Removal Amount (mm)
0,3	0,001~0,004	0,03~0,08	-	-	0,002~0,005	0,03~0,08	0,002~0,005	0,03~0,08	0,001~0,004	0,03~0,08	0,001~0,004	0,03~0,08
0,5	0,003~0,009	0,05~0,10	-	-	0,004~0,01	0,05~0,10	0,004~0,01	0,05~0,10	0,003~0,009	0,05~0,10	0,003~0,009	0,05~0,10
1	0,007~0,014	0,05~0,10	-	-	0,008~0,015	0,05~0,10	0,008~0,015	0,05~0,10	0,007~0,014	0,05~0,10	0,007~0,014	0,05~0,10
2	0,015~0,027	0,05~0,15	-	-	0,018~0,03	0,05~0,15	0,018~0,03	0,05~0,15	0,015~0,027	0,05~0,15	0,015~0,027	0,05~0,15
3	0,023~0,04	0,10~0,20	0,012~0,03	0,03~0,08	0,028~0,045	0,10~0,20	0,028~0,045	0,10~0,20	0,023~0,04	0,10~0,20	0,023~0,04	0,10~0,20
4	0,032~0,052	0,10~0,20	0,015~0,035	0,03~0,08	0,04~0,06	0,10~0,20	0,04~0,06	0,10~0,20	0,032~0,052	0,10~0,20	0,032~0,052	0,10~0,20
5	0,04~0,08	0,10~0,20	0,02~0,05	0,03~0,08	0,05~0,09	0,10~0,20	0,05~0,09	0,10~0,20	0,04~0,08	0,10~0,20	0,04~0,08	0,10~0,20
6	0,05~0,10	0,10~0,20	0,025~0,055	0,03~0,08	0,06~0,12	0,10~0,20	0,06~0,12	0,10~0,20	0,05~0,10	0,10~0,20	0,05~0,10	0,10~0,20
8	0,06~0,13	0,10~0,20	0,03~0,075	0,03~0,08	0,08~0,15	0,10~0,20	0,08~0,15	0,10~0,20	0,06~0,13	0,10~0,20	0,06~0,13	0,10~0,20
10	0,08~0,18	0,10~0,20	0,04~0,08	0,03~0,08	0,10~0,20	0,10~0,20	0,10~0,20	0,10~0,20	0,08~0,18	0,10~0,20	0,08~0,18	0,10~0,20
12	0,10~0,20	0,10~0,20	0,04~0,09	0,03~0,08	0,12~0,23	0,10~0,20	0,12~0,23	0,10~0,20	0,10~0,20	0,10~0,20	0,10~0,20	0,10~0,20
13	0,10~0,21	0,10~0,20	0,04~0,10	0,03~0,08	0,13~0,25	0,10~0,20	0,13~0,25	0,10~0,20	0,10~0,21	0,10~0,20	0,10~0,21	0,10~0,20

CUTTING CONDITIONS

AD-MICRO 4D/10D

	Mild Steel - Low Carbon Steel SS400 - S10C ~150HB ~500 N/mm²		Carbon Steel S35C - S50C ~210HB ~710 N/mm²		Alloy Steel SCM - SCr - sncm 710 ~900 N/mm²		Alloy Steel SCM - SCr - sncm 900 ~1.000 N/mm²		Special Alloy Steel Hardened Steel - Prehardened steel SUJ2 - SUS440 - SKD 34~40 HRC		Stainless Steel SUS300 - SUS400	
Vc	20~70m/min		20~65m/min		15~55m/min		15~25m/min		15~20m/min		10~20m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
0,5	12.000	0,01 ~ 0,025	12.000	0,008 ~ 0,025	9.500	0,008 ~ 0,025	8.500	0,008 ~ 0,02	8.000	0,008 ~ 0,015	8.000	0,008 ~ 0,025
1	11.000	0,02 ~ 0,05	11.500	0,015 ~ 0,05	9.000	0,015 ~ 0,05	6.000	0,015 ~ 0,04	6.000	0,015 ~ 0,03	6.000	0,015 ~ 0,05
1,5	10.000	0,03 ~ 0,06	10.000	0,023 ~ 0,075	8.00	0,023 ~ 0,075	5.000	0,023 ~ 0,06	4.000	0,023 ~ 0,045	4.000	0,023 ~ 0,075
2	9.000	0,04 ~ 0,08	7.500	0,03 ~ 0,1	6.000	0,03 ~ 0,1	3.800	0,03 ~ 0,08	3.200	0,03 ~ 0,06	3.200	0,03 ~ 0,08
2,5	8.500	0,05 ~ 0,1	7.000	0,05 ~ 0,1	6.000	0,05 ~ 0,1	2.500	0,038 ~ 0,1	2.400	0,038 ~ 0,075	1.300	0,038 ~ 0,075
3	7.500	0,06 ~ 0,12	7.000	0,06 ~ 0,12	6.000	0,06 ~ 0,12	2.500	0,045 ~ 0,12	2.200	0,045 ~ 0,09	1.100	0,045 ~ 0,09

	Precipitation Stainless Steel SUS630		Carbon Steel Ductile Cast Iron FC250 - FCD450 - FCD600 ~600 N/mm²		Aluminium Alloy AC4C - ADC		Aluminium A5052 - A7075		Titanium Alloy		Heat Resistant Alloy Inconel 718	
Vc	10~15m/min		20~70m/min		20~70m/min		20~70m/min		15~25m/min		5~8m/min	
Ø	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)	S (min⁻¹)	F (mm/rev.)
0,5	7.000	0,008 ~ 0,025	12.000	0,01 ~ 0,025	12.000	0,01 ~ 0,03	12.000	0,01 ~ 0,02	10.000	0,008 ~ 0,018	4.000	0,005 ~ 0,015
1	5.000	0,015 ~ 0,05	11.000	0,02 ~ 0,05	11.000	0,02 ~ 0,06	11.000	0,02 ~ 0,04	7.500	0,015 ~ 0,035	2.200	0,01 ~ 0,03
1,5	3.500	0,023 ~ 0,075	10.000	0,03 ~ 0,06	10.000	0,03 ~ 0,09	10.000	0,03 ~ 0,06	5.500	0,023 ~ 0,045	1.500	0,015 ~ 0,045
2	2.500	0,03 ~ 0,08	9.000	0,04 ~ 0,08	9.000	0,04 ~ 0,12	9.000	0,04 ~ 0,08	4.000	0,03 ~ 0,06	1.100	0,02 ~ 0,06
2,5	1.300	0,038 ~ 0,075	8.500	0,05 ~ 0,1	8.500	0,05 ~ 0,15	8.500	0,05 ~ 0,1	3.000	0,038 ~ 0,075	900	0,025 ~ 0,075
3	1.100	0,045 ~ 0,09	7.500	0,06 ~ 0,12	7.500	0,06 ~ 0,18	7.500	0,06 ~ 0,12	2.500	0,045 ~ 0,09	750	0,03 ~ 0,09



1. Please use a carbide drill in a machine with precise spindle rotation.
2. The indicated speeds and feeds are for drilling with water-soluble coolant.
3. Water-soluble high density coolant (less than 20 times dilution) is recommended.
4. Adjust the cutting fluid to consistently reach the tool tip and the hole opening.
5. Regardless of hole depth, perform step drilling using 0.2DC to 0.5DC as a guideline.
6. For AD-MICRO 10D DC<1, perform pilot hole machining according to the guideline"AD-MICRO 10D Recommended Drilling Method" (see p.25).
7. When mounting the drill, use a collet free of scratches and dirt. Ensure the runout accuracy is 0.002 mm or less at the cylindrical body or shank end, as shown in the illustrated figure.
8. Fasten the work material to reduce the possibility of work deformation, deflection of machined surface, or vibration.
9. Refer to the table above to set the milling conditions in accordance with the actual situation.

CUTTING CONDITIONS

Drilling | Solid | Cutting conditions

HS-OIL-CRM



	Low Carbon Steel C15		Carbon Steel C45		Alloy Steel 42CrMo		Tool Steel 30 HRC		GG/GGG	
Vc	120 ~ 300 m/min		120 ~ 300 m/min		120 ~ 300 m/min		100 ~ 200 m/min		120 ~ 300 m/min	
Ø	F (mm/rev.)	Removal Amount (mm)	F (mm/rev.)	Removal Amount (mm)	F (mm/rev.)	Removal Amount (mm)	F (mm/rev.)	Removal Amount (mm)	F (mm/rev.)	Removal Amount (mm)
3	0,3~0,6	0,05	0,3~0,6	0,05	0,3~0,6	0,05	0,3~0,6	0,05	0,3~0,6	0,05
4	0,4~0,8	0,05~0,1	0,4~0,8	0,05~0,1	0,4~0,8	0,05~0,1	0,4~0,8	0,05~0,1	0,4~0,8	0,05~0,1
5	0,5~1,0	0,05~0,1	0,5~1,0	0,05~0,1	0,5~1,0	0,05~0,1	0,5~1,0	0,05~0,1	0,5~1,0	0,05~0,1
6	0,6~1,2	0,1	0,6~1,2	0,1	0,6~1,2	0,1	0,6~1,2	0,1	0,6~1,2	0,1
8	0,8~1,6	0,1~0,2	0,8~1,6	0,1~0,2	0,8~1,6	0,1~0,2	0,8~1,6	0,1~0,2	0,8~1,6	0,1~0,2
10	1,0~2,0	0,1~0,2	1,0~2,0	0,1~0,2	1,0~2,0	0,1~0,2	1,0~2,0	0,1~0,2	1,0~2,0	0,1~0,2
12	1,0~2,0	0,2	1,0~2,0	0,2	1,0~2,0	0,2	1,0~2,0	0,2	1,0~2,0	0,2



	Alluminium Alloy A7075 • CAST AL		Copper C1100		Hardened Steel ~40 HRC		Hardened Steel ~50 HRC	
Vc	120 ~ 300 m/min		120 ~ 300 m/min		120 ~ 300 m/min		50 ~ 100 m/min	
Ø	F (mm/rev.)	Removal Amount (mm)	F (mm/rev.)	Removal Amount (mm)	F (mm/rev.)	Removal Amount (mm)	F (mm/rev.)	Removal Amount (mm)
3	0,3~0,6	0,05	0,3~0,6	0,05	0,3~0,6	0,05	0,05~0,1	0,05
4	0,4~0,8	0,05~0,1	0,4~0,8	0,05~0,1	0,4~0,8	0,05~0,1	0,1~0,2	0,05~0,1
5	0,5~1,0	0,05~0,1	0,5~1,0	0,05~0,1	0,5~1,0	0,05~0,1	0,15~0,3	0,05~0,1
6	0,6~1,2	0,1	0,6~1,2	0,1	0,6~1,2	0,1	0,2~0,4	0,1
8	0,8~1,6	0,1~0,2	0,8~1,6	0,1~0,2	0,8~1,6	0,1~0,2	0,2~0,4	0,1~0,2
10	1,0~2,0	0,1~0,2	1,0~2,0	0,1~0,2	1,0~2,0	0,1~0,2	0,3~0,5	0,1~0,2
12	1,0~2,0	0,2	1,0~2,0	0,2	1,0~2,0	0,2	0,3~0,5	0,2

AL-CRM



	Alluminium Alloy A7075 • CAST AL		Copper C1100	
Vc	40 ~ 120 m/min		30 ~ 90 m/min	
Ø	F (mm/rev.)	Removal Amount (mm)	F (mm/rev.)	Removal Amount (mm)
2	0,05 ~ 0,08	0,1	0,05 ~ 0,08	0,1
3	0,075 ~ 0,12	0,1	0,075 ~ 0,12	0,1
4	0,1 ~ 0,15	0,1	0,1 ~ 0,15	0,1
5	0,12 ~ 0,17	0,1	0,12 ~ 0,17	0,1
6	0,15 ~ 0,2	0,2	0,15 ~ 0,2	0,2
8	0,18 ~ 0,26	0,2	0,18 ~ 0,26	0,2
10	0,2 ~ 0,3	0,3	0,2 ~ 0,3	0,3
12	0,27 ~ 0,36	0,3	0,27 ~ 0,36	0,3

H-CRM



	Tool Steel		Stainless Steel		Ti Alloy		Hardened Steel ~40 HRC		Hardened Steel ~50 HRC		Hardened Steel ~60 HRC	
Vc	15 ~ 30 m/min		10 ~ 20 m/min		10 ~ 20 m/min		9 ~ 18 m/min		9 ~ 18 m/min		6 ~ 12 m/min	
Ø	F (mm/rev.)	Removal Amount (mm)	F (mm/rev.)	Removal Amount (mm)	F (mm/rev.)	Removal Amount (mm)	F (mm/rev.)	Removal Amount (mm)	F (mm/rev.)	Removal Amount (mm)	F (mm/rev.)	Removal Amount (mm)
2	0,03 ~ 0,06	0,1	0,05 ~ 0,08	0,1	0,017 ~ 0,05	0,08	0,03 ~ 0,06	0,1	0,017 ~ 0,05	0,08	0,017 ~ 0,05	0,08
3	0,05 ~ 0,1	0,1	0,075 ~ 0,12	0,1	0,025 ~ 0,075	0,1	0,05 ~ 0,1	0,1	0,025 ~ 0,075	0,1	0,025 ~ 0,075	0,1
4	0,06 ~ 0,12	0,1	0,1 ~ 0,15	0,1	0,03 ~ 0,1	0,1	0,06 ~ 0,12	0,1	0,03 ~ 0,1	0,1	0,03 ~ 0,1	0,1
5	0,08 ~ 0,16	0,1	0,12 ~ 0,17	0,1	0,04 ~ 0,12	0,1	0,08 ~ 0,16	0,1	0,04 ~ 0,12	0,1	0,04 ~ 0,12	0,1
6	0,1 ~ 0,2	0,2	0,15 ~ 0,2	0,2	0,05 ~ 0,15	0,1	0,1 ~ 0,2	0,2	0,05 ~ 0,15	0,1	0,05 ~ 0,15	0,1
8	0,12 ~ 0,26	0,2	0,18 ~ 0,26	0,2	0,06 ~ 0,18	0,1	0,12 ~ 0,26	0,2	0,06 ~ 0,18	0,1	0,06 ~ 0,18	0,1
10	0,15 ~ 0,3	0,3	0,2 ~ 0,3	0,3	0,07 ~ 0,2	0,2	0,15 ~ 0,3	0,3	0,07 ~ 0,2	0,2	0,07 ~ 0,2	0,2
12	0,18 ~ 0,36	0,3	0,27 ~ 0,36	0,3	0,09 ~ 0,27	0,2	0,18 ~ 0,36	0,3	0,09 ~ 0,27	0,2	0,09 ~ 0,27	0,2

CUTTING CONDITIONS

Drilling | Solid | Cutting conditions

ADOX-3D/5D/8D



	Mild Steel - Low Carbon Steel SS400 • S10C ~150HB ~500 N/mm²		Carbon Steel S35C • S50C ~210HB ~710 N/mm²		Alloy Steel SCM • SCr • SNCM 16~28HRC 710~900 N/mm²		Alloy Steel SCM • SCr • SNCM 28~35HRC 900~1.100N/mm²	
Vc	80 ~ 120 m/min		80 ~ 160 m/min		80 ~ 120 m/min		60 ~ 90 m/min	
Ø	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)
2	12.700	0,04 ~ 0,08	12.700	0,04 ~ 0,08	12.700	0,04 ~ 0,08	11.100	0,04 ~ 0,08
3	10.600	0,06 ~ 0,12	10.600	0,06 ~ 0,12	10.600	0,06 ~ 0,12	7.400	0,06 ~ 0,12
4	8.000	0,08 ~ 0,16	8.000	0,08 ~ 0,16	8.000	0,08 ~ 0,16	5.600	0,08 ~ 0,16
5	6.400	0,10 ~ 0,20	6.400	0,10 ~ 0,20	6.400	0,10 ~ 0,20	4.500	0,10 ~ 0,20
6	5.300	0,12 ~ 0,24	5.300	0,12 ~ 0,24	5.300	0,12 ~ 0,24	3.700	0,12 ~ 0,24



	Cast Iron FC250 ~350 N/mm²		Ductile Cast Iron FCD450 - FCD600 400 ~600 N/mm²		Stainless Steel SUS300/400 480 ~800 N/mm²		Special Alloy Steel - Hardened Steel - Prehardened Steel SKD61 (unquenched) 34~40HRC 1.060~1.250N/mm²		AL, AC	
Vc	80 ~ 120 m/min		60 ~ 100 m/min		40 ~ 80 m/min		30 ~ 60 m/min		100 ~ 200 m/min	
Ø	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)
2	12.700	0,04 ~ 0,08	12.700	0,04 ~ 0,08	9.500	0,04 ~ 0,08	7.200	0,04 ~ 0,06	24.000	0,08 ~ 0,12
3	10.600	0,06 ~ 0,12	8.500	0,06 ~ 0,12	6.400	0,06 ~ 0,12	4.800	0,06 ~ 0,09	16.000	0,12 ~ 0,18
4	8.000	0,08 ~ 0,16	6.400	0,08 ~ 0,16	4.800	0,08 ~ 0,16	3.600	0,08 ~ 0,12	12.000	0,16 ~ 0,24
5	6.400	0,10 ~ 0,20	5.100	0,10 ~ 0,20	3.800	0,10 ~ 0,20	2.900	0,10 ~ 0,15	9.500	0,20 ~ 0,30
6	5.300	0,12 ~ 0,24	4.200	0,12 ~ 0,24	3.200	0,12 ~ 0,24	2.400	0,12 ~ 0,18	8.000	0,24 ~ 0,36

1. The indicated speeds and feeds are for drilling with water-soluble coolant or MQL.
2. Water-soluble high density coolant (less than 20 times dilution) is recommended.
3. When using non-water-soluble or water-soluble coolant (over 20 times dilution), reduce cutting speed by 30%.
4. These conditions are for drilling depth less than 8 times the drill diameter.
5. Equip the drill with a scratch- and dust-free collet and minimize drill deflection to less than 0.02mm.
6. Fasten the work material to reduce the possibility of work deformation, deflection of machined surface, or vibration.
7. A clogged oil hole can lead to a breakage. Make sure that a filter is attached to the oil feeder.
8. 1D - 2D step feeding may be required for drilling high hardened steels and mid-range (8D) work.
9. Depending on actual operation environment, high speed cutting parameters listed above may not be applicables

ADOX-10D/15D/20D/25D/30D



	Mild Steel - Low Carbon Steel SS400 - S10C ~150HB ~500 N/mm²		Carbon Steel S35C • S50C ~210HB ~710 N/mm²		Alloy Steel SCM • SCr • SNCM 16~28HRC 710~900 N/mm²		Alloy Steel - Prehardened Steel (C ≥0,3%) SCM440 28~34HRC 900~1,060N/mm²	
Vc	60 ~ 125 m/min		60 ~ 125 m/min		60 ~ 125 m/min		50 ~ 70 m/min	
Ø	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)
2,5	8.900	0,05 ~ 0,1	8.900	0,05 ~ 0,1	8.900	0,05 ~ 0,1	7.600	0,05 ~ 0,08
3	7.500	0,06 ~ 0,12	7.500	0,06 ~ 0,12	7.500	0,06 ~ 0,12	6.300	0,08 ~ 0,11
4	6.400	0,08 ~ 0,16	6.400	0,08 ~ 0,16	6.400	0,08 ~ 0,16	4.700	0,1 ~ 0,15
5	5.800	0,10 ~ 0,20	5.800	0,10 ~ 0,20	5.800	0,10 ~ 0,20	3.800	0,12 ~ 0,18
6	4.800	0,12 ~ 0,24	4.800	0,12 ~ 0,24	4.800	0,12 ~ 0,24	3.100	0,14 ~ 0,2



	Cast Iron FC250 ~350 N/mm²		Ductile Cast Iron FCD450 - FCD600 400 ~600 N/mm²		Stainless Steel SUS300/400 480 ~800 N/mm²		Special Alloy Steel - Hardened Steel - Prehardened Steel SKD61 (unquenched) 34~40HRC 1.060~1.250N/mm²		AL, AC	
Vc	60 ~ 125 m/min		50 ~ 80 m/min		40 ~ 80 m/min		30 ~ 50 m/min		60 ~ 125 m/min	
Ø	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)	S (min^{-1})	F (mm/rev.)
2,5	8.900	0,05 ~ 0,1	8.900	0,05 ~ 0,1	6.400	0,05 ~ 0,1	5.000	0,05 ~ 0,08	8.900	0,05 ~ 0,10
3	7.500	0,06 ~ 0,12	7.500	0,06 ~ 0,12	5.300	0,06 ~ 0,12	4.200	0,08 ~ 0,11	7.500	0,06 ~ 0,12
4	6.400	0,08 ~ 0,16	5.600	0,08 ~ 0,16	4.400	0,08 ~ 0,16	3.100	0,1 ~ 0,15	6.400	0,08 ~ 0,16
5	5.800	0,10 ~ 0,20	4.500	0,10 ~ 0,20	3.800	0,10 ~ 0,20	2.500	0,12 ~ 0,18	5.800	0,10 ~ 0,20
6	4.800	0,12 ~ 0,24	3.800	0,12 ~ 0,24	3.200	0,12 ~ 0,24	2.100	0,14 ~ 0,2	4.800	0,12 ~ 0,24

1. The indicated speeds and feeds are for drilling with water-soluble coolant or MQL (mist drilling in stainless steels is not recommended).
2. Water-soluble high density coolant (20-30 times dilution) is recommended.
3. When using non-water-soluble coolant, set the cutting speed between 70-100% of the lowest limit.
4. Make a pilot hole before using in accordance with recommended operation.
5. A clogged oil hole can lead to a breakage. Make sure that a filter is attached to the oil feeder.
6. Peck drilling of 1D - 2D is strongly recommended.

CUTTING CONDITIONS

Drilling | Indexables | Cutting conditions

PXD

	Mild Steel Low Carbon Steel SS400 - S10C ~ 150HB ~500N/mm²		Carbon Steel S35C - S50C ~ 210HB ~710N/mm²		Alloy Steel SCM - SCr - SNCM 16 ~ 30HRC 710 ~ 950N/mm²		Cast Iron FC250 ~350N/mm²		Ductile Cast Iron FCD450 - FCD600 400 ~ 600N/mm²		Aluminium Alloy Casting AC4C • ADC	
Vc	80 ~ 120 m/min		80 ~ 120 m/min		60 ~ 120 m/min		80 ~ 120 m/min		60 ~ 100 m/min		80 ~ 180 m/min	
Ø	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)	S (min⁻¹)	F (mm/rev)
14	2.300	0,21 0,35	2.300	0,21 0,35	2.000	0,21 0,35	2.300	0,21 0,35	1.800	0,21 0,35	3.000	0,28 0,42
15	2.100	0,23 0,38	2.100	0,23 0,38	1.900	0,23 0,38	2.100	0,23 0,38	1.700	0,23 0,38	2.800	0,3 0,45
16	2.000	0,24 0,4	2.000	0,24 0,4	1.800	0,24 0,4	2.000	0,24 0,4	1.600	0,24 0,4	2.600	0,32 0,48
17	1.900	0,26 0,43	1.900	0,26 0,43	1.700	0,26 0,43	1.900	0,26 0,43	1.500	0,26 0,43	2.400	0,34 0,51
18	1.800	0,27 0,45	1.800	0,27 0,45	1.600	0,27 0,45	1.800	0,27 0,45	1.400	0,27 0,45	2.300	0,36 0,54
19	1.700	0,29 0,48	1.700	0,29 0,48	1.500	0,29 0,48	1.700	0,29 0,48	1.300	0,29 0,48	2.200	0,38 0,57
20	1.600	0,3 0,5	1.600	0,3 0,5	1.400	0,3 0,5	1.600	0,3 0,5	1.300	0,3 0,5	2.100	0,4 0,6
21	1.500	0,32 0,53	1.500	0,32 0,53	1.400	0,32 0,53	1.500	0,32 0,53	1.200	0,32 0,53	2.000	0,42 0,63
22	1.400	0,33 0,55	1.400	0,33 0,55	1.300	0,33 0,55	1.400	0,33 0,55	1.200	0,33 0,55	1.900	0,44 0,66
23	1.400	0,35 0,58	1.400	0,35 0,58	1.200	0,35 0,58	1.400	0,35 0,58	1.100	0,35 0,58	1.800	0,46 0,69
24	1.300	0,36 0,6	1.300	0,36 0,6	1.200	0,36 0,6	1.300	0,36 0,6	1.100	0,36 0,6	1.700	0,48 0,72
25	1.300	0,38 0,63	1.300	0,38 0,63	1.100	0,38 0,63	1.300	0,38 0,63	1.000	0,38 0,63	1.700	0,5 0,75

1. The indicated speeds and feeds are for water soluble oil.
2. Suitable cutting fluid is water soluble high density oil (less than 20 times dilution).
3. Fasten the work material to reduce the possibility of work deformation, deflection of machined surface, or vibration.
4. A clogged oil hole can lead to a breakage. Make sure that a filter is attached to the oil feeder.

PHP

Work Material		Tensile Strength/ Hardness	Drilling speed Vc (m/min)	Feed Rate (mm/rev)			
				ø14~ø20.5	ø21~ø28	ø29~ø34	ø35~ø40
P	Mild Steel-Carbon Steel (SS400-S10C)	~180HB	200 (150 ~ 250)	0,09 (0,06 ~ 0,13)	0,13 (0,10 ~ 0,18)	0,18 (0,13 ~ 0,21)	0,25 (0,20 ~ 0,27)
	Carbon Steel-Alloy Steel (S50C-SCM440)	~280HB	160 (100 ~ 220)	0,09(0,06 ~ 0,13)	0,13 (0,10 ~ 0,18)	0,18 (0,13 ~ 0,21)	0,25 (0,20 ~ 0,27)
	Die steel (SKD11-SKD61)	~280HB	140 (80 ~ 180)	0,08 (0,05 ~ 0,12)	0,12 (0,06 ~ 0,15)	0,14 (0,09 ~ 0,18)	0,15 (0,10 ~ 0,20)
M	Stainless Steel (Dry) (SUS304-SUS420)	~250HB	150 (100 ~ 180)	0,08 (0,05 ~ 0,12)	0,10 (0,06 ~ 0,12)	0,15 (0,10 ~ 0,17)	0,18 (0,15 ~ 0,20)
K	Cast Iron (FC250)	~350N/mm²	150 (100 ~ 180)	0,09 (0,06 ~ 0,13)	0,13 (0,10 ~ 0,18)	0,18 (0,13 ~ 0,21)	0,25 (0,20 ~ 0,27)
	Ductile Cast Iron (FCD400)	~800N/mm²	130 (80 ~ 150)	0,09 (0,06 ~ 0,13)	0,12 (0,08 ~ 0,16)	0,16 (0,1 ~ 0,20)	0,20 (0,15 ~ 0,25)
N	Alluminium Alloy	~13%Si	220 (100 ~ 800)	0,09 (0,06 ~ 0,20)	0,13 (0,10 ~ 0,25)	0,18 (0,13 ~ 0,30)	0,25 (0,20 ~ 0,35)
S	Heat Resistant Aluminium Alloy(Wet) (Inconel 718)	–	30 (15 ~ 50)	0,04 (0,02 ~ 0,06)	0,06 (0,03 ~ 0,10)	0,08 (0,04 ~ 0,12)	0,10 (0,06 ~ 0,14)
	Titanium Alloy (Wet) (Ti-6Al-4V)	–	60 (30 ~ 100)	0,06 (0,04 ~ 0,08)	0,08 (0,06 ~ 0,12)	0,10 (0,08 ~ 0,15)	0,12 (0,10 ~ 0,15)

1. The indicated speeds and feeds are for water soluble oil.
2. Suitable cutting fluid is water soluble high density oil (less than 20 times dilution).
3. Using non-water soluble oil is not recommended.
4. These conditions are for drilling depth less than 3 times the drill diameter.
5. Inserts should be attached to the holder tightly in a very neat condition.
6. Fasten the work material to reduce the possibility of work deformation, deflection of machined surface, or vibration.
7. A clogged oil hole can lead to a breakage. Make sure that a filter is attached to the oil feeder.

CUTTING CONDITIONS

Drilling | Indexables | Cutting conditions

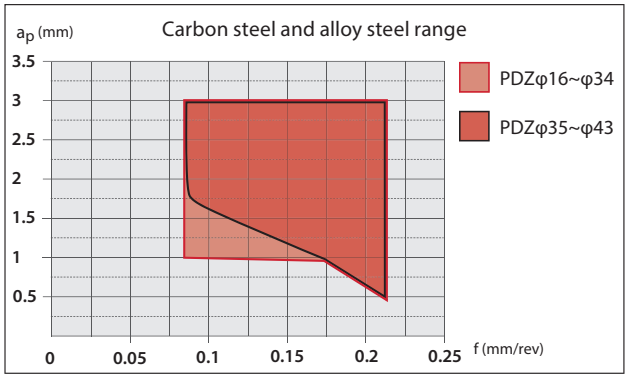
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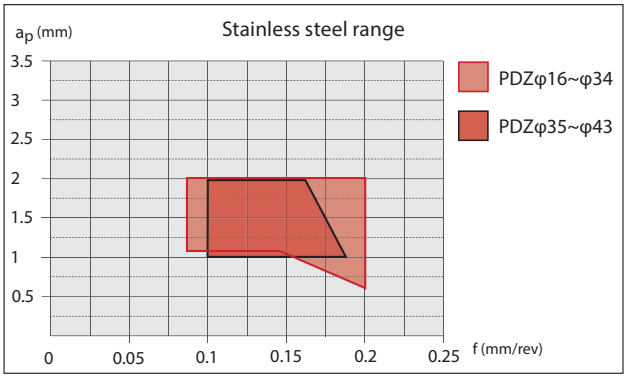
	Work Material	Tensile Strength/ Hardness	Vc (m/min)	Feed Rate (mm/rev)						
				ø16~ø16,5	ø17~ø18,5	ø19~ø20	ø21~ø24	ø25~ø28	ø29~ø33	ø34~ø43
P	Mild Steel-Carbon Steel (SS400-S10C)	~180HB	200 (150~250)	0,06 (0,04~0,1)	0,06 (0,04~0,1)	0,07 (0,04~0,1)	0,08 (0,04~0,12)	0,08 (0,04~0,12)	0,1 (0,05~0,15)	0,1 (0,05~0,18)
P	Carbon Steel-Alloy Steel (S50C-SCM440)	~280HB	150 (100~220)	0,08 (0,04~0,14)	0,09 (0,04~0,16)	0,1 (0,04~0,18)	0,14 (0,04~0,2)	0,18 (0,06~0,25)	0,2 (0,08~0,3)	0,2 (0,08~0,35)
P	Die Steel (SKD11-SKD61)	~280HB	120 (80~180)	0,06 (0,04~0,1)	0,07 (0,04~0,1)	0,08 (0,04~0,12)	0,12 (0,04~0,15)	0,14 (0,06~0,2)	0,18 (0,08~0,25)	0,18 (0,08~0,25)
M	Stainless Steel (SUS304-SUS420)	~250HB	130 (80~180)	0,07 (0,04~0,1)	0,08 (0,04~0,1)	0,09 (0,04~0,12)	0,1 (0,04~0,15)	0,13 (0,06~0,2)	0,15 (0,08~0,25)	0,15 (0,08~0,25)
K	Cast Iron (FC250)	~350N/mm²	200 (150~280)	0,08 (0,04~0,14)	0,1 (0,04~0,16)	0,12 (0,04~0,2)	0,16 (0,08~0,25)	0,2 (0,06~0,3)	0,2 (0,08~0,3)	0,2 (0,08~0,35)
K	Ductile Cast Iron (FCD400)	~800N/mm²	160 (100~220)	0,08 (0,04~0,12)	0,09 (0,04~0,14)	0,1 (0,04~0,18)	0,14 (0,04~0,2)	0,18 (0,06~0,25)	0,18 (0,08~0,25)	0,18 (0,08~0,25)
N	Alluminium Alloy	~13%Si	200 (100~800)	0,08 (0,04~0,12)	0,1 (0,04~0,16)	0,12 (0,04~0,2)	0,16 (0,04~0,25)	0,2 (0,06~0,3)	0,2 (0,08~0,3)	0,2 (0,08~0,3)
S	Heat Resistant Alloy (Wet) (Inconel 718)	–	50 (15~60)	0,04 (0,02~0,06)	0,05 (0,03~0,06)	0,05 (0,03~0,06)	0,06 (0,04~0,08)	0,08 (0,06~0,1)	0,1 (0,06~0,12)	0,1 (0,06~0,12)
S	Titanium Alloy (Wet) (Ti-6Al-4V)	–	60 (30~100)	0,05 (0,04~0,08)	0,06 (0,04~0,08)	0,06 (0,04~0,08)	0,08 (0,04~0,15)	0,1 (0,06~0,2)	0,14 (0,08~0,2)	0,14 (0,08~0,2)
H	Pre-hardened Steel NAK80	40~43HRC	100 (60~120)	0,06 (0,04~0,1)	0,06 (0,04~0,12)	0,07 (0,04~0,12)	0,08 (0,04~0,12)	0,1 (0,06~0,15)	0,1 (0,06~0,15)	0,1 (0,06~0,15)
H	Hardened Steel SKD11	50~55HRC	60 (40~80)	0,05 (0,04~0,08)	0,05 (0,04~0,08)	0,06 (0,04~0,08)	0,06 (0,04~0,08)	0,08 (0,04~0,1)	0,08 (0,04~0,1)	0,08 (0,04~0,1)

1. The indicated speeds and feeds are for using water-soluble oil with inner supply.
2. Suitable cutting fluid is water-soluble in high density (less than 20 times dilution).
3. Using non-water-soluble oil is not recommended.
4. The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting condition.
5. Inserts should be attached to the holder tightly in a very neat condition.
6. Fasten the work material to reduce the possibility of work deformation, deflection of machined surface, or vibration.
7. A clogged oil hole can lead to a breakage. Make sure that a filter is attached to the oil feeder.

Turning

Cutting Conditions of Internal / External Turning





Also supports small diameter drilling

ADF

Carbide Flat Drill

Lineup

ADF-2D	Ø0,2	~	Ø20
ADFO-3D	Ø3	~	Ø20
ADFLS-2D	Ø3	~	Ø20
ADF-NC	Ø2	~	Ø12
ADFO-NC	Ø3	~	Ø10



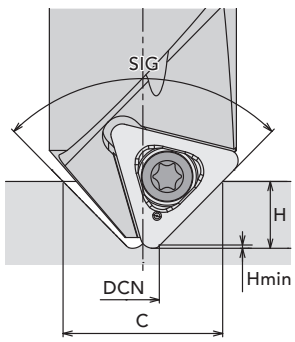
PLDS

Centering and Chamfering Cutter

Work Material		Tensile Strength / Hardness	Vc (m/min) Cutting Speed	(min^{-1}) S	(mm/rev) Feed Rate	
					Centering	Countersinking (Side Feed)
P	Mild Steel-Carbon Steel (SS400-S10C)	~180HB	80 (60~120)	1.500 ~ 3.000	0,06 (0,03 ~ 0,08)	0,08 (0,05 ~ 0,12)
P	Carbon Steel-Alloy Steel (S50C-SCM440)	~280HB	80 (60~120)	1.500 ~ 3.000	0,06 (0,03 ~ 0,08)	0,08 (0,05 ~ 0,12)
P	Die Steel (SKD11-SKD61)	~280HB	80 (60~120)	1.500 ~ 3.000	0,06 (0,03 ~ 0,08)	0,08 (0,05 ~ 0,12)
M	Stainless Steel (Coolant) (SUS304-SUS420)	~250HB	80 (60~120)	1.500 ~ 2.500	0,06 (0,03 ~ 0,08)	0,08 (0,05 ~ 0,12)
K	Cast Iron (FC250)	~350N/mm^2	100 (60~140)	1.500 ~ 3.500	0,06 (0,03 ~ 0,08)	0,08 (0,05 ~ 0,12)
K	Ductile Cast Iron (FCD400)	~800N/mm^2	100 (60~140)	1.500 ~ 3.500	0,06 (0,03 ~ 0,08)	0,08 (0,05 ~ 0,12)
N	Aluminium Alloys	~13%Si	150 (100~200)	2.500 ~ 5.000	0,06 (0,03 ~ 0,08)	0,08 (0,05 ~ 0,12)
S	Heat Resistant Alloys (Wet) (Inconel 718)	–	35 (25~60)	600 ~ 1.500	0,04 (0,03 ~ 0,06)	0,08 (0,05 ~ 0,12)
S	Titanium Alloy (Wet) (Ti-6Al-4V)	–	40 (30~100)	700 ~ 2.500	0,06 (0,03 ~ 0,08)	0,08 (0,05 ~ 0,12)
H	Pre-hardened Steel (NAK80)	40~43HRC	80 (60~100)	1.500 ~ 3.000	0,06 (0,03 ~ 0,08)	0,08 (0,05 ~ 0,12)
H	Steel for Die Casting (DAC-MAGIC, DH31)	43~48HRC	60 (50~80)	1.200 ~ 2.000	0,06 (0,03 ~ 0,08)	0,08 (0,05 ~ 0,12)

1. The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting condition.
2. Inserts should be attached to the holder tightly in a very neat condition.
3. Fasten the work material to reduce the possibility of work deformation, deflection of machined surface, or vibration.
4. For the feed of V slotting, use 80% of the countersinking (side feed) shown in the above table.

Standard centering depth (H)



SIG = 90°
Hmin = 0,25
DCN = Ø 2,5 (minimum machined hole diameter)

H= (C-DCN) / 2 + Hmin

H = Centering depth
C = Countersink diameter

Example:
When SIG=90°C=φ10 (Countersink diameter)
The value of H will be 4 mm instead of 5 mm.

SIG = 120°
Hmin = 0,1
DCN = Ø 2,4 (minimum machined hole diameter)

H= (C-DCN) / 3,46 + Hmin

H = Centering depth
C = Countersink diameter

PMEN

Chamfering Cutter

Work Material		Tensile Strength / Hardness	Vc (m/min) Cutting Speed	Countersinking (Vertical Feed) Feed Rate f(mm/rev)			Countersinking (Side Feed)	Frontal Milling ap:3mm
				Ø8	Ø16~32	Ø40~60	fz(mm/t) Feed per Tooth	fz(mm/t) Feed per Tooth
P	Mild Steel-Carbon Steel (SS400-S10C)	~180HB	80(60~120)	0,06(0,05~0,08)	0,1(0,05~0,12)	0,15(0,12~0,2)	0,1(0,05~0,12)	0,1(0,05~0,12)
	Carbon Steel-Alloy Steel (S50C-SCM440)	~280HB	80(60~120)	0,08(0,05~0,1)	0,12(0,05~0,14)	0,2(0,12~0,3)	0,1(0,05~0,12)	0,1(0,05~0,12)
	Die Steel (SKD11-SKD61)	~280HB	80(60~120)	0,08(0,05~0,1)	0,12(0,05~0,14)	0,2(0,12~0,3)	0,1(0,05~0,12)	0,1(0,05~0,12)
M	Stainless Steel (Dry) (SUS304-SUS420)	~250HB	80(60~100)	0,08(0,05~0,1)	0,12(0,05~0,14)	0,2(0,12~0,3)	0,1(0,05~0,12)	0,1(0,05~0,12)
	Stainless Steel (Wet) (SUS304, SUS420)	~250HB	80(60~100)	0,08(0,05~0,1)	0,12(0,05~0,14)	0,2(0,12~0,3)	0,1(0,05~0,12)	0,1(0,05~0,12)
K	Cast Iron (FC250)	~350N/mm²	200(150~280)	0,08(0,05~0,1)	0,12(0,05~0,14)	0,2(0,12~0,3)	0,1(0,05~0,12)	0,1(0,05~0,12)
	Ductile Cast Iron (FCD400)	~800N/mm²	160(100~220)	0,08(0,05~0,1)	0,12(0,05~0,14)	0,2(0,12~0,3)	0,1(0,05~0,12)	0,1(0,05~0,12)
N	Aluminium Alloys	~13%Si	350(200~500)	0,08(0,05~0,1)	0,12(0,05~0,14)	0,2(0,12~0,3)	0,1(0,05~0,12)	0,1(0,05~0,12)
S	Superalloy (Wet) (Inconel 718)	–	50(30~60)	0,06(0,04~0,08)	0,08(0,05~0,1)	0,1(0,08~0,15)	0,08(0,05~0,1)	0,08(0,05~0,1)
	Titanium Alloy (Wet) (Ti-6Al-4V)	–	60(30~80)	0,06(0,04~0,08)	0,08(0,05~0,1)	0,1(0,08~0,15)	0,08(0,05~0,1)	0,08(0,05~0,1)
H	Pre-hardened Steel (NAK80)	40~43HRC	80(60~100)	0,08(0,05~0,1)	0,12(0,05~0,14)	0,2(0,12~0,3)	0,1(0,05~0,12)	0,1(0,05~0,12)
	Steel for Die Casting (DAC-MAGIC, DH31)	43~48HRC	60(50~80)	0,08(0,05~0,1)	0,12(0,05~0,14)	0,2(0,12~0,3)	0,1(0,05~0,12)	0,1(0,05~0,12)
	Hardened Steel (SKD11)	50~55HRC	50(40~80)	0,08(0,05~0,1)	0,12(0,05~0,14)	0,2(0,12~0,3)	0,1(0,05~0,12)	0,1(0,05~0,12)

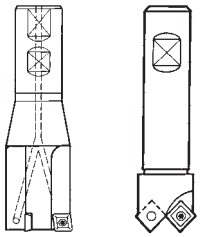
The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting condition.

Recommendations for 49030 series

49030	Projection	
	6 x d	3 x d
	Steel shank f_z ~ 0,1	Steel shank f_z ~ 0,1
Working Material	Vc m/min.	Vc m/min.
Free Cutting Steels General Purpose Steels Case hardening Steels unalloyed, C < 0,2%	50 - 60	150 - 250
Free Cutting Steels General Purpose Steels Tempering Steels alloyed, C < 0,45%	50 - 60	150 - 250
Tempering Steels Tool Steels alloyed, C < 0,8%	50 - 60	150 - 200
Highly Alloyed Steels Tool Steels for Cold / Hot Forming C > 0,8%	50 - 60	150 - 200
Stainless Steels, martensitic Stainless Castings	50 - 60	150 - 200
Stainless Steels, austenitic	50 - 60	150 - 200
High Temperature Alloys on Ni + Co Basis	40 - 60	40 - 90
Titanium Alloys	40 - 60	40 - 90
Grey Cast Iron	50 - 60	150 - 200
Malleable and Nodular Castings	50 - 60	150 - 200
Aluminium	50 - 60	150 - 200
Copper / Brass Bronze	50 - 60	150 - 200

Recommendations

For cutting speeds Vc m/min. and feeds per tooth fz mm for Milling-, Boring- and Chamfering Tools with indexable carbide and Cermet Inserts

Tool:			
Type.:	49037 49038 49039	49100	
Inserts	MPHT MPHW MPMT*	MCHT MCMT*	MBHT MBHW MBMT*
Dimensions	060202 060204*	09T304 09T308*	120404 120408*
f_z:	0,03–0,1 0,03–0,12*	0,05–0,15 0,05–0,25*	0,05–0,15 0,05–0,25*

Working Material	Type	PMK92	CH1	KM22	CT50 CT53	CH1	CT50
		Vc m/min.					
Free Cutting Steel General Purpose Steels Case hardening Steels unalloyed, C < 0,2%	HB 150–200 < 600 mm²	180–350	–	–	300–500	–	300–500
Free Cutting Steel General Purpose Steels Tempering Steels unalloyed, C < 0,45%	HB 175–225 < 800 mm²	160–300	–	–	250–400	–	250–400
Tempering Steels Tool Steels alloyed, C < 0,8%	HB 200–300 < 1000 mm²	140–220	–	–	200–350	–	200–350
Highly Alloyed Steels Tool Steels for Cold / Hot Forming C > 0,8%"	HB 200–300 < 1000 mm²	90–150	–	–	180–250	–	180–250
Stainless Steels, austenitic	HB 140–190 < 700 mm²	–	100–180	150–300	150–300	100–180	150–300
Stainless Steels, martensitic Stainless Castings	HB 175–245 < 1000 mm²	90–180	–	–	150–240	–	150–240
High Temperature Alloys on Ni + Cr Basis	HB 200–400 < 1200 mm²	–	15–60	15–70	15–70	15–60	15–70
Titanium Alloys	HB 215–500 < 1000 mm²	–	40–60	40–70	–	40–60	15–70
Grey Cast Iron	HB < 200	180–300	160–200	180–300	250–400	160–200	250–400
Malleable and Nodular Castings	HB > 200	170–280	150–190	170–280	250–400	150–190	250–400
Aluminium	HB < 160	–	300–1000	300–1000	–	300–1000	300–1000
Copper / Brass Bronze	HB < 120	–	180–200	180–270	–	190–240	200–300

* in function of stability of tool and workpiece

CUTTING CONDITIONS

Drilling | Indexables | Cutting conditions

P2D & P3D

	Work Material	Tensile Strength/ Hardness	Vc (m/min)	Feed Rate (mm/rev)							
				ø12~ø14.5	ø15~ø16.5	ø17~ø18.5	ø19~ø20.5	ø21~ø24.5	ø25~ø28.5	ø29~ø33.5	ø34~ø63
P	Mild Steel-Carbon Steel (SS400-S10C)	~180HB	200 (150~250)	0.06 (0.04~0.08)	0.06 (0.04~0.1)	0.06 (0.04~0.1)	0.07 (0.04~0.1)	0.08 (0.04~0.12)	0.08 (0.04~0.12)	0.1 (0.05~0.15)	0.1 (0.05~0.18)
P	Carbon Steel-Alloy Steel (S50C-SCM440)	~280HB	150 (100~220)	0.08 (0.04~0.12)	0.08 (0.04~0.14)	0.09 (0.04~0.16)	0.1 (0.04~0.18)	0.14 (0.04~0.2)	0.18 (0.06~0.25)	0.2 (0.08~0.3)	0.2 (0.08~0.35)
P	Die steel (SKD11-SKD61)	~280HB	120 (80~180)	0.06 (0.04~0.1)	0.06 (0.04~0.1)	0.07 (0.04~0.1)	0.08 (0.04~0.12)	0.12 (0.04~0.15)	0.14 (0.06~0.2)	0.18 (0.08~0.25)	0.18 (0.08~0.25)
M	Stainless Steel (Dry) (SUS304-SUS420)	~250HB	130 (80~180)	0.07 (0.04~0.1)	0.07 (0.04~0.1)	0.08 (0.04~0.1)	0.09 (0.04~0.12)	0.1 (0.04~0.15)	0.13 (0.06~0.2)	0.15 (0.08~0.25)	0.15 (0.08~0.25)
K	Cast Iron (FC250)	~350N/mm²	200 (150~280)	0.08 (0.04~0.14)	0.08 (0.04~0.14)	0.1 (0.04~0.16)	0.12 (0.04~0.2)	0.16 (0.08~0.25)	0.2 (0.06~0.3)	0.2 (0.08~0.3)	0.2 (0.08~0.35)
K	Ductile Cast Iron (FCD400)	~800N/mm²	160 (100~220)	0.08 (0.04~0.1)	0.08 (0.04~0.12)	0.09 (0.04~0.14)	0.1 (0.04~0.18)	0.14 (0.04~0.2)	0.18 (0.06~0.25)	0.18 (0.08~0.25)	0.18 (0.08~0.25)
N	Alluminium Alloy	~13%Si	200 (100~800)	0.08 (0.04~0.12)	0.08 (0.04~0.12)	0.1 (0.04~0.16)	0.12 (0.04~0.2)	0.16 (0.04~0.25)	0.2 (0.06~0.3)	0.2 (0.08~0.3)	0.2 (0.08~0.3)
S	Heat Resistant Aluminium Alloy(Wet) (Inconel 718)	–	30 (15~50)	0.04 (0.02~0.06)	0.04 (0.02~0.06)	0.05 (0.03~0.06)	0.05 (0.03~0.06)	0.06 (0.04~0.08)	0.08 (0.06~0.1)	0.1 (0.06~0.12)	0.1 (0.06~0.12)
S	Titanium Alloy (Wet) (Ti-6Al-4V)	–	60 (30~100)	0.05 (0.04~0.08)	0.05 (0.04~0.08)	0.06 (0.04~0.08)	0.06 (0.04~0.08)	0.08 (0.04~0.15)	0.1 (0.06~0.2)	0.14 (0.08~0.2)	0.14 (0.08~0.2)
H	Pre-hardened Steel NAK80	40~43HRC	100 (60~120)	0.06 (0.04~0.1)	0.06 (0.04~0.1)	0.06 (0.04~0.12)	0.07 (0.04~0.12)	0.08 (0.04~0.12)	0.1 (0.06~0.15)	0.1 (0.06~0.15)	0.1 (0.06~0.15)
H	Hardened Steel SKD11	50~55HRC	60 (40~80)	0.05 (0.04~0.08)	0.05 (0.04~0.08)	0.05 (0.04~0.08)	0.06 (0.04~0.08)	0.06 (0.04~0.08)	0.08 (0.04~0.1)	0.08 (0.04~0.1)	0.08 (0.04~0.1)

P4D

	Work Material	Tensile Strength/ Hardness	Vc (m/min)	Feed Rate (mm/rev)							
				ø12~ø14.5	ø15~ø16.5	ø17~ø18.5	ø19~ø20.5	ø21~ø24.5	ø25~ø28.5	ø29~ø33.5	ø34~ø63
P	Mild Steel-Carbon Steel (SS400-S10C)	~180HB	200 (150~250)	0.06 (0.04~0.08)	0.06 (0.04~0.08)	0.06 (0.04~0.08)	0.07 (0.04~0.1)	0.08 (0.04~0.12)	0.08 (0.04~0.12)	0.1 (0.05~0.15)	0.1 (0.05~0.18)
P	Carbon Steel-Alloy Steel (S50C-SCM440)	~280HB	150 (100~220)	0.07 (0.04~0.1)	0.08 (0.04~0.14)	0.08 (0.04~0.16)	0.09 (0.04~0.18)	0.12 (0.04~0.15)	0.18 (0.06~0.25)	0.2 (0.08~0.25)	0.2 (0.08~0.3)
P	Die steel (SKD11-SKD61)	~280HB	120 (80~180)	0.06 (0.04~0.08)	0.06 (0.04~0.1)	0.07 (0.04~0.1)	0.08 (0.04~0.12)	0.1 (0.04~0.13)	0.14 (0.06~0.2)	0.18 (0.08~0.25)	0.18 (0.08~0.25)
M	Stainless Steel (Dry) (SUS304-SUS420)	~250HB	130 (80~180)	0.06 (0.04~0.08)	0.06 (0.04~0.08)	0.07 (0.04~0.1)	0.08 (0.04~0.1)	0.08 (0.04~0.1)	0.13 (0.06~0.2)	0.15 (0.08~0.2)	0.15 (0.08~0.2)
K	Cast Iron (FC250)	~350N/mm²	200 (150~280)	0.08 (0.04~0.12)	0.08 (0.04~0.14)	0.09 (0.04~0.16)	0.1 (0.04~0.2)	0.12 (0.04~0.15)	0.2 (0.06~0.3)	0.2 (0.08~0.3)	0.2 (0.08~0.3)
K	Ductile Cast Iron (FCD400)	~800N/mm²	160 (100~220)	0.08 (0.04~0.1)	0.08 (0.04~0.1)	0.08 (0.04~0.12)	0.09 (0.04~0.15)	0.12 (0.04~0.15)	0.15 (0.06~0.25)	0.18 (0.08~0.25)	0.18 (0.08~0.25)
N	Alluminium Alloy	~13%Si	200 (100~800)	0.07 (0.04~0.12)	0.07 (0.04~0.12)	0.09 (0.04~0.12)	0.12 (0.04~0.2)	0.14 (0.04~0.2)	0.2 (0.06~0.3)	0.2 (0.08~0.3)	0.2 (0.08~0.3)
S	Heat Resistant Aluminium Alloy(Wet) (Inconel 718)	–	30 (15~50)	0.04 (0.02~0.06)	0.04 (0.02~0.06)	0.04 (0.02~0.06)	0.04 (0.02~0.06)	0.05 (0.04~0.08)	0.07 (0.06~0.1)	0.08 (0.06~0.12)	0.08 (0.06~0.12)
S	Titanium Alloy (Wet) (Ti-6Al-4V)	–	60 (30~100)	0.05 (0.04~0.08)	0.05 (0.04~0.08)	0.06 (0.04~0.08)	0.06 (0.04~0.08)	0.08 (0.04~0.1)	0.1 (0.06~0.2)	0.14 (0.08~0.2)	0.14 (0.08~0.2)
H	Pre-hardened Steel NAK80	40~43HRC	100 (60~120)	0.06 (0.04~0.1)	0.06 (0.04~0.1)	0.06 (0.04~0.1)	0.06 (0.04~0.1)	0.08 (0.04~0.12)	0.08 (0.06~0.12)	0.1 (0.06~0.13)	0.1 (0.06~0.13)
H	Hardened Steel SKD11	50~55HRC	60 (40~80)	0.05 (0.04~0.08)	0.05 (0.04~0.08)	0.05 (0.04~0.08)	0.06 (0.04~0.08)	0.06 (0.04~0.08)	0.08 (0.04~0.1)	0.08 (0.04~0.1)	0.08 (0.04~0.1)

PHP instructions also valid for P2D

P5D

	Work Material	Tensile Strength/ Hardness	Vc (m/min)	Feed Rate (mm/rev)							
				ø12~ø14.5	ø15~ø16.5	ø17~ø18.5	ø19~ø20.5	ø21~ø24.5	ø25~ø28.5	ø29~ø33.5	ø34~ø63
P	Mild Steel-Carbon Steel (SS400-S10C)	~180HB	200 (150~250)	0.05 (0.04~0.08)	0.05 (0.04~0.08)	0.06 (0.04~0.08)	0.07 (0.04~0.1)	0.08 (0.04~0.12)	0.08 (0.04~0.12)	0.1 (0.05~0.15)	0.1 (0.05~0.18)
P	Carbon Steel-Alloy Steel (S50C-SCM440)	~280HB	150 (100~220)	0.06 (0.04~0.09)	0.06 (0.04~0.09)	0.08 (0.04~0.12)	0.08 (0.04~0.14)	0.12 (0.04~0.15)	0.15 (0.06~0.2)	0.18 (0.08~0.2)	0.18 (0.08~0.25)
P	Die steel (SKD11-SKD61)	~280HB	120 (80~180)	0.06 (0.04~0.08)	0.06 (0.04~0.08)	0.06 (0.04~0.08)	0.07 (0.04~0.1)	0.1 (0.04~0.13)	0.12 (0.06~0.15)	0.15 (0.08~0.18)	0.16 (0.08~0.22)
M	Stainless Steel (Dry) (SUS304-SUS420)	~250HB	130 (80~180)	0.06 (0.04~0.08)	0.06 (0.04~0.08)	0.06 (0.04~0.08)	0.07 (0.04~0.09)	0.08 (0.04~0.1)	0.1 (0.06~0.15)	0.12 (0.06~0.18)	0.12 (0.06~0.2)
K	Cast Iron (FC250)	~350N/mm²	200 (150~280)	0.06 (0.04~0.1)	0.06 (0.04~0.1)	0.08 (0.04~0.12)	0.08 (0.04~0.13)	0.12 (0.04~0.15)	0.15 (0.06~0.2)	0.18 (0.08~0.2)	0.18 (0.08~0.25)
K	Ductile Cast Iron (FCD400)	~800N/mm²	160 (100~220)	0.06 (0.04~0.09)	0.06 (0.04~0.09)	0.08 (0.04~0.12)	0.08 (0.04~0.12)	0.1 (0.04~0.13)	0.12 (0.06~0.15)	0.15 (0.08~0.18)	0.18 (0.08~0.25)
N	Alluminium Alloy	~13%Si	200 (100~800)	0.06 (0.04~0.1)	0.06 (0.04~0.1)	0.09 (0.04~0.12)	0.1 (0.04~0.15)	0.12 (0.04~0.15)	0.15 (0.06~0.25)	0.2 (0.08~0.3)	0.2 (0.08~0.3)
S	Heat Resistant Aluminium Alloy(Wet) (Inconel 718)	–	30 (15~50)	0.04 (0.02~0.06)	0.04 (0.02~0.06)	0.04 (0.02~0.06)	0.04 (0.02~0.06)	0.04 (0.02~0.06)	0.07 (0.06~0.08)	0.07 (0.06~0.08)	0.07 (0.06~0.08)
S	Titanium Alloy (Wet) (Ti-6Al-4V)	–	60 (30~100)	0.05 (0.04~0.08)	0.05 (0.04~0.08)	0.06 (0.04~0.08)	0.06 (0.04~0.08)	0.06 (0.04~0.1)	0.08 (0.06~0.15)	0.1 (0.08~0.15)	0.1 (0.08~0.15)
H	Pre-hardened Steel NAK80	40~43HRC	100 (60~120)	0.06 (0.04~0.08)	0.06 (0.04~0.08)	0.06 (0.04~0.08)	0.06 (0.04~0.08)	0.08 (0.04~0.1)	0.08 (0.06~0.12)	0.1 (0.06~0.12)	0.1 (0.06~0.12)
H	Hardened Steel SKD11	50~55HRC	60 (40~80)	0.05 (0.04~0.07)	0.05 (0.04~0.07)	0.05 (0.04~0.07)	0.06 (0.04~0.07)	0.06 (0.04~0.08)	0.07 (0.04~0.1)	0.08 (0.04~0.1)	0.08 (0.04~0.1)



PZAG

Work Material		Tensile Strength/ Hardness	Vc (m/min)	Feed Rate (mm/rev)				
				ø14~ø17.5	ø20~ø23	ø26~ø48	ø54~ø72	ø76~ø82
P	Mild Steel-Carbon Steel (SS400-S10C)	~180HB	160 (100~200)	0.14(0.08~0.2)	0.18(0.1~0.25)	0.2(0.12~0.3)	0.4(0.2~0.6)	0.4(0.2~0.6)
	Carbon Steel-Alloy Steel (S50C-SCM440)	~280HB	150 (100~220)	0.14(0.08~0.2)	0.18(0.1~0.25)	0.2(0.12~0.3)	0.4(0.2~0.6)	0.4(0.2~0.6)
	Die Steel (SKD11-SKD61)	~280HB	120 (80~180)	0.12(0.08~0.15)	0.14(0.1~0.2)	0.18(0.12~0.25)	0.4(0.2~0.5)	0.4(0.2~0.5)
M	Stainless Steel (Dry) (SUS304-SUS420)	~250HB	130 (80~180)	0.1(0.08~0.15)	0.12(0.1~0.2)	0.16(0.12~0.25)	0.35(0.2~0.5)	0.35(0.2~0.5)
K	Cast Iron (FC250)	~350N/mm²	200 (150~280)	0.16(0.08~0.25)	0.2(0.1~0.3)	0.3(0.15~0.4)	0.6(0.3~0.8)	0.6(0.3~0.8)
	Ductile Cast Iron (FCD400)	~800N/mm²	160 (100~220)	0.14(0.08~0.2)	0.18(0.1~0.25)	0.2(0.15~0.3)	0.4(0.3~0.6)	0.4(0.3~0.6)
N	Alluminium Alloy	~13%Si	200 (100~800)	0.16(0.08~0.25)	0.2(0.1~0.3)	0.3(0.15~0.4)	0.6(0.3~0.8)	0.6(0.3~0.8)
S	Heat Resistant Alloy (Wet) (Inconel 718)	–	50 (30~60)	0.08(0.05~0.14)	0.08(0.06~0.14)	0.12(0.08~0.2)	0.25(0.16~0.4)	0.25(0.16~0.4)
	Titanium Alloy (Wet) (Ti-6Al-4V)	–	60 (30~100)	0.08(0.05~0.14)	0.1(0.06~0.16)	0.14(0.08~0.2)	0.3(0.16~0.5)	0.3(0.16~0.5)
H	Pre-hardened Steel NAK80	40~43HRC	100 (60~120)	0.08(0.05~0.14)	0.1(0.06~0.16)	0.14(0.08~0.2)	0.3(0.16~0.5)	0.3(0.16~0.5)
	Hardened Steel SKD11	50~55HRC	60 (40~80)	0.08(0.05~0.14)	0.08(0.05~0.14)	0.12(0.08~0.2)	0.25(0.16~0.4)	0.25(0.16~0.4)

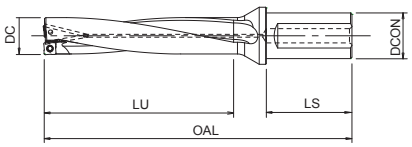
DRILLING INDEXABLE



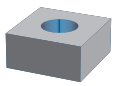
P2D

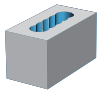
Drilling | Indexable | Body





- Indexable drill with internal coolant
- Up to 2xD
- 3 different insert grades available
- 77 sizes







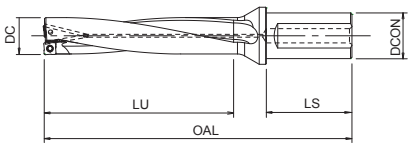
B.558 B.522

EDP	Designation	DC	Applicable inserts type	OAL	LU	LS	DCON
7803180	P2D1200FS20M03	12	XCMT03	87	24	50	20
7803181	P2D1250FS20M03	12,5	XCMT03	88	25	50	20
7803182	P2D1300FS20M03	13	XCMT03	89	26	50	20
7803183	P2D1350FS20M03	13,5	XCMT03	90	27	50	20
7803184	P2D1400FS20M03	14	XCMT03	91	28	50	20
7803185	P2D1450FS20M03	14,5	XCMT03	92	29	50	20
7803117	P2D1500FS20M04	15	XCMT04	95	30	50	20
7803118	P2D1550FS20M04	15,5	XCMT04	96	31	50	20
7803119	P2D1600FS20M04	16	XCMT04	97	32	50	20
7803120	P2D1650FS20M04	16,5	XCMT04	98	33	50	20
7803121	P2D1700FS20M05	17	XCMT05	102	34	50	20
7803122	P2D1750FS20M05	17,5	XCMT05	103	35	50	20
7803190	P2D1750FS25M05	17,5	XCMT05	109	35	56	25
7803123	P2D1800FS25M05	18	XCMT05	110	36	56	25
7803124	P2D1850FS25M05	18,5	XCMT05	111	37	56	25
7803125	P2D1900FS25M06	19	XCMT06	112	38	56	25
7803126	P2D1950FS25M06	19,5	XCMT06	113	39	56	25
7803127	P2D2000FS25M06	20	XCMT06	114	40	56	25
7803128	P2D2050FS25M06	20,5	XCMT06	115	41	56	25
7803129	P2D2100FS25M07	21	XCMT07	121	42	56	25
7803130	P2D2150FS25M07	21,5	XCMT07	122	43	56	25
7803131	P2D2200FS25M07	22	XCMT07	123	44	56	25
7803132	P2D2250FS25M07	22,5	XCMT07	124	45	56	25
7803133	P2D2300FS25M07	23	XCMT07	125	46	56	25
7803134	P2D2350FS32M07	23,5	XCMT07	130	47	60	32
7803191	P2D2350FS25M07	23,5	XCMT07	126	47	56	25
7803135	P2D2400FS32M07	24	XCMT07	131	48	60	32
7803192	P2D2400FS25M07	24	XCMT07	127	48	56	25
7803136	P2D2450FS32M07	24,5	XCMT07	132	49	60	32
7803193	P2D2450FS25M07	24,5	XCMT07	128	49	56	25
7803137	P2D2500FS32M08	25	XCMT08	133	50	60	32
7803194	P2D2500FS25M08	25	XCMT08	129	50	56	25
7803138	P2D2550FS32M08	25,5	XCMT08	134	51	60	32
7803195	P2D2550FS25M08	25,5	XCMT08	130	51	56	25
7803139	P2D2600FS32M08	26	XCMT08	135	52	60	32
7803140	P2D2650FS32M08	26,5	XCMT08	136	53	60	32
7803141	P2D2700FS32M08	27	XCMT08	137	54	60	32
7803142	P2D2800FS32M08	28	XCMT08	139	56	60	32
7803143	P2D2850FS32M08	28,5	XCMT08	140	57	60	32
7803144	P2D2900FS32M09	29	XCMT09	141	58	60	32
7803145	P2D3000FS32M09	30	XCMT09	143	60	60	32
7803146	P2D3100FS32M09	31	XCMT09	145	62	60	32
7803196	P2D3100FS40M09	31	XCMT09	155	62	70	40
7803147	P2D3200FS32M09	32	XCMT09	147	64	60	32
7803197	P2D3200FS40M09	32	XCMT09	157	64	70	40
7803148	P2D3300FS40M09	33	XCMT09	159	66	70	40
7803149	P2D3350FS40M09	33,5	XCMT09	160	67	70	40
7803150	P2D3400FS40M10	34	XCMT10	161	68	70	40
7803151	P2D3500FS40M10	35	XCMT10	163	70	70	40
7803152	P2D3600FS40M10	36	XCMT10	165	72	70	40
7803153	P2D3700FS40M10	37	XCMT10	167	74	70	40
7803154	P2D3800FS40M10	38	XCMT10	169	76	70	40
7803155	P2D3900FS40M12	39	XCMT12	178	78	70	40
7803156	P2D4000FS40M12	40	XCMT12	180	80	70	40

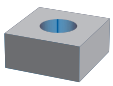
P2D

Drilling | Indexable | Body





- Indexable drill with internal coolant
- Up to 2xD
- 3 different insert grades available
- 77 sizes







B.558 B.522

EDP	Designation	DC	Applicable inserts type	OAL	LU	LS	DCON
7803157	P2D4100FS40M12	41	XCMT12	182	82	70	40
7803158	P2D4200FS40M12	42	XCMT12	184	84	70	40
7803159	P2D4300FS40M12	43	XCMT12	186	86	70	40
7803160	P2D4400FS40M12	44	XCMT12	188	88	70	40
7803161	P2D4500FS40M13	45	XCMT13	190	90	70	40
7803162	P2D4600FS40M13	46	XCMT13	192	92	70	40
7803163	P2D4700FS40M13	47	XCMT13	194	94	70	40
7803164	P2D4800FS40M13	48	XCMT13	196	96	70	40
7803165	P2D4900FS40M13	49	XCMT13	198	98	70	40
7803166	P2D5000FS40M14	50	XCMT14	200	100	70	40
7803167	P2D5100FS40M14	51	XCMT14	202	102	70	40
7803168	P2D5200FS40M14	52	XCMT14	204	104	70	40
7803169	P2D5300FS40M14	53	XCMT14	206	106	70	40
7803170	P2D5400FS40M14	54	XCMT14	208	108	70	40
7803171	P2D5500FS40M14	55	XCMT14	210	110	70	40
7803172	P2D5600FS40M14	56	XCMT14	212	112	70	40
7803173	P2D5700FS40M16	57	XCMT16	214	114	70	40
7803174	P2D5800FS40M16	58	XCMT16	216	116	70	40
7803175	P2D5900FS40M16	59	XCMT16	218	118	70	40
7803176	P2D6000FS40M16	60	XCMT16	220	120	70	40
7803177	P2D6100FS40M16	61	XCMT16	222	122	70	40
7803178	P2D6200FS40M16	62	XCMT16	224	124	70	40
7803179	P2D6300FS40M16	63	XCMT16	226	126	70	40

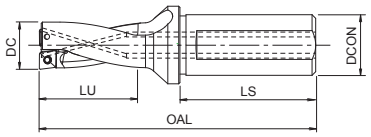
Accessories and spare parts

Applicable drill DC	EDP	Designation	Specification
12 - 14,5	7808096	FS18536P	Clamping screw
15 - 18,5	7808139	FS20543P	Clamping screw
19 - 20,5	7808138	FS22550P	Clamping screw
21 - 24,5	7808136	FS25560P	Clamping screw
25 - 33,5	7808135	FS30570P	Clamping screw
34 - 44	7808137	FS35586P	Clamping screw
45 - 63	7808114	FS45510P	Clamping screw
12 - 18,5	7808223	6IP-D (Torx 6IP)	Wrench
19 - 20,5	7808224	7IP-D (Torx 7IP)	Wrench
21 - 24,5	7808225	8IP-D (Torx 8IP)	Wrench
25 - 33,5	7808226	9IP-D (Torx 9IP)	Wrench
34 - 44	7808228	15IP-D (Torx 15IP)	Wrench
45 - 63	7808229	20IP-D (Torx 20IP)	Wrench

PDZ-2D

Drilling | Indexable | Body





- Indexable flat drill with internal coolant
- Up to 2xD
- 33 sizes



B.564 B.517

EDP	Designation	DC	Applicable inserts type	OAL	LU	LS	DCON
7803776	PDZ1600FS20M05-2D	16	ZPNT050204EN	97	32	50	20
7803777	PDZ1650FS20M05-2D	16,5	ZPNT050204EN	98	33	50	20
7803778	PDZ1700FS20M05-2D	17	ZPNT050204EN	102	34	50	20
7803779	PDZ1750FS25M05-2D	17,5	ZPNT050204EN	109	35	56	25
7803780	PDZ1800FS25M05-2D	18	ZPNT050204EN	110	36	56	25
7803781	PDZ1850FS25M05-2D	18,5	ZPNT050204EN	111	37	56	25
7803782	PDZ1900FS25M06-2D	19	ZPNT060204EN	112	38	56	25
7803783	PDZ1950FS25M06-2D	19,5	ZPNT060204EN	113	39	56	25
7803784	PDZ2000FS25M06-2D	20	ZPNT060204EN	114	40	56	25
7803785	PDZ2100FS25M06-2D	21	ZPNT060204EN	121	42	56	25
7803786	PDZ2200FS25M06-2D	22	ZPNT060204EN	123	44	56	25
7803787	PDZ2300FS25M07-2D	23	ZPNT070304EN	125	46	56	25
7803788	PDZ2400FS25M07-2D	24	ZPNT070304EN	127	48	56	25
7803789	PDZ2500FS25M07-2D	25	ZPNT070304EN	129	50	56	25
7803790	PDZ2500FS32M07-2D	25	ZPNT070304EN	133	50	60	32
7803791	PDZ2600FS32M07-2D	26	ZPNT070304EN	135	52	60	32
7803792	PDZ2700FS32M08-2D	27	ZPNT080304EN	137	54	60	32
7803793	PDZ2800FS32M08-2D	28	ZPNT080304EN	139	56	60	32
7803794	PDZ2900FS32M08-2D	29	ZPNT080304EN	141	58	60	32
7803795	PDZ3000FS32M08-2D	30	ZPNT080304EN	143	60	60	32
7803796	PDZ3100FS32M08-2D	31	ZPNT080304EN	145	62	60	32
7803797	PDZ3200FS32M09-2D	32	ZPNT090404EN	147	64	60	32
7803798	PDZ3300FS40M09-2D	33	ZPNT090404EN	159	66	70	40
7803799	PDZ3400FS40M09-2D	34	ZPNT090404EN	161	68	70	40
7803800	PDZ3500FS40M10-2D	35	ZPNT100408EN	163	70	70	40
7803801	PDZ3600FS40M10-2D	36	ZPNT100408EN	165	72	70	40
7803802	PDZ3700FS40M10-2D	37	ZPNT100408EN	167	74	70	40
7803803	PDZ3800FS40M10-2D	38	ZPNT100408EN	169	76	70	40
7803804	PDZ3900FS40M13-2D	39	ZPNT130508EN	178	78	70	40
7803805	PDZ4000FS40M13-2D	40	ZPNT130508EN	180	80	70	40
7803806	PDZ4100FS40M13-2D	41	ZPNT130508EN	182	82	70	40
7803807	PDZ4200FS40M13-2D	42	ZPNT130508EN	184	84	70	40
7803808	PDZ4300FS40M13-2D	43	ZPNT130508EN	186	86	70	40

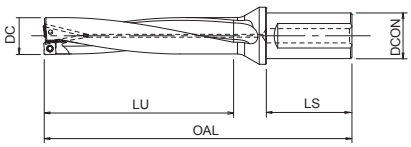
Accessories and spare parts

Applicable drill DC	Applicable inserts	EDP	Designation	Specification	Torque
16 - 18,5	ZPNT050204EN	7808139	FS20543P	Clamping screw	0,7 N.m
19 -22	ZPNT060204EN	7808138	FS22550P	Clamping screw	1,0 N.m
23 - 26	ZPNT070304EN	7808136	FS25560P	Clamping screw	1,6 N.m
27 - 34	ZPNT080304EN / ZPNT090404EN	7808135	FS30570P	Clamping screw	2,2 N.m
35 - 38	ZPNT100408EN	7808137	FS35586P	Clamping screw	3,2 N.m
39 - 43	ZPNT130508EN	7808114	FS45510P	Clamping screw	5,0 N.m
16 - 18,5	ZPNT050204EN	7808223	6IP-D (Torx 6IP)	Wrench	-
19 -22	ZPNT060204EN	7808224	7IP-D (Torx 7IP)	Wrench	-
23 - 26	ZPNT070304EN	7808225	8IP-D (Torx 8IP)	Wrench	-
27 - 34	ZPNT080304EN / ZPNT090404EN	7808226	9IP-D (Torx 9IP)	Wrench	-
35 - 38	ZPNT100408EN	7808228	15IP-D (Torx 15IP)	Wrench	-
39 - 43	ZPNT130508EN	7808229	20IP-D (Torx 20IP)	Wrench	-

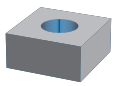
P3D

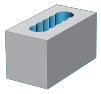
Drilling | Indexable | Body





- Indexable drill with internal coolant
- Up to 3xD
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- 88 sizes







B.558 B.522

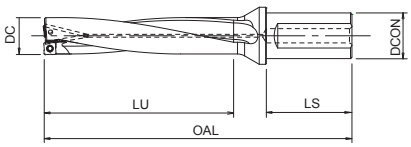
EDP	Designation	DC	Applicable inserts type	OAL	LU	LS	DCON
7803210	P3D1200FS20M03	12	XCMT03	99	36	50	20
7803211	P3D1250FS20M03	12,5	XCMT03	100,5	37,5	50	20
7803212	P3D1270FS20M03	12,7	XCMT03	101,1	38,1	50	20
7803213	P3D1300FS20M03	13	XCMT03	102	39	50	20
7803214	P3D1350FS20M03	13,5	XCMT03	103,5	40,5	50	20
7803215	P3D1400FS20M03	14	XCMT03	105	42	50	20
7803216	P3D1450FS20M03	14,5	XCMT03	106,5	43,5	50	20
7803217	P3D1500FS20M04	15	XCMT04	110	45	50	20
7803218	P3D1550FS20M04	15,5	XCMT04	112	47	50	20
7803219	P3D1600FS20M04	16	XCMT04	113	48	50	20
7803220	P3D1650FS20M04	16,5	XCMT04	115	50	50	20
7803221	P3D1700FS20M05	17	XCMT05	119	51	50	20
7803222	P3D1750FS20M05	17,5	XCMT05	121	53	50	20
7803290	P3D1750FS25M05	17,5	XCMT05	127	53	56	25
7803223	P3D1800FS25M05	18	XCMT05	128	54	56	25
7803224	P3D1850FS25M05	18,5	XCMT05	130	56	56	25
7803225	P3D1900FS25M06	19	XCMT06	131	57	56	25
7803226	P3D1950FS25M06	19,5	XCMT06	133	59	56	25
7803227	P3D2000FS25M06	20	XCMT06	134	60	56	25
7803228	P3D2050FS25M06	20,5	XCMT06	136	62	56	25
7803229	P3D2100FS25M07	21	XCMT07	142	63	56	25
7803230	P3D2150FS25M07	21,5	XCMT07	144	65	56	25
7803231	P3D2200FS25M07	22	XCMT07	145	66	56	25
7803232	P3D2250FS25M07	22,5	XCMT07	147	68	56	25
7803233	P3D2300FS25M07	23	XCMT07	148	69	56	25
7803234	P3D2350FS32M07	23,5	XCMT07	154	71	60	32
7803291	P3D2350FS25M07	23,5	XCMT07	150	71	56	25
7803235	P3D2400FS32M07	24	XCMT07	155	72	60	32
7803292	P3D2400FS25M07	24	XCMT07	151	72	56	25
7803236	P3D2450FS32M07	24,5	XCMT07	157	74	60	32
7803293	P3D2450FS25M07	24,5	XCMT07	153	74	56	25
7803237	P3D2500FS32M08	25	XCMT08	158	75	60	32
7803294	P3D2500FS25M08	25	XCMT08	154	75	56	25
7803238	P3D2550FS32M08	25,5	XCMT08	160	77	60	32
7803295	P3D2550FS25M08	25,5	XCMT08	156	77	56	25
7803239	P3D2600FS32M08	26	XCMT08	161	78	60	32
7803240	P3D2650FS32M08	26,5	XCMT08	163	80	60	32
7803241	P3D2700FS32M08	27	XCMT08	164	81	60	32
7803300	P3D2750FS32M08	27,5	XCMT08	166	83	60	32
7803242	P3D2800FS32M08	28	XCMT08	167	84	60	32
7803243	P3D2850FS32M08	28,5	XCMT08	169	86	60	32
7803244	P3D2900FS32M09	29	XCMT09	170	87	60	32
7803301	P3D2950FS32M09	29,5	XCMT09	172	89	60	32
7803245	P3D3000FS32M09	30	XCMT09	173	90	60	32
7803302	P3D3050FS32M09	30,5	XCMT09	175	92	60	32
7803246	P3D3100FS32M09	31	XCMT09	176	93	60	32
7803296	P3D3100FS40M09	31	XCMT09	186	93	70	40
7803303	P3D3150FS32M09	31,5	XCMT09	178	95	60	32
7803247	P3D3200FS32M09	32	XCMT09	179	96	60	32
7803297	P3D3200FS40M09	32	XCMT09	189	96	70	40
7803304	P3D3250FS40M09	32,5	XCMT09	191	98	70	40
7803248	P3D3300FS40M09	33	XCMT09	192	99	70	40
7803249	P3D3350FS40M09	33,5	XCMT09	194	101	70	40
7803250	P3D3400FS40M10	34	XCMT10	195	102	70	40

P3D

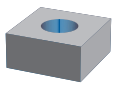
Drilling | Indexable | Body

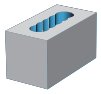
INDEX





- Indexable drill with internal coolant
- Up to 3xD
- 3 different insert grades available
- 88 sizes







B.558 B.522

EDP	Designation	DC	Applicable inserts type	OAL	LU	LS	DCON
7803305	P3D3450FS40M10	34,5	XCMT10	197	104	70	40
7803251	P3D3500FS40M10	35	XCMT10	198	105	70	40
7803306	P3D3550FS40M10	35,5	XCMT10	200	107	70	40
7803252	P3D3600FS40M10	36	XCMT10	201	108	70	40
7803253	P3D3700FS40M10	37	XCMT10	204	111	70	40
7803307	P3D3750FS40M10	37,5	XCMT10	206	113	70	40
7803254	P3D3800FS40M10	38	XCMT10	207	114	70	40
7803255	P3D3900FS40M12	39	XCMT12	217	117	70	40
7803256	P3D4000FS40M12	40	XCMT12	220	120	70	40
7803308	P3D4050FS40M12	40,5	XCMT12	222	122	70	40
7803257	P3D4100FS40M12	41	XCMT12	223	123	70	40
7803258	P3D4200FS40M12	42	XCMT12	226	126	70	40
7803259	P3D4300FS40M12	43	XCMT12	229	129	70	40
7803260	P3D4400FS40M12	44	XCMT12	232	132	70	40
7803261	P3D4500FS40M13	45	XCMT13	235	135	70	40
7803262	P3D4600FS40M13	46	XCMT13	238	138	70	40
7803263	P3D4700FS40M13	47	XCMT13	241	141	70	40
7803264	P3D4800FS40M13	48	XCMT13	244	144	70	40
7803265	P3D4900FS40M13	49	XCMT13	247	147	70	40
7803266	P3D5000FS40M14	50	XCMT14	250	150	70	40
7803309	P3D5050FS40M14	50,5	XCMT14	252	152	70	40
7803267	P3D5100FS40M14	51	XCMT14	253	153	70	40
7803268	P3D5200FS40M14	52	XCMT14	256	156	70	40
7803269	P3D5300FS40M14	53	XCMT14	259	159	70	40
7803270	P3D5400FS40M14	54	XCMT14	262	162	70	40
7803271	P3D5500FS40M14	55	XCMT14	265	165	70	40
7803272	P3D5600FS40M14	56	XCMT14	268	168	70	40
7803273	P3D5700FS40M16	57	XCMT16	271	171	70	40
7803274	P3D5800FS40M16	58	XCMT16	274	174	70	40
7803275	P3D5900FS40M16	59	XCMT16	277	177	70	40
7803276	P3D6000FS40M16	60	XCMT16	280	180	70	40
7803277	P3D6100FS40M16	61	XCMT16	283	183	70	40
7803278	P3D6200FS40M16	62	XCMT16	286	186	70	40
7803279	P3D6300FS40M16	63	XCMT16	289	189	70	40

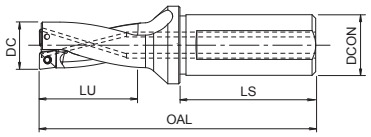
Accessories and spare parts

Applicable drill DC	EDP	Designation	Specification
12 - 14,5	7808096	FS18536P	Clamping screw
15 - 18,5	7808139	FS20543P	Clamping screw
19 - 20,5	7808138	FS22550P	Clamping screw
21 - 24,5	7808136	FS25560P	Clamping screw
25 - 33,5	7808135	FS30570P	Clamping screw
34 - 44	7808137	FS35586P	Clamping screw
45 - 63	7808114	FS45510P	Clamping screw
12 - 18,5	7808223	6IP-D (Torx 6IP)	Wrench
19 - 20,5	7808224	7IP-D (Torx 7IP)	Wrench
21 - 24,5	7808225	8IP-D (Torx 8IP)	Wrench
25 - 33,5	7808226	9IP-D (Torx 9IP)	Wrench
34 - 44	7808228	15IP-D (Torx 15IP)	Wrench
45 - 63	7808229	20IP-D (Torx 20IP)	Wrench

PDZ (3D)

Drilling | Indexable | Body





- Indexable flat drill with internal coolant
- Up to 3xD
- 33 sizes



B.564 B.517

EDP	Designation	DC	Applicable inserts type	OAL	LU	LS	DCON
7803828	PDZ1600FS20M05-3D	16	ZPNT050204EN	113	48	50	20
7803829	PDZ1650FS20M05-3D	16,5	ZPNT050204EN	115	49.5	50	20
7803830	PDZ1700FS20M05-3D	17	ZPNT050204EN	119	51	50	20
7803831	PDZ1750FS25M05-3D	17,5	ZPNT050204EN	127	52.5	56	25
7803832	PDZ1800FS25M05-3D	18	ZPNT050204EN	128	54	56	25
7803833	PDZ1850FS25M05-3D	18,5	ZPNT050204EN	130	55.5	56	25
7803834	PDZ1900FS25M06-3D	19	ZPNT060204EN	131	57	56	25
7803835	PDZ1950FS25M06-3D	19,5	ZPNT060204EN	133	58.5	56	25
7803836	PDZ2000FS25M06-3D	20	ZPNT060204EN	134	60	56	25
7803837	PDZ2100FS25M06-3D	21	ZPNT060204EN	142	63	56	25
7803838	PDZ2200FS25M06-3D	22	ZPNT060204EN	145	66	56	25
7803839	PDZ2300FS25M07-3D	23	ZPNT070304EN	148	69	56	25
7803840	PDZ2400FS25M07-3D	24	ZPNT070304EN	151	72	56	25
7803841	PDZ2500FS25M07-3D	25	ZPNT070304EN	154	75	56	25
7803842	PDZ2500FS32M07-3D	25	ZPNT070304EN	158	75	60	32
7803843	PDZ2600FS32M07-3D	26	ZPNT070304EN	161	78	60	32
7803844	PDZ2700FS32M08-3D	27	ZPNT080304EN	164	81	60	32
7803845	PDZ2800FS32M08-3D	28	ZPNT080304EN	167	84	60	32
7803846	PDZ2900FS32M08-3D	29	ZPNT080304EN	170	87	60	32
7803847	PDZ3000FS32M08-3D	30	ZPNT080304EN	173	90	60	32
7803848	PDZ3100FS32M08-3D	31	ZPNT080304EN	176	93	60	32
7803849	PDZ3200FS32M09-3D	32	ZPNT090404EN	179	96	60	32
7803850	PDZ3300FS40M09-3D	33	ZPNT090404EN	192	99	70	40
7803851	PDZ3400FS40M09-3D	34	ZPNT090404EN	195	102	70	40
7803852	PDZ3500FS40M10-3D	35	ZPNT100408EN	198	105	70	40
7803853	PDZ3600FS40M10-3D	36	ZPNT100408EN	201	108	70	40
7803854	PDZ3700FS40M10-3D	37	ZPNT100408EN	204	111	70	40
7803855	PDZ3800FS40M10-3D	38	ZPNT100408EN	207	114	70	40
7803856	PDZ3900FS40M13-3D	39	ZPNT130508EN	217	117	70	40
7803857	PDZ4000FS40M13-3D	40	ZPNT130508EN	220	120	70	40
7803858	PDZ4100FS40M13-3D	41	ZPNT130508EN	223	123	70	40
7803859	PDZ4200FS40M13-3D	42	ZPNT130508EN	226	126	70	40
7803860	PDZ4300FS40M13-3D	43	ZPNT130508EN	229	129	70	40

Accessories and spare parts

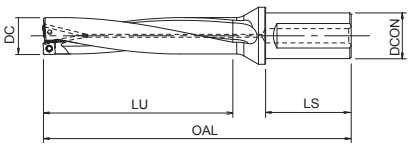
Applicable drill DC	Applicable inserts type	EDP	Designation	Specification	Torque
16 - 18,5	ZPNT050204EN	7808139	FS20543P	Clamping screw	0,7 N.m
19 -22	ZPNT060204EN	7808138	FS22550P	Clamping screw	1,0 N.m
23 - 26	ZPNT070304EN	7808136	FS25560P	Clamping screw	1,6 N.m
27 - 34	ZPNT080304EN / ZPNT090404EN	7808135	FS30570P	Clamping screw	2,2 N.m
35 - 38	ZPNT100408EN	7808137	FS35586P	Clamping screw	3,2 N.m
39 - 43	ZPNT130508EN	7808114	FS45510P	Clamping screw	5,0 N.m
16 - 18,5	ZPNT050204EN	7808223	6IP-D (Torx 6IP)	Wrench	-
19 -22	ZPNT060204EN	7808224	7IP-D (Torx 7IP)	Wrench	-
23 - 26	ZPNT070304EN	7808225	8IP-D (Torx 8IP)	Wrench	-
27 - 34	ZPNT080304EN / ZPNT090404EN	7808226	9IP-D (Torx 9IP)	Wrench	-
35 - 38	ZPNT100408EN	7808228	15IP-D (Torx 15IP)	Wrench	-
39 - 43	ZPNT130508EN	7808229	20IP-D (Torx 20IP)	Wrench	-

P4D

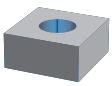
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- Indexable drill with internal coolant
- Up to 4xD
- 3 different insert grades available
- 77 sizes







B.558 B.522

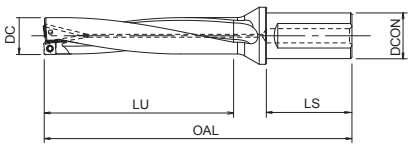
EDP	Designation	DC	Applicable inserts type	OAL	LU	LS	DCON
7803311	P4D1200FS20M03	12	XCMT03	111	48	50	20
7803312	P4D1250FS20M03	12,5	XCMT03	113	50	50	20
7803313	P4D1300FS20M03	13	XCMT03	115	52	50	20
7803314	P4D1350FS20M03	13,5	XCMT03	117	54	50	20
7803315	P4D1400FS20M03	14	XCMT03	119	56	50	20
7803316	P4D1450FS20M03	14,5	XCMT03	121	58	50	20
7803317	P4D1500FS20M04	15	XCMT04	125	60	50	20
7803318	P4D1550FS20M04	15,5	XCMT04	127	62	50	20
7803319	P4D1600FS20M04	16	XCMT04	129	64	50	20
7803320	P4D1650FS20M04	16,5	XCMT04	131	66	50	20
7803321	P4D1700FS20M05	17	XCMT05	136	68	50	20
7803322	P4D1750FS20M05	17,5	XCMT05	138	70	50	20
7803390	P4D1750FS25M05	17,5	XCMT05	144	70	56	25
7803323	P4D1800FS25M05	18	XCMT05	146	72	56	25
7803324	P4D1850FS25M05	18,5	XCMT05	148	74	56	25
7803325	P4D1900FS25M06	19	XCMT06	150	76	56	25
7803326	P4D1950FS25M06	19,5	XCMT06	152	78	56	25
7803327	P4D2000FS25M06	20	XCMT06	154	80	56	25
7803328	P4D2050FS25M06	20,5	XCMT06	156	82	56	25
7803329	P4D2100FS25M07	21	XCMT07	163	84	56	25
7803330	P4D2150FS25M07	21,5	XCMT07	165	86	56	25
7803331	P4D2200FS25M07	22	XCMT07	167	88	56	25
7803332	P4D2250FS25M07	22,5	XCMT07	169	90	56	25
7803333	P4D2300FS25M07	23	XCMT07	171	92	56	25
7803334	P4D2350FS32M07	23,5	XCMT07	177	94	60	32
7803391	P4D2350FS25M07	23,5	XCMT07	173	94	56	25
7803335	P4D2400FS32M07	24	XCMT07	179	96	60	32
7803392	P4D2400FS25M07	24	XCMT07	175	96	56	25
7803336	P4D2450FS32M07	24,5	XCMT07	181	98	60	32
7803393	P4D2450FS25M07	24,5	XCMT07	177	98	56	25
7803337	P4D2500FS32M08	25	XCMT08	183	100	60	32
7803394	P4D2500FS25M08	25	XCMT08	179	100	56	25
7803338	P4D2550FS32M08	25,5	XCMT08	185	102	60	32
7803395	P4D2550FS25M08	25,5	XCMT08	181	102	56	25
7803339	P4D2600FS32M08	26	XCMT08	187	104	60	32
7803340	P4D2650FS32M08	26,5	XCMT08	189	106	60	32
7803341	P4D2700FS32M08	27	XCMT08	191	108	60	32
7803342	P4D2800FS32M08	28	XCMT08	195	112	60	32
7803343	P4D2850FS32M08	28,5	XCMT08	197	114	60	32
7803344	P4D2900FS32M09	29	XCMT09	199	116	60	32
7803345	P4D3000FS32M09	30	XCMT09	203	120	60	32
7803346	P4D3100FS32M09	31	XCMT09	207	124	60	32
7803396	P4D3100FS40M09	31	XCMT09	217	124	70	40
7803347	P4D3200FS32M09	32	XCMT09	211	128	60	32
7803397	P4D3200FS40M09	32	XCMT09	221	128	70	40
7803348	P4D3300FS40M09	33	XCMT09	225	132	70	40
7803349	P4D3350FS40M09	33,5	XCMT09	227	134	70	40
7803350	P4D3400FS40M10	34	XCMT10	229	136	70	40
7803351	P4D3500FS40M10	35	XCMT10	233	140	70	40
7803352	P4D3600FS40M10	36	XCMT10	237	144	70	40
7803353	P4D3700FS40M10	37	XCMT10	241	148	70	40
7803354	P4D3800FS40M10	38	XCMT10	245	152	70	40
7803355	P4D3900FS40M12	39	XCMT12	256	156	70	40
7803356	P4D4000FS40M12	40	XCMT12	260	160	70	40

P4D

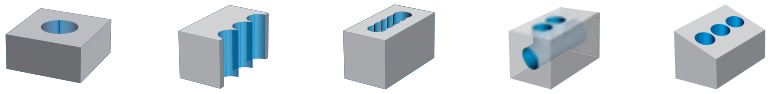
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- Indexable drill with internal coolant
- Up to 4xD
- 3 different insert grades available
- 77 sizes



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EDP	Designation	DC	Applicable inserts type	OAL	LU	LS	DCON
7803357	P4D4100FS40M12	41	XCMT12	264	164	70	40
7803358	P4D4200FS40M12	42	XCMT12	268	168	70	40
7803359	P4D4300FS40M12	43	XCMT12	272	172	70	40
7803360	P4D4400FS40M12	44	XCMT12	276	176	70	40
7803361	P4D4500FS40M13	45	XCMT13	280	180	70	40
7803362	P4D4600FS40M13	46	XCMT13	284	184	70	40
7803363	P4D4700FS40M13	47	XCMT13	288	188	70	40
7803364	P4D4800FS40M13	48	XCMT13	292	192	70	40
7803365	P4D4900FS40M13	49	XCMT13	296	196	70	40
7803366	P4D5000FS40M14	50	XCMT14	300	200	70	40
7803367	P4D5100FS40M14	51	XCMT14	304	204	70	40
7803368	P4D5200FS40M14	52	XCMT14	308	208	70	40
7803369	P4D5300FS40M14	53	XCMT14	312	212	70	40
7803370	P4D5400FS40M14	54	XCMT14	316	216	70	40
7803371	P4D5500FS40M14	55	XCMT14	320	220	70	40
7803372	P4D5600FS40M14	56	XCMT14	324	224	70	40
7803373	P4D5700FS40M16	57	XCMT16	328	228	70	40
7803374	P4D5800FS40M16	58	XCMT16	332	232	70	40
7803375	P4D5900FS40M16	59	XCMT16	336	236	70	40
7803376	P4D6000FS40M16	60	XCMT16	340	240	70	40
7803377	P4D6100FS40M16	61	XCMT16	344	244	70	40
7803378	P4D6200FS40M16	62	XCMT16	348	248	70	40
7803379	P4D6300FS40M16	63	XCMT16	352	252	70	40

Accessories and spare parts

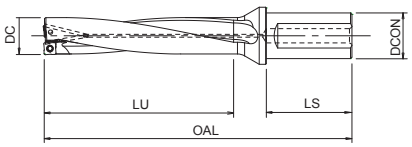
Applicable drill DC	EDP	Designation	Specification
12 - 14,5	7808096	FS18536P	Clamping screw
15 - 18,5	7808139	FS20543P	Clamping screw
19 - 20,5	7808138	FS22550P	Clamping screw
21 - 24,5	7808136	FS25560P	Clamping screw
25 - 33,5	7808135	FS30570P	Clamping screw
34 - 44	7808137	FS35586P	Clamping screw
45 - 63	7808114	FS45510P	Clamping screw
12 - 18,5	7808223	6IP-D (Torx 6IP)	Wrench
19 - 20,5	7808224	7IP-D (Torx 7IP)	Wrench
21 - 24,5	7808225	8IP-D (Torx 8IP)	Wrench
25 - 33,5	7808226	9IP-D (Torx 9IP)	Wrench
34 - 44	7808228	15IP-D (Torx 15IP)	Wrench
45 - 63	7808229	20IP-D (Torx 20IP)	Wrench

P5D

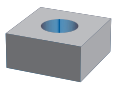
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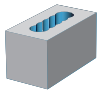
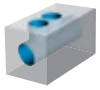
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- Indexable drill with internal coolant
- Up to 5xD
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- 77 sizes




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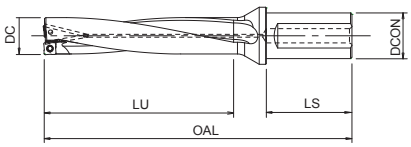
EDP	Designation	DC	Applicable inserts type	OAL	LU	LS	DCON
7802780	P5D1200FS20M03	12	XCMT03	123	60	50	20
7802781	P5D1250FS20M03	12,5	XCMT03	125,5	62,5	50	20
7802782	P5D1300FS20M03	13	XCMT03	128	65	50	20
7802783	P5D1350FS20M03	13,5	XCMT03	130,5	67,5	50	20
7802784	P5D1400FS20M03	14	XCMT03	133	70	50	20
7802785	P5D1450FS20M03	14,5	XCMT03	135,5	72,5	50	20
7802717	P5D1500FS20M04	15	XCMT04	140	75	50	20
7802718	P5D1550FS20M04	15,5	XCMT04	143	78	50	20
7802719	P5D1600FS20M04	16	XCMT04	145	80	50	20
7802720	P5D1650FS20M04	16,5	XCMT04	148	83	50	20
7802721	P5D1700FS20M05	17	XCMT05	153	85	50	20
7802722	P5D1750FS20M05	17,5	XCMT05	156	88	50	20
7802790	P5D1750FS25M05	17,5	XCMT05	162	88	56	25
7802723	P5D1800FS25M05	18	XCMT05	164	90	56	25
7802724	P5D1850FS25M05	18,5	XCMT05	167	93	56	25
7802725	P5D1900FS25M06	19	XCMT06	169	95	56	25
7802726	P5D1950FS25M06	19,5	XCMT06	172	98	56	25
7802727	P5D2000FS25M06	20	XCMT06	174	100	56	25
7802728	P5D2050FS25M06	20,5	XCMT06	177	103	56	25
7802729	P5D2100FS25M07	21	XCMT07	184	105	56	25
7802730	P5D2150FS25M07	21,5	XCMT07	187	108	56	25
7802731	P5D2200FS25M07	22	XCMT07	189	110	56	25
7802732	P5D2250FS25M07	22,5	XCMT07	192	113	56	25
7802733	P5D2300FS25M07	23	XCMT07	194	115	56	25
7802734	P5D2350FS32M07	23,5	XCMT07	201	118	60	32
7802791	P5D2350FS25M07	23,5	XCMT07	197	118	56	25
7802735	P5D2400FS32M07	24	XCMT07	203	120	60	32
7802792	P5D2400FS25M07	24	XCMT07	199	120	56	25
7802736	P5D2450FS32M07	24,5	XCMT07	206	123	60	32
7802793	P5D2450FS25M07	24,5	XCMT07	202	123	56	25
7802737	P5D2500FS32M08	25	XCMT08	208	125	60	32
7802794	P5D2500FS25M08	25	XCMT08	204	125	56	25
7802738	P5D2550FS32M08	25,5	XCMT08	211	128	60	32
7802795	P5D2550FS25M08	25,5	XCMT08	207	128	56	25
7802739	P5D2600FS32M08	26	XCMT08	213	130	60	32
7802740	P5D2650FS32M08	26,5	XCMT08	216	133	60	32
7802741	P5D2700FS32M08	27	XCMT08	218	135	60	32
7802742	P5D2800FS32M08	28	XCMT08	223	140	60	32
7802743	P5D2850FS32M08	28,5	XCMT08	226	143	60	32
7802744	P5D2900FS32M09	29	XCMT09	228	145	60	32
7802745	P5D3000FS32M09	30	XCMT09	233	150	60	32
7802746	P5D3100FS32M09	31	XCMT09	238	155	60	32
7802796	P5D3100FS40M09	31	XCMT09	248	155	70	40
7802747	P5D3200FS32M09	32	XCMT09	243	160	60	32
7802797	P5D3200FS40M09	32	XCMT09	253	160	70	40
7802748	P5D3300FS40M09	33	XCMT09	258	165	70	40
7802749	P5D3350FS40M09	33,5	XCMT09	261	168	70	40
7802750	P5D3400FS40M10	34	XCMT10	263	170	70	40
7802751	P5D3500FS40M10	35	XCMT10	268	175	70	40
7802752	P5D3600FS40M10	36	XCMT10	273	180	70	40
7802753	P5D3700FS40M10	37	XCMT10	278	185	70	40
7802754	P5D3800FS40M10	38	XCMT10	283	190	70	40
7802755	P5D3900FS40M12	39	XCMT12	295	195	70	40
7802756	P5D4000FS40M12	40	XCMT12	300	200	70	40

P5D

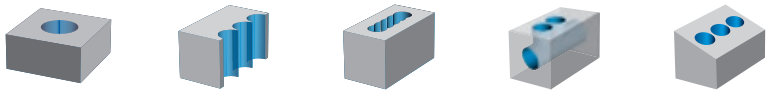
Drilling | Indexable | Body

INDEX





- Indexable drill with internal coolant
- Up to 5xD
- 3 different insert grades available
- 77 sizes



B.558 B.522

EDP	Designation	DC	Applicable inserts type	OAL	LU	LS	DCON
7802757	P5D4100FS40M12	41	XCMT12	305	205	70	40
7802758	P5D4200FS40M12	42	XCMT12	310	210	70	40
7802759	P5D4300FS40M12	43	XCMT12	315	215	70	40
7802760	P5D4400FS40M12	44	XCMT12	320	220	70	40
7802761	P5D4500FS40M13	45	XCMT13	325	225	70	40
7802762	P5D4600FS40M13	46	XCMT13	330	230	70	40
7802763	P5D4700FS40M13	47	XCMT13	335	235	70	40
7802764	P5D4800FS40M13	48	XCMT13	340	240	70	40
7802765	P5D4900FS40M13	49	XCMT13	345	245	70	40
7802766	P5D5000FS40M14	50	XCMT14	350	250	70	40
7802767	P5D5100FS40M14	51	XCMT14	355	255	70	40
7802768	P5D5200FS40M14	52	XCMT14	360	260	70	40
7802769	P5D5300FS40M14	53	XCMT14	365	265	70	40
7802770	P5D5400FS40M14	54	XCMT14	370	270	70	40
7802771	P5D5500FS40M14	55	XCMT14	375	275	70	40
7802772	P5D5600FS40M14	56	XCMT14	380	280	70	40
7802773	P5D5700FS40M16	57	XCMT16	385	285	70	40
7802774	P5D5800FS40M16	58	XCMT16	390	290	70	40
7802775	P5D5900FS40M16	59	XCMT16	395	295	70	40
7802776	P5D6000FS40M16	60	XCMT16	400	300	70	40
7802777	P5D6100FS40M16	61	XCMT16	405	305	70	40
7802778	P5D6200FS40M16	62	XCMT16	410	310	70	40
7802779	P5D6300FS40M16	63	XCMT16	415	315	70	40

Accessories and spare parts

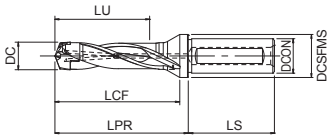
Applicable drill DC	EDP	Designation	Specification
12 - 14,5	7808096	FS18536P	Clamping screw
15 - 18,5	7808139	FS20543P	Clamping screw
19 - 20,5	7808138	FS22550P	Clamping screw
21 - 24,5	7808136	FS25560P	Clamping screw
25 - 33,5	7808135	FS30570P	Clamping screw
34 - 44	7808137	FS35586P	Clamping screw
45 - 63	7808114	FS45510P	Clamping screw
12 - 18,5	7808223	6IP-D (Torx 6IP)	Wrench
19 - 20,5	7808224	7IP-D (Torx 7IP)	Wrench
21 - 24,5	7808225	8IP-D (Torx 8IP)	Wrench
25 - 33,5	7808226	9IP-D (Torx 9IP)	Wrench
34 - 44	7808228	15IP-D (Torx 15IP)	Wrench
45 - 63	7808229	20IP-D (Torx 20IP)	Wrench

PXD-3D

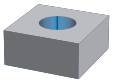
INDEX

Drilling | Indexable | Body





- Exchangeable head drill with internal coolant
- Up to 3xD
- 3 different solid carbide head types based on work material
- 13 sizes
- Including driver



B.559 B.516

EDP	Designation	DCN	DCX	seat size	DC	LU	LCF	LPR	LS	DCON	DCSFMS
48173001	PXDZ140-3D-113,5-16	14	14,49	PXDH1400 PXDH1440	13,5	43	63,4	69,9	48	16	20
48173002	PXDZ145-3D-115,5-16	14,5	14,99	PXDH1450 PXDH1495	14	44,5	65,5	72	48	16	20
48173003	PXDZ150-3D-119,5-20	15	15,99	PXDH1500 PXDH1590	14,5	46,5	67,1	73,6	50	20	25
48173004	PXDZ160-3D-123,5-20	16	16,99	PXDH1600 PXDH1690	15,5	49,5	71,7	78,2	50	20	25
48173005	PXDZ170-3D-128,5-20	17	17,99	PXDH1700 PXDH1790	16,5	52,5	76,8	83,3	50	20	25
48173006	PXDZ180-3D-138,5-25	18	18,99	PXDH1800 PXDH1890	17,5	55,5	81,4	87,9	56	25	32
48173007	PXDZ190-3D-142,5-25	19	19,99	PXDH1900 PXDH1990	18,5	58,5	85,4	91,9	56	25	32
48173008	PXDZ200-3D-146,5-25	20	20,99	PXDH2000 PXDH2090	19,5	61,5	90,1	96,6	56	25	32
48173009	PXDZ210-3D-154,5-32	21	21,99	PXDH2100 PXDH2190	20,5	64,5	94,7	101,2	60	32	42
48173010	PXDZ220-3D-158,5-32	22	22,99	PXDH2200 PXDH2290	21,5	67,5	98,8	105,3	60	32	42
48173011	PXDZ230-3D-162,5-32	23	23,99	PXDH2300 PXDH2390	22,5	70,5	103,4	109,9	60	32	42
48173012	PXDZ240-3D-167,5-32	24	24,99	PXDH2400 PXDH2490	23,5	73,5	108,4	114,9	60	32	42
48173013	PXDZ250-3D-170,5-32	25	25,99	PXDH2500 PXDH2540	24,5	76,5	112	118,5	60	32	42

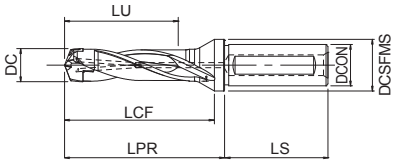
Accessories and spare parts

Applicable drill DC	EDP	Designation
14 - 18,9	7808282	Driver 1,5 thickness
19 - 22,9	7808283	Driver 1,8 thickness
23 - 25,4	7808284	Driver 2 thickness

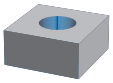
PXD-5D

Drilling | Indexable | Body





- Exchangeable head drill with internal coolant
- Up to 5xD
- 3 different solid carbide head types based on work material
- 13 sizes
- Including driver



B.559 B.516

EDP	Designation	DCN	DCX	seat size	DC	LU	LCF	LPR	LS	DCON	DCSFMS
48173014	PXDZ140-5D-141,5-16	14	14,49	PXDH1400 PXDH1440	13,5	71,2	92,9	97,9	48	16	20
48173015	PXDZ145-5D-144,5-16	14,5	14,99	PXDH1450 PXDH1495	14	73,7	96	101	48	16	20
48173016	PXDZ150-5D-149,5-20	15	15,99	PXDH1500 PXDH1590	14,5	77,5	97,1	103,6	50	20	25
48173017	PXDZ160-5D-155,5-20	16	16,99	PXDH1600 PXDH1690	15,5	82,5	103,7	110,2	50	20	25
48173018	PXDZ170-5D-162,5-20	17	17,99	PXDH1700 PXDH1790	16,5	87,5	110,8	117,3	50	20	25
48173019	PXDZ180-5D-174,5-25	18	18,99	PXDH1800 PXDH1890	17,5	92,5	117,4	123,9	56	25	32
48173020	PXDZ190-5D-180,5-25	19	19,99	PXDH1900 PXDH1990	18,5	97,5	123,4	129,9	56	25	32
48173021	PXDZ200-5D-186,5-25	20	20,99	PXDH2000 PXDH2090	19,5	102,5	130,1	136,6	56	25	32
48173022	PXDZ210-5D-196,5-32	21	21,99	PXDH2100 PXDH2190	20,5	107,5	136,7	143,2	60	32	42
48173023	PXDZ220-5D-202,5-32	22	22,99	PXDH2200 PXDH2290	21,5	112,5	142,8	149,3	60	32	42
48173024	PXDZ230-5D-208,5-32	23	23,99	PXDH2300 PXDH2390	22,5	117,5	149,4	155,9	60	32	42
48173025	PXDZ240-5D-215,5-32	24	24,99	PXDH2400 PXDH2490	23,5	122,5	156,4	162,9	60	32	42
48173026	PXDZ250-5D-220,5-32	25	25,99	PXDH2500 PXDH2540	24,5	127,5	162	168,5	60	32	42

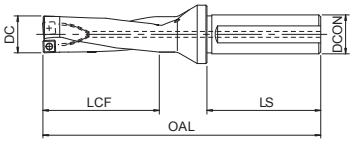
Accessories and spare parts

Applicable drill DC	EDP	Designation
14 - 18,9	7808282	Driver 1,5 thickness
19 - 22,9	7808283	Driver 1,8 thickness
23 - 25,4	7808284	Driver 2 thickness

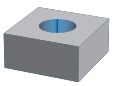
PHP

Drilling | Indexable | Body





- Indexable drill with internal coolant
- Up to 3xD
- 2 different insert grades available
- 40 sizes





B.562 B.516

EDP	Designation	DC	Applicable inserts type	OAL	LCF	LS	DCON
7800100	PHP140FS20M04-3D	14	SCMT04	116	42	50	20
7800101	PHP145FS20M04-3D	14,5	SCMT04	119	45	50	20
7800102	PHP150FS20M04-3D	15	SCMT04	119	45	50	20
7800103	PHP155FS20M04-3D	15,5	SCMT04	122	48	50	20
7800104	PHP160FS20M04-3D	16	SCMT04	122	48	50	20
7800105	PHP165FS20M05-3D	16,5	SCMT05	125	51	50	20
7800106	PHP170FS20M05-3D	17	SCMT05	125	51	50	20
7800107	PHP175FS25M05-3D	17,5	SCMT05	134	54	56	25
7800108	PHP180FS25M05-3D	18	SCMT05	134	54	56	25
7800109	PHP185FS25M06-3D	18,5	SCMT06	137	57	56	25
7800110	PHP190FS25M06-3D	19	SCMT06	137	57	56	25
7800111	PHP195FS25M06-3D	19,5	SCMT06	140	60	56	25
7800112	PHP200FS25M06-3D	20	SCMT06	140	60	56	25
7800113	PHP205FS25M06-3D	20,5	SCMT06	143	63	56	25
7800114	PHP210FS25M07-3D	21	SCMT07	143	63	56	25
7800115	PHP215FS25M07-3D	21,5	SCMT07	146	66	56	25
7800116	PHP220FS25M07-3D	22	SCMT07	146	66	56	25
7800117	PHP225FS25M07-3D	22,5	SCMT07	149	69	56	25
7800118	PHP230FS25M07-3D	23	SCMT07	149	69	56	25
7800119	PHP235FS32M07-3D	23,5	SCMT07	156	72	60	32
7800120	PHP240FS32M07-3D	24	SCMT07	156	72	60	32

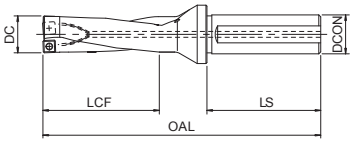
Accessories and spare parts

Applicable drill DC	EDP	Designation	Specification
14 - 16	7808100	FS18538 (Torx 6)	Clamping screw
16,5 - 18	7808102	FS20540 (Torx 6)	Clamping screw
18,5 - 20,5	7808104	FS22550 (Torx 7)	Clamping screw
21 - 24	7808108	FS25560 (Torx 8)	Clamping screw
14 - 18	7808203	T6-D (Torx 6)	Wrench
18,5 - 20,5	7808204	T7-D (Torx 7)	Wrench
21 - 24	7808205	T8-D (Torx 8)	Wrench

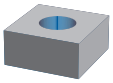
PHP

Drilling | Indexable | Body





- Indexable drill with internal coolant
- Up to 3xD
- 2 different insert grades available
- 40 sizes





B.562 B.516

EDP	Designation	DC	Applicable inserts type	OAL	LCF	LS	DCON
7800121	PHP245FS32M08-3D	24,5	SCMT08	159	75	60	32
7800122	PHP250FS32M08-3D	25	SCMT08	159	75	60	32
7800123	PHP255FS32M08-3D	25,5	SCMT08	162	78	60	32
7800124	PHP260FS32M08-3D	26	SCMT08	162	78	60	32
7800125	PHP265FS32M08-3D	26,5	SCMT08	165	81	60	32
7800126	PHP270FS32M08-3D	27	SCMT08	165	81	60	32
7800127	PHP280FS32M08-3D	28	SCMT08	168	84	60	32
7800128	PHP290FS32M10-3D	29	SCMT10	171	87	60	32
7800130	PHP300FS32M10-3D	30	SCMT10	179	90	60	32
7800131	PHP310FS32M10-3D	31	SCMT10	182	93	60	32
7800132	PHP320FS32M10-3D	32	SCMT10	185	96	60	32
7800133	PHP330FS40M10-3D	33	SCMT10	196	99	68	40
7800134	PHP340FS40M10-3D	34	SCMT10	199	102	68	40
7800135	PHP350FS40M12-3D	35	SCMT12	202	105	68	40
7800136	PHP360FS40M12-3D	36	SCMT12	205	108	68	40
7800137	PHP370FS40M12-3D	37	SCMT12	218	111	68	40
7800138	PHP380FS40M12-3D	38	SCMT12	221	114	68	40
7800139	PHP390FS40M12-3D	39	SCMT12	224	117	68	40
7800140	PHP400FS40M12-3D	40	SCMT12	227	120	68	40

Accessories and spare parts

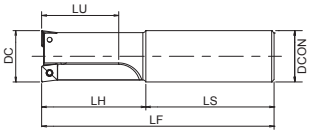
Applicable drill DC	EDP	Designation	Specification
24,5 - 28	7808110	FS30573 (Torx 8)	Clamping screw
29 - 34	7808111	FS35572 (Torx 15)	Clamping screw
35 - 40	7808113	FS45510 (Torx 20)	Clamping screw
24,5 - 28	7808205	T8-D (Torx 8)	Wrench
29 - 34	7808208	T15-D (Torx 15)	Wrench
35 - 40	7808209	T20-D (Torx 20)	Wrench

PZAG SS

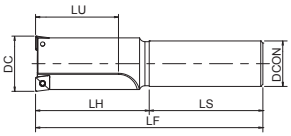
Drilling | Counterboring



Type 1



Type 2



- Counterboring cutter straight shank.
- 2 corners inserts
- Cylindrical type
- 14 - 48 mm





B.563 B.523

EDP	Designation	ZEFP	DC	Applicable inserts type	LF	LU	LH	LS	DCON	ae	PHD	Type
7832100	PZAG04R014SS20-2	2	14	ZPNT04	100	21	30	70	20	4	6	1
7832101	PZAG06R0175SS20-2	2	17,5	ZPNT06	105	26	35	70	20	6	5,5	1
7832102	PZAG06R020SS20-2	2	20	ZPNT06	110	30	40	70	20	6	8	1
7832103	PZAG06R023SS25-2	2	23	ZPNT06	125	34,5	50	75	25	6	11	1
7832104	PZAG09R026SS25-2	2	26	ZPNT09	130	39	55	75	25	9	8	1
7832105	PZAG09R029SS32-2	2	29	ZPNT09	140	43,5	60	80	32	9	11	1
7832106	PZAG09R032SS32-2	2	32	ZPNT09	145	48	65	80	32	9	14	1
7832107	PZAG09R035SS32-2	2	35	ZPNT09	150	52,5	70	80	32	9	17	2
7832108	PZAG09R039SS32-2	2	39	ZPNT09	160	58,5	80	80	32	9	21	2
7832109	PZAG09R043SS32-2	2	43	ZPNT09	170	64,5	90	80	32	9	25	2
7832110	PZAG09R048SS32-2	2	48	ZPNT09	180	72	100	80	32	9	30	2

Accessories and spare parts

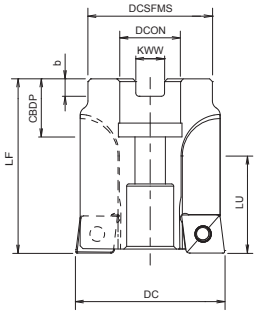
Applicable cutter DC	EDP	Designation	Specification
14	7808096	FS18536P	Clamping screw
17,5 - 23	7808138	FS22550P	Clamping screw
26 - 48	7808135	FS30570P	Clamping screw
54 - 82	7808114	FS45510P	Clamping screw
14	7808223	6IP-D (Torx 6IP)	Wrench
17,5 - 23	7808224	7IP-D (Torx 7IP)	Wrench
26 - 48	7808226	9IP-D (Torx 9IP)	Wrench
54 - 82	7808229	20IP-D (Torx 20IP)	Wrench



PZAG BORE

Drilling | Counterboring





- Counterboring cutter
- Excellent chip breaking properties
- Bore type
- 54 - 82 mm





B.563 B.523

EDP	Designation	ZEFP	DC	Applicable inserts type	LF	LU	DCON	DCSFMS	KWW	b	CBDP	ae	PHD
7832111	PZAG13R054M22-4	4	54	ZPNT130	63	35	22	45	10,4	6,3	21	12,5	29
7832112	PZAG13R058M22-4	4	58	ZPNT130	63	38	22	45	10,4	6,3	21	12,5	33
7832113	PZAG13R062M22-4	4	62	ZPNT130	63	41	22	45	10,4	6,3	21	12,5	37
7832114	PZAG13R067M22-4	4	67	ZPNT130	63	44	22	45	10,4	6,3	21	12,5	42
7832115	PZAG13R072M22-4	4	72	ZPNT130	63	47	22	45	10,4	6,3	21	12,5	47
7832116	PZAG17R076M22-4	4	76	ZPNT170	63	50	22	45	10,4	6,3	21	16	44
7832117	PZAG17R082M22-4	4	82	ZPNT170	63	54	22	45	10,4	6,3	21	16	50

Accessories and spare parts

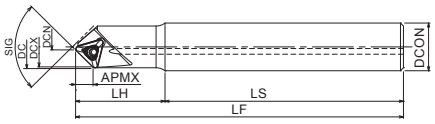
Applicable cutter DC	EDP	Designation	Specification
14	7808096	FS18536P	Clamping screw
17,5 - 23	7808138	FS22550P	Clamping screw
26 - 48	7808135	FS30570P	Clamping screw
54 - 82	7808114	FS45510P	Clamping screw
14	7808223	6IP-D (Torx 6IP)	Wrench
17,5 - 23	7808224	7IP-D (Torx 7IP)	Wrench
26 - 48	7808226	9IP-D (Torx 9IP)	Wrench
54 - 82	7808229	20IP-D (Torx 20IP)	Wrench



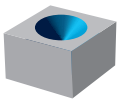
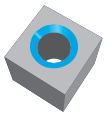
PLDS SS

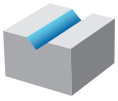
Centering and chamfering | Indexable





- Indexable multi purpose centering and chamfering tool
- 3 corners inserts
- Cylindrical type, with internal coolant



B.565 B.518

EDP	Designation	SIG	ZEFP	DCN	DCX	DC	Applicable inserts type	LF	LH	LS	DCON	APMX
7803401	PLDS11R002SS16-90	90	1	2,5	13,5	14,4	TPKT110308ER-DM	110	30	80	16	5,8
7803402	PLDS11R002SS16-L90	90	1	2,5	13,5	14,4	TPKT110308ER-DM	200	30	170	16	5,8
7803403	PLDS11R002SS16-120	120	1	2,4	16	17,3	TPKT110308ER-DM	110	30	80	16	4
7803404	PLDS11R002SS16-L120	120	1	2,4	16	17,3	TPKT110308ER-DM	200	30	170	16	4

Accessories and spare parts

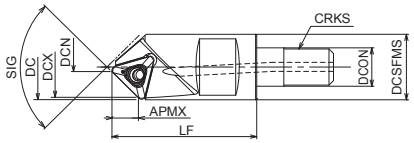
EDP	Designation	Specification	Torque
7808138	FS22550P	Clamping screw	1,0 N.m
7808224	7IP-D (Torx 7IP)	Wrench	-



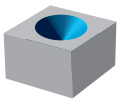
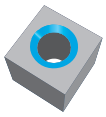
PLDS SF

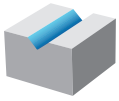
Centering and chamfering | Indexable





- Indexable multi purpose centering and chamfering tool
- 3 corners inserts
- Screw fit type



B.565 B.518

EDP	Designation	SIG	ZEFP	DCN	DCX	DC	Applicable inserts type	LF	DCON	DCSFMS	APMX	CRKS
7803405	PLDS11R002SF8-90	90	1	2,5	13,5	14,4	TPKT110308ER-DM	32	8,5	14,5	5,8	8
7803406	PLDS11R002SF8-120	120	1	2,4	16	17,3	TPKT110308ER-DM	32	8,5	14,5	4	8

Accessories and spare parts

EDP	Designation	Specification	Torque
7808138	FS22550P	Clamping screw	1,0 N.m
7808224	7IP-D (Torx 7IP)	Wrench	-



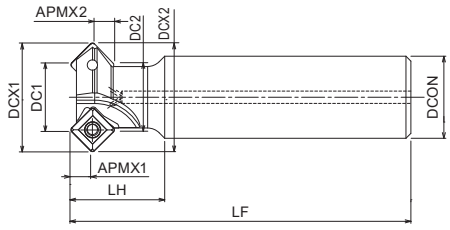
PMEN SS

Chamfering | Indexables

INDEX

NEW





with Coolant Hole

- Chamfering Cutter
- Body compatible with chamfer angles (KAPR1) 45°,30° and 60°
- With coolant hole
- 8,5 - 35,6 mm



B.566 B.519

EDP	Designation	KAPR1	KAPR2	DC1	DCX1	DC2	DCX2	APMX1	APMX2	ZEFP	DCON	LF	LH
7803750	PMEN09R008SS20-30-45	45°	45°	8,5	19,5	16	19,5	5,7	1,7	1	20	90	30
		30°	60°	5,4	18,8	16	19,4	4	3	1	20	90	30
7803751	PMEN09R016SS20-30-45	45°	45°	16,5	27,5	16,5	27,5	5,7	5,5	2	20	90	30
		30°	60°	13,4	26,8	19,8	27,4	4	6,8	2	20	90	30
7803752	PMEN09R020SS20-30-45	45°	45°	20,5	31,5	20,5	31,5	5,7	5,5	2	20	120	40
		30°	60°	17,4	30,8	23,8	31,4	4	6,8	2	20	120	40
7803753	PMEN09R025SS25-30-45	45°	45°	25,5	36,5	25,5	36,5	5,7	5,5	2	25	120	40
		30°	60°	22,4	35,8	28,8	36,4	4	6,8	2	25	120	40
7803754	PMEN09R032SS32-30-45	45°	45°	32,5	43,5	32,5	43,5	5,7	5,5	3	32	120	40
		30°	60°	29,4	42,8	35,8	43,4	4	6,8	3	32	120	40
7803763	PMEN09R008SS20-45-60	45°	45°	8,5	19,5	16	19,5	5,7	1,7	1	20	90	30
		60°	30°	11,5	19,4	16	18,8	7	1	1	20	90	30
7803764	PMEN09R016SS20-45-60	45°	45°	16,5	27,5	16,5	27,5	5,7	5,5	2	20	90	30
		60°	30°	19,6	27,4	16,6	26,9	7	3	2	20	90	30
7803765	PMEN09R020SS20-45-60	45°	45°	20,5	31,5	20,5	31,5	5,7	5,5	2	20	120	40
		60°	30°	23,6	31,4	20,6	30,9	7	3	2	20	120	40
7803766	PMEN09R025SS25-45-60	45°	45°	25,5	36,5	25,5	36,5	5,7	5,5	2	25	120	40
		60°	30°	28,6	36,4	25,6	35,9	7	3	2	25	120	40
7803767	PMEN09R032SS32-45-60	45°	45°	32,5	43,5	32,5	43,5	5,7	5,5	3	32	120	40
		60°	30°	35,6	43,4	32,6	42,9	7	3	3	32	120	40

Accessories and spare parts

Clamping screw	Designation	Recommended Tightening Torque	Wrench	Designation	Power screw	Designation	Applicable body
7808135	FS30570P (Torx 9IP)	2,2 N·m	7808226	9IP-D (Torx 9IP)	7808150	PS0830 (M8×30)	PMEN09R040M16…

The wrenches are sold separately from the cutters.

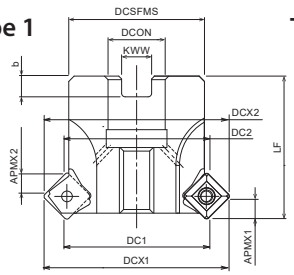
PMEN BORE

Chamfering | Indexables

NEW

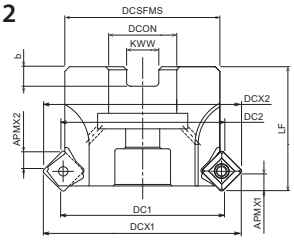


Type 1



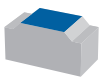
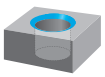
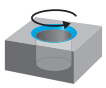
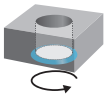
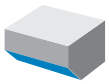
with Coolant Hole
Power Screw Type

Type 2



with Coolant Hole

- Chamfering Cutter
- Body compatible with chamfer angles (KAPR1) 45°,30° and 60°
- With coolant hole
- 40,5 - 63,6 mm


B.566 B.519

EDP	Designation	KAPR1	KAPR2	DC1	DCX1	DC2	DCX2	APMX1	APMX2	ZEFP	LF	DCSFMS	DCON	Key Slot		Type
														KWW	b	
7803760	PMEN09R040M16-30-45	45°	45°	40,5	51,5	40,5	51,5	5,7	5,5	4	40	38	16	8,4	5,6	1
		30°	60°	37,4	50,8	43,8	51,4	4	6,8	4	40	38	16	8,4	5,6	1
7803761	PMEN09R050M22-30-45	45°	45°	50,5	61,5	50,5	61,5	5,7	5,5	4	40	45	22	10,4	6,3	2
		30°	60°	47,4	60,8	53,8	61,4	4	6,8	4	40	45	22	10,4	6,3	2
7803762	PMEN09R060M22-30-45	45°	45°	60,5	71,5	60,5	71,5	5,7	5,5	5	40	50	22	10,4	6,3	2
		30°	60°	57,4	70,8	63,8	71,4	4	6,8	5	40	50	22	10,4	6,3	2
7803773	PMEN09R040M16-45-60	45°	45°	40,5	51,5	40,5	51,5	5,7	5,5	4	40	38	16	8,4	5,6	1
		60°	30°	43,6	51,4	40,6	50,9	7	3	4	40	38	16	8,4	5,6	1
7803774	PMEN09R050M22-45-60	45°	45°	50,5	61,5	50,5	61,5	5,7	5,5	4	40	45	22	10,4	6,3	2
		60°	30°	53,6	61,4	50,6	60,9	7	3	4	40	45	22	10,4	6,3	2
7803775	PMEN09R060M22-45-60	45°	45°	60,5	71,5	60,5	71,5	5,7	5,5	5	40	50	22	10,4	6,3	2
		60°	30°	63,6	71,4	60,6	70,9	7	3	5	40	50	22	10,4	6,3	2

Accessories and spare parts

Clamping screw	Designation	Recommended Tightening Torque	Wrench	Designation	Power screw	Designation	Applicable body
7808135	FS30570P (Torx 9IP)	2,2 N·m	7808226	9IP-D (Torx 9IP)	7808150	PS0830 (M8×30)	PMEN09R040M16…

The wrenches are sold separately from the cutters.

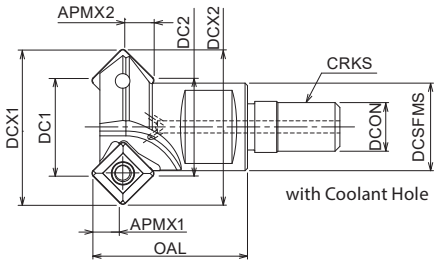
PMEN SF

Chamfering | Indexables

INDEX

NEW





- Chamfering Cutter
- Body compatible with chamfer angles (KAPR1) 45°,30° and 60°
- With coolant hole
- 8,5 - 35,6 mm



B.566 B.519

EDP	Designation	KAPR1	KAPR2	DC1	DCX1	DC2	DCX2	APMX1	APMX2	ZEFP	DCON	CRKS	Spanner size	OAL	DCSFMS
7803755	PMEN09R008SF8-30-45	45°	45°	8,5	19,5	16	19,5	5,7	1,7	1	8,5	M8	10	32	14,5
		30°	60°	5,4	18,8	16	19,4	4	3	1	8,5	M8	10	32	14,5
7803756	PMEN09R016SF8-30-45	45°	45°	16,5	27,5	16,5	27,5	5,7	5,5	2	8,5	M8	10	32	14,5
		30°	60°	13,4	26,8	19,8	27,4	4	6,8	2	8,5	M8	10	32	14,5
7803757	PMEN09R020SF10-30-45	45°	45°	20,5	31,5	20,5	31,5	5,7	5,5	2	10,5	M10	14	32	18
		30°	60°	17,4	30,8	23,8	31,4	4	6,8	2	10,5	M10	14	32	18
7803758	PMEN09R025SF12-30-45	45°	45°	25,5	36,5	25,5	36,5	5,7	5,5	2	12,5	M12	17	35	23
		30°	60°	22,4	35,8	28,8	36,4	4	6,8	2	12,5	M12	17	35	23
7803759	PMEN09R032SF16-30-45	45°	45°	32,5	43,5	32,5	43,5	5,7	5,5	3	17	M16	22	40	28
		30°	60°	29,4	42,8	35,8	43,4	4	6,8	3	17	M16	22	40	28
7803768	PMEN09R008SF8-45-60	45°	45°	8,5	19,5	16	19,5	5,7	1,7	1	8,5	M8	10	32	14,5
		60°	30°	11,5	19,4	16	18,8	7	1	1	8,5	M8	10	32	14,5
7803769	PMEN09R016SF8-45-60	45°	45°	16,5	27,5	16,5	27,5	5,7	5,5	2	8,5	M8	10	32	14,5
		60°	30°	19,6	27,4	16,6	26,9	7	3	2	8,5	M8	10	32	14,5
7803770	PMEN09R020SF10-45-60	45°	45°	20,5	31,5	20,5	31,5	5,7	5,5	2	10,5	M10	14	32	18
		60°	30°	23,6	31,4	20,6	30,9	7	3	2	10,5	M10	14	32	18
7803771	PMEN09R025SF12-45-60	45°	45°	25,5	36,5	25,5	36,5	5,7	5,5	2	12,5	M12	17	35	23
		60°	30°	28,6	36,4	25,6	35,9	7	3	2	12,5	M12	17	35	23
7803772	PMEN09R032SF16-45-60	45°	45°	32,5	43,5	32,5	43,5	5,7	5,5	3	17	M16	22	40	28
		60°	30°	35,6	43,4	32,6	42,9	7	3	3	17	M16	22	40	28

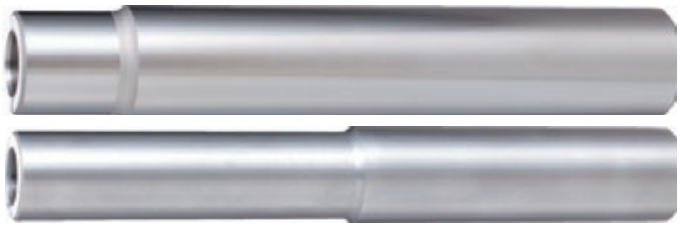
Accessories and spare parts

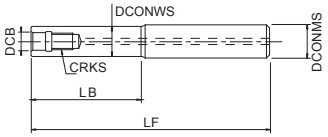
Clamping screw	Designation	Recommended Tightening Torque	Wrench	Designation	Power screw	Designation	Applicable body
7808135	FS30570P (Torx 9IP)	2,2 N·m	7808226	9IP-D (Torx 9IP)	7808150	PS0830 (M8×30)	PMEN09R040M16…

The wrenches are sold separately from the cutters.

OP-SFA

Drilling | Indexable





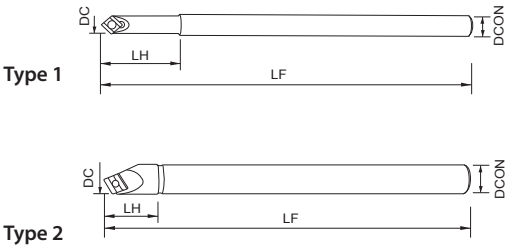
- Arbor for Screw fit type

EDP	Designation	LF	LB	DCONMS	DCONWS	DCB	CRKS	Specification
7801900	SF-M08SS16-15	95	15	16	14,5	8,5	8	Steel
7801910	SF-M08SS16-55CS	115	55	16	14,5	8,5	8	Carbide
7801911	SF-M08SS16-85CS	145	85	16	14,5	8,5	8	Carbide

HY-PRO CARB

Drilling | Spotting and Chamfering





- Indexable multi purpose centering and chamfering tool



B.509

EDP	SIG	DC	LF	LH	DCON	Type
738015	90	13,5	110	28	16	1
738055	90	13,5	200	28	16	1
738025	118	16,15	110	28	16	2
738065	118	16,15	200	28	16	2

Inserts

EDP	Designation	Material	RE	P		M		K		N		S		H	
				dry		dry		GG	GGG	dry		dry		dry	
73811000	NK1010	Carbide	0,6					◉			◉				
73812000	NK2020	Carbide	0,6		◉										

Accessories and spare parts

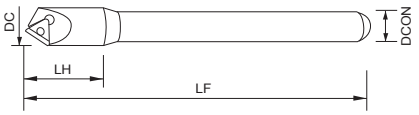
Applicable cutter DC	EDP	Designation	Specification
13,5 - 16,15	73801600	K-3	Wrench
13,5 - 16,15	73801100	L-6	Clamping screw

HY-PRO CARB

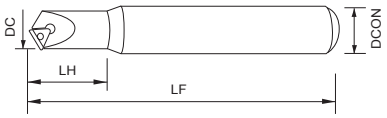
Drilling | Spotting and Chamfering



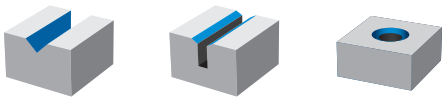
Type 3



Type 4



- Indexable multi purpose centering and chamfering tool



B.509

EDP	Designation	SIG	DC	LF	LH	DCON	Type
738095	SFM16SS32190CS	90	22,5	130	30	20	3
738097	SFM16SS32190CS	90	22,5	200	50	25	3
738096	SFM16SS32190CS	120	26,6	130	35	25	4
738098	SFM16SS32190CS	120	26,6	200	50	32	4

Inserts

EDP	Designation	Material	RE	P		M		K		N		S		H	
				dry		dry		GG	GGG	dry		dry		dry	
73819000	NK2020	Carbide	0,6		◉		◎								
73819100	NK1010	Carbide	0,6					◉			◉				

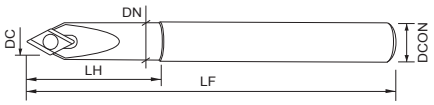
Accessories and spare parts

Applicable cutter DC	EDP	Designation	Specification
22,5 - 26,6	73801600	K-3	Wrench
22,5 - 26,6	73801200	L-10	Clamping screw

HY-PRO CARB

Drilling | Spotting and Chamfering





- Indexable multi purpose centering and chamfering tool



B.509

EDP	SIG	DC	LF	LH	DN	DCON
738086	60	12	110	25	15	16

Inserts

EDP	Designation	Material	RE	P		M		K		N		S		H	
				dry		dry		GG	GGG	dry		dry		dry	
73818006	ZC16N	Carbide	0,4					◉			◉				

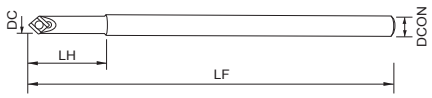
Accessories and spare parts

Applicable cutter DC	EDP	Designation	Specification
12	73801700	N-6	Wrench
12	73801300	L-15	Clamping screw

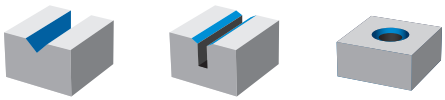
HY-PRO CARB

Drilling | Spotting and Chamfering





- Indexable multi purpose centering and chamfering tool



B.509

EDP	SIG	DC	LF	LH	DCON
738031	90	9	105	33	10
738036	90	9	165	33	10

Inserts

EDP	Designation	Material	RE	P		M		K		N		S		H	
				dry		dry		GG	GGG	dry		dry		dry	
73813005	NK5050	Carbide/TiN	0,2					◉			◉				

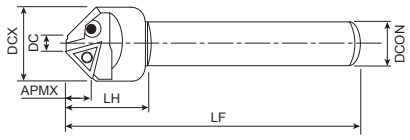
Accessories and spare parts

Applicable cutter DC	EDP	Designation	Specification
9	73801500	N-5	Wrench
9	73801400	L-13	Clamping screw

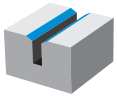
HY-PRO CARB

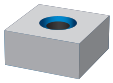
Drilling | Spotting and Chamfering





- Indexable multi purpose centering and chamfering tool





B.509

EDP	SIG	DCX	DC	LF	LH	APMX	DCON
738075	90	29,4	8	130	30	10,7	20

Inserts

EDP	Designation	Material	RE	P		M		K		N		S		H	
				dry		dry		GG	GGG	dry		dry		dry	
73817000	NK2001	Cermet	-	◎		◎			◉						

Accessories and spare parts

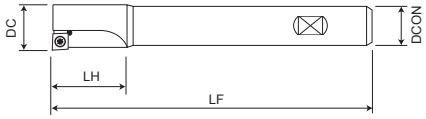
Applicable cutter DC	EDP	Designation	Specification
29,4	73801600	K-3	Wrench
29,4	73801100	L-6	Clamping screw



HY-PRO CARB 49030

Drilling | Boring





- With steel shank, Weldon flat, DIN 1835B
- For boring pre-drilled and precast holes

B.520

EDP	DC	a (min)	LF	LH	DCON	ZEFP
490300980	9,8	9,3	85	20	8	1
490301080	10,8	10,3	95	20	10	1
490301180	11,8	11,3	100	25	10	1
490301280	12,8	12,3	105	30	10	1
490301380	13,8	13,3	110	35	10	1
490301480	14,8	14,3	120	30	12	1
490301580	15,8	15,3	125	35	12	1
490301680	16,8	15,8	133	30	16	1
490301780	17,8	16,8	138	35	16	1
490301880	18,8	17,8	143	40	16	1
490301980	19,8	18,8	148	45	16	1
490302080	20,8	19,8	153	50	16	1
490302180	21,8	20,8	158	55	16	1

Inserts

EDP	Designation	Material	Grade	P		M		K		N		S		H	
				dry		dry		GG	GGG	dry		dry		dry	
413200013	MPHT 060202,N12	Carbide	PMK92	●	●	○	○	○	○						
413200014	MPHT 060202,N13	Carbide	CH1			○	○				●				
413200015	MPHT 060202,N14	Carbide	PMK92	●	●	●	●								
413200016	MPHW 060202,N15	Cermet	CT50	○	●			●	○						
413200017	MPHW 060202,N15	Cermet	CT53	○	●			○	●						

Accessories and spare parts

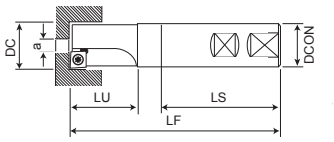
Applicable cutter DC	EDP	Designation	Specification
9,8 - 21,8	7808205	T8-D (Torx 8)	Wrench
9,8 - 21,8	423300002	M2,5x4,5	Clamping screw

HY-PRO CARB 49037

INDEX

Drilling | Counterboring mono





- To produce counterbores for cap screws, hex screwheads, ejectors, spot facing, gasket seats etc.
- Straight shank with Weldon flat, DIN 1835B

B.520

EDP	DC	a (min)	LF	LU	LS	DCON	ZEFP
490370800	8	4	80	23	45	12	1
490370900	9	4	80	23	45	12	1
490371000	10	4	80	23	45	12	1
490371100	11	4	80	23	45	12	1
490371200	12	4	80	26	45	12	1
490371300	13	5	80	26	45	12	1
490371400	14	5	80	26	45	12	1
490371500	15	5	80	26	45	12	1
490371600	16	5	90	31	48	16	1
490371700	17	6	90	31	48	16	1
490371800	18	8	90	31	48	16	1
490371900	19	8	90	31	48	16	1
490372000	20	5	100	36	50	20	1

Inserts

EDP	Applicable cutter DC	Designation	Material	Grade	P		M		K		N		S		H	
					dry		dry		GG	GGG	dry		dry		dry	
413200013	8 - 19	MPHT 060202,N12	Carbide	PMK92	●	●	○	○	○	○						
413200014	8 - 19	MPHT 060202,N13	Carbide	CH1			○	○				●				
413200015	8 - 19	MPHT 060202,N14	Carbide	PMK92	●	●	●	●								
413200016	8 - 19	MPHW 060202,N15	Cermet	CT50	○	●			●	○						
413200017	8 - 19	MPHW 060202,N15	Cermet	CT53	○	●			○	●						
413200020	8 - 19	MPMT 060204,N12	Carbide	PMK92	●	●										
413200018	8 - 19	MPMT 060204,N12	Carbide	CH1					●	○						
413200019	8 - 19	MPMT 060204,N12	Carbide	KM22					○	●						
413200007	20	MCHT 09T304,N12	Carbide	PMK92	●	●	○	○	○	○						
413200008	20	MCHT 09T304,N13	Carbide	CH1			○	○				●				
413200009	20	MCHT 09T304,N14	Carbide	PMK92			●	●								
413200012	20	MCMT 09T308,N12	Carbide	PMK92	●	●										
413200010	20	MCMT 09T308,N12	Carbide	CH1					●	○						
413200011	20	MCMT 09T308,N12	Carbide	KM22					○	●						

Accessories and spare parts

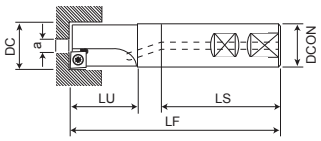
Applicable cutter DC	EDP	Designation	Specification
8 - 19	7808205	T8-D (Torx 8)	Wrench
20	7808208	T15-D (Torx 15)	Wrench
8 - 19	423300002	M2,5x4,5	Clamping screw
20	423300003	M4x7,5	Clamping screw

HY-PRO CARB 49038

INDEX

Drilling | Counterboring mono





- To produce counterbores for cap screws, hex screwheads, ejectors, spot facing, gasket seats etc.
- Straight shank with Weldon flat, DIN 1835B
- With internal coolant supply

B.520

EDP	DC	a (min)	LF	LU	LS	DCON	ZEFP
490381000	10	4	80	23	45	12	1
490381100	11	4	80	23	45	12	1
490381200	12	4	80	26	45	12	1
490381300	13	5	80	26	45	12	1
490381400	14	5	80	26	45	12	1
490381500	15	5	80	26	45	12	1
490381600	16	5	90	31	48	16	1
490381700	17	6	90	31	48	16	1
490381800	18	8	90	31	48	16	1
490381900	19	8	90	31	48	16	1
490382000	20	5	100	36	50	20	1
490382100	21	5	100	36	50	20	1
490382200	22	6	100	36	50	20	1
490382300	23	6	100	36	50	20	1
490382400	24	8	100	36	50	20	1
490382500	25	8	120	43	56	25	1
490382600	26	10	120	43	56	25	1
490382700	27	10	120	43	56	25	1
490382800	28	12	120	43	56	25	1
490382900	29	12	120	43	56	25	1
490383000	30	14	120	43	56	25	1

Inserts

EDP	Applicable cutter DC	Designation	Material	Grade	P		M		K		N		S		H	
					dry		dry		GG	GGG	dry		dry		dry	
413200013	10 - 19	MPHT 060202,N12	Carbide	PMK92	●	●	◎	◎	◎	◎						
413200014	10 - 19	MPHT 060202,N13	Carbide	CH1			◎	◎				●				
413200015	10 - 19	MPHT 060202,N14	Carbide	PMK92	●	●	●	●								
413200016	10 - 19	MPHW 060202,N15	Cermet	CT50	◎	●			●	◎						
413200017	10 - 19	MPHW 060202,N15	Cermet	CT53	◎	●			◎	●						
413200020	10 - 19	MPMT 060204,N12	Carbide	PMK92	●	●										
413200018	10 - 19	MPMT 060204,N12	Carbide	CH1					●	◎						
413200019	10 - 19	MPMT 060204,N12	Carbide	KM22					◎	●						
413200007	20 - 30	MCHT 09T304,N12	Carbide	PMK92	●	●	◎	◎	◎	◎						
413200008	20 - 30	MCHT 09T304,N13	Carbide	CH1			◎	◎				●				
413200009	20 - 30	MCHT 09T304,N14	Carbide	PMK92			●	●								
413200012	20 - 30	MCMT 09T308,N12	Carbide	PMK92	●	●										
413200010	20 - 30	MCMT 09T308,N12	Carbide	CH1					●	◎						
413200011	20 - 30	MCMT 09T308,N12	Carbide	KM22					◎	●						

Accessories and spare parts

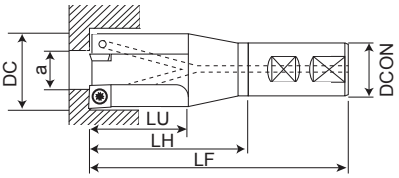
Applicable cutter DC	EDP	Designation	Specification
10 - 19	7808205	T8-D (Torx 8)	Wrench
20 - 30	7808208	T15-D (Torx 15)	Wrench
10 - 19	423300002	M2,5x4,5	Clamping screw
20 - 30	423300003	M4x7,5	Clamping screw

HY-PRO CARB 49039

INDEX

Drilling | Counterboring multi





- To produce counterbores for cap screws, hex screwheads, ejectors, spot facing, gasket seats etc.
- Straight shank with Weldon flat, DIN 1835B
- With internal coolant supply

B.520

EDP	DC	a (min)	LF	LU	LH	DCON	ZEFP
490391500	15	4	100	30	40	20	2
490391800	18	6	100	30	40	20	2
490392000	20	8	100	30	40	20	2
490392200	22	10	100	30	40	20	2
490392400	24	6	136	50	68	25	2
490392600	26	8	136	50	68	25	2
490392800	28	10	136	50	68	25	2
490393000	30	12	136	50	66	32	3
490393300	33	15	136	50	66	32	3
490393600	36	18	136	50	66	32	3
490394000	40	16	136	50	66	32	3

Inserts

EDP	Applicable cutter DC	Designation	Material	Grade	P		M		K		N		S		H	
					dry		dry		GG	GGG	dry		dry		dry	
413200013	15 - 22	MPHT 060202,N12	Carbide	PMK92	●	●	◎	◎	◎	◎						
413200014	15 - 22	MPHT 060202,N13	Carbide	CH1			◎	◎				●				
413200015	15 - 22	MPHT 060202,N14	Carbide	PMK92	●	●	●	●								
413200016	15 - 22	MPHW 060202,N15	Cermet	CT50	◎	●			●	◎						
413200017	15 - 22	MPHW 060202,N15	Cermet	CT53	◎	●			◎	●						
413200020	15 - 22	MPMT 060204,N12	Carbide	PMK92	●	●										
413200018	15 - 22	MPMT 060204,N12	Carbide	CH1					●	◎						
413200019	15 - 22	MPMT 060204,N12	Carbide	KM22					◎	●						
413200007	24 - 36	MCHT 09T304,N12	Carbide	PMK92	●	●	◎	◎	◎	◎						
413200008	24 - 36	MCHT 09T304,N13	Carbide	CH1			◎	◎				●				
413200009	24 - 36	MCHT 09T304,N14	Carbide	PMK92			●	●								
413200012	24 - 36	MCMT 09T308,N12	Carbide	PMK92	●	●										
413200010	24 - 36	MCMT 09T308,N12	Carbide	CH1					●	◎						
413200011	24 - 36	MCMT 09T308,N12	Carbide	KM22					◎	●						
413200001	40	MBHT 120404,N12	Carbide	PMK92	●	●	◎	◎	◎	◎						
413200002	40	MBHT 120404,N13	Carbide	CH1			◎	◎				●				
413200003	40	MBHT 120404,N14	Carbide	PMK92			●	●								
413200006	40	MBMT 120408,N12	Carbide	PMK92	●	●										
413200004	40	MBMT 120408,N12	Carbide	CH1					●	◎						
413200005	40	MBMT 120408,N12	Carbide	KM22					◎	●						

Accessories and spare parts

Applicable cutter DC	EDP	Designation	Specification
15 - 22	7808205	T8-D (Torx 8)	Wrench
24 - 40	7808208	T15-D (Torx 15)	Wrench
15 - 22	423300002	M2,5x4,5	Clamping screw
24 - 36	423300003	M4x7,5	Clamping screw
40	423300004	M4x9,5	Clamping screw

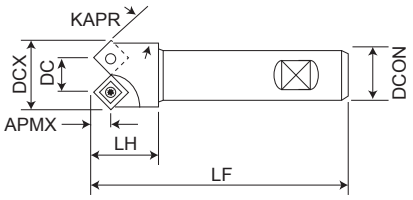


HY-PRO CARB 49100

INDEX

Drilling | Chamfering and face milling





- For chamfering, countersinking, facing, etc.
- Straight shank with Weldon flat, DIN 1835B

B.520

EDP	DCX	KAPR	DC	LF	LH	APMX	DCON	ZEFP
491001345	13	45	6	80	16	4	10	1
491001915	19	15	16	90	19	6	16	2
491001930	19	30	13	90	18	5,5	16	2
491001945	19	45	11	90	18	4	16	2
491002645	26	45	15	100	26	6	20	2
491003260	32	60	17,5	100	30	4	20	2
491003275	32	75	15,5	100	30	2	20	2
491004015	40	15	34	120	36	10	25	2
491004030	40	30	28	120	38	10,5	25	2
491004045	40	45	25	120	38	8	25	2

Inserts

EDP	Applicable cutter DC	Designation	Material	Grade	P		M		K		N		S		H	
					dry	💧	dry	💧	GG	GGG	dry	💧	dry	💧	dry	💧
413200013	13 - 19	MPHT 060202,N12	Carbide	PMK92	●	●	◎	◎	◎	◎						
413200014	13 - 19	MPHT 060202,N13	Carbide	CH1			◎	◎				●				
413200015	13 - 19	MPHT 060202,N14	Carbide	PMK92	●	●	●	●								
413200016	13 - 19	MPHW 060202,N15	Cermet	CT50	◎	●			●	◎						
413200017	13 - 19	MPHW 060202,N15	Cermet	CT53	◎	●			◎	●						
413200020	13 - 19	MPMT 060204,N12	Carbide	PMK92	●	●										
413200018	13 - 19	MPMT 060204,N12	Carbide	CH1					●	◎						
413200019	13 - 19	MPMT 060204,N12	Carbide	KM22					◎	●						
413200007	26 - 32	MCHT 09T304,N12	Carbide	PMK92	●	●	◎	◎	◎	◎						
413200008	26 - 32	MCHT 09T304,N13	Carbide	CH1			◎	◎				●				
413200009	26 - 32	MCHT 09T304,N14	Carbide	PMK92			●	●								
413200012	26 - 32	MCMT 09T308,N12	Carbide	PMK92	●	●										
413200010	26 - 32	MCMT 09T308,N12	Carbide	CH1					●	◎						
413200011	26 - 32	MCMT 09T308,N12	Carbide	KM22					◎	●						
413200001	40	MBHT 120404,N12	Carbide	PMK92	●	●	◎	◎	◎	◎						
413200002	40	MBHT 120404,N13	Carbide	CH1			◎	◎				●				
413200003	40	MBHT 120404,N14	Carbide	PMK92			●	●								
413200006	40	MBMT 120408,N12	Carbide	PMK92	●	●										
413200004	40	MBMT 120408,N12	Carbide	CH1					●	◎						
413200005	40	MBMT 120408,N12	Carbide	KM22					◎	●						

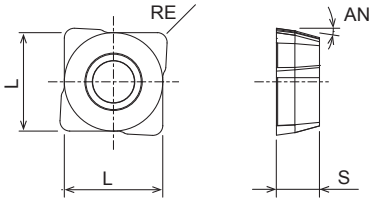
Accessories and spare parts

Applicable cutter DC	EDP	Designation	Specification
13 -19	7808205	T8-D (Torx 8)	Wrench
26 - 40	7808208	T15-D (Torx 15)	Wrench
13 - 19	423300002	M2,5x4,5	Clamping screw
26 - 32	423300003	M4x7,5	Clamping screw
40	423300004	M4x9,5	Clamping screw

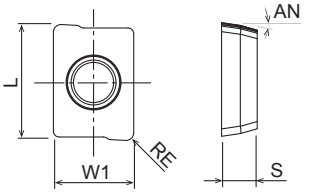


- Applicable insert for PD drill

Type 1



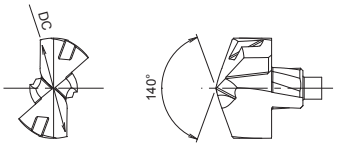
Type 2



B.526

EDP	Designation	W1	L	S	AN	RE	Grade	P		M		K		N		S		H		Applicable body DC
								dry		dry		GG	GGG	dry		dry		dry		
7823098	XCMT031904ER-DM	6,1	4,5	1,9	8	0,4	XP9020		●		●	○	○		○		○		○	12-14,5
7823064	XCMT042204ER-DM	-	5	2,2	8	0,4	XP9020		●		●	○	○		○		○		○	15-16,5
7823065	XCMT052404ER-DM	-	5,83	2,4	8	0,4	XP9020		●		●	○	○		○		○		○	17-18,5
7823066	XCMT062706ER-DM	-	6,46	2,7	8	0,6	XP9020		●		●	○	○		○		○		○	19-20,5
7823067	XCMT073106ER-DM	-	7,11	3,1	8	0,6	XP9020		●		●	○	○		○		○		○	21-24,5
7823068	XCMT083508ER-DM	-	8,36	3,5	8	0,8	XP9020		●		●	○	○		○		○		○	25-28,5
7823069	XCMT094008ER-DM	-	9,62	4	8	0,8	XP9020		●		●	○	○		○		○		○	29-33,5
7823097	XCMT104608ER-DM	-	10,89	4,6	8	0,8	XP9020		●		●	○	○		○		○		○	34-38
7823071	XCMT125010ER-DM	-	12,57	5	8	1	XP9020		●		●	○	○		○		○		○	39-44
7823072	XCMT135212ER-DM	-	14,05	5,2	8	1,2	XP9020		●		●	○	○		○		○		○	45-49
7823073	XCMT145612ER-DM	-	15,58	5,6	8	1,2	XP9020		●		●	○	○		○		○		○	50-56
7823075	XCMT165912ER-DM	-	17,28	5,9	8	1,2	XP9020		●		●	○	○		○		○		○	57-63
7823163	XCMT031904ER-DR	6,1	4,5	1,9	8	0,4	XP1010		○			●	●							12-14,5
7823164	XCMT042204ER-DR	-	5	2,2	8	0,4	XP1010		○			●	●							15-16,5
7823165	XCMT052404ER-DR	-	5,83	2,4	8	0,4	XP1010		○			●	●							17-18,5
7823166	XCMT062706ER-DR	-	6,46	2,7	8	0,6	XP1010		○			●	●							19-20,5
7823167	XCMT073106ER-DR	-	7,11	3,1	8	0,6	XP1010		○			●	●							21-24,5
7823168	XCMT083508ER-DR	-	8,36	3,5	8	0,8	XP1010		○			●	●							25-28,5
7823169	XCMT094008ER-DR	-	9,62	4	8	0,8	XP1010		○			●	●							29-33,5
7823197	XCMT104608ER-DR	-	10,89	4,6	8	0,8	XP1010		○			●	●							34-38
7823171	XCMT125010ER-DR	-	12,57	5	8	1	XP1010		○			●	●							39-44
7823172	XCMT135212ER-DR	-	14,05	5,2	8	1,2	XP1010		○			●	●							45-49
7823173	XCMT145612ER-DR	-	15,58	5,6	8	1,2	XP1010		○			●	●							50-56
7823175	XCMT165912ER-DR	-	17,28	5,9	8	1,2	XP1010		○			●	●							57-63
7823263	XCMT031904ER-DN	6,1	4,5	1,9	8	0,4	CK110								●					12-14,5
7823264	XCMT042204ER-DN	-	5	2,2	8	0,4	CK110								●					15-16,5
7823265	XCMT052404ER-DN	-	5,83	2,4	8	0,4	CK110								●					17-18,5
7823266	XCMT062706ER-DN	-	6,46	2,7	8	0,6	CK110								●					19-20,5
7823267	XCMT073106ER-DN	-	7,11	3,1	8	0,6	CK110								●					21-24,5
7823268	XCMT083508ER-DN	-	8,36	3,5	8	0,8	CK110								●					25-28,5
7823269	XCMT094008ER-DN	-	9,62	4	8	0,8	CK110								●					29-33,5
7823297	XCMT104608ER-DN	-	10,89	4,6	8	0,8	CK110								●					34-38
7823271	XCMT125010ER-DN	-	12,57	5	8	1	CK110								●					39-44
7823272	XCMT135212ER-DN	-	14,05	5,2	8	1,2	CK110								●					45-49
7823273	XCMT145612ER-DN	-	15,58	5,6	8	1,2	CK110								●					50-56
7823275	XCMT165912ER-DN	-	17,28	5,9	8	1,2	CK110								●					57-63



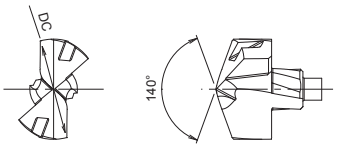


- Applicable head for steel

B.536

EDP	Designation	DC	Grade	P		Applicable body DC
				dry		
7831140	PXDH1400-PC	14	XP3425		◉	PXDZ140
7831145	PXDH1450-PC	14,5	XP3425		◉	PXDZ145
7831351	PXDH1495-PC	14,95	XP3425		◉	PXDZ145
7831150	PXDH1500-PC	15	XP3425		◉	PXDZ150
7831352	PXDH1525-PC	15,25	XP3425		◉	PXDZ150
7831155	PXDH1550-PC	15,5	XP3425		◉	PXDZ150
7831160	PXDH1600-PC	16	XP3425		◉	PXDZ160
7831165	PXDH1650-PC	16,5	XP3425		◉	PXDZ160
7831167	PXDH1670-PC	16,7	XP3425		◉	PXDZ160
7831170	PXDH1700-PC	17	XP3425		◉	PXDZ170
7831353	PXDH1725-PC	17,25	XP3425		◉	PXDZ170
7831175	PXDH1750-PC	17,5	XP3425		◉	PXDZ170
7831180	PXDH1800-PC	18	XP3425		◉	PXDZ180
7831185	PXDH1850-PC	18,5	XP3425		◉	PXDZ180
7831187	PXDH1870-PC	18,7	XP3425		◉	PXDZ180
7831190	PXDH1900-PC	19	XP3425		◉	PXDZ190
7831354	PXDH1925-PC	19,25	XP3425		◉	PXDZ190
7831195	PXDH1950-PC	19,5	XP3425		◉	PXDZ190
7831200	PXDH2000-PC	20	XP3425		◉	PXDZ200
7831205	PXDH2050-PC	20,5	XP3425		◉	PXDZ200
7831207	PXDH2070-PC	20,7	XP3425		◉	PXDZ200
7831210	PXDH2100-PC	21	XP3425		◉	PXDZ210
7831355	PXDH2125-PC	21,25	XP3425		◉	PXDZ210
7831215	PXDH2150-PC	21,5	XP3425		◉	PXDZ210
7831220	PXDH2200-PC	22	XP3425		◉	PXDZ220
7831224	PXDH2240-PC	22,4	XP3425		◉	PXDZ220
7831225	PXDH2250-PC	22,5	XP3425		◉	PXDZ220
7831230	PXDH2300-PC	23	XP3425		◉	PXDZ230
7831356	PXDH2325-PC	23,25	XP3425		◉	PXDZ230
7831235	PXDH2350-PC	23,5	XP3425		◉	PXDZ230
7831240	PXDH2400-PC	24	XP3425		◉	PXDZ240
7831245	PXDH2450-PC	24,5	XP3425		◉	PXDZ240
7831250	PXDH2500-PC	25	XP3425		◉	PXDZ250
7831254	PXDH2540-PC	25,4	XP3425		◉	PXDZ250



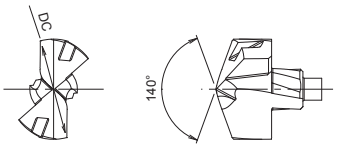


- Applicable head for cast iron

B.536

EDP	Designation	DC	Grade	K		Applicable body DC
				dry		
7831440	PXDH1400-KC	14	XP1425		◉	PXDZ140
7831445	PXDH1450-KC	14,5	XP1425		◉	PXDZ145
7831450	PXDH1500-KC	15	XP1425		◉	PXDZ150
7831455	PXDH1550-KC	15,5	XP1425		◉	PXDZ150
7831460	PXDH1600-KC	16	XP1425		◉	PXDZ160
7831465	PXDH1650-KC	16,5	XP1425		◉	PXDZ160
7831467	PXDH1670-KC	16,7	XP1425		◉	PXDZ160
7831470	PXDH1700-KC	17	XP1425		◉	PXDZ170
7831475	PXDH1750-KC	17,5	XP1425		◉	PXDZ170
7831480	PXDH1800-KC	18	XP1425		◉	PXDZ180
7831485	PXDH1850-KC	18,5	XP1425		◉	PXDZ180
7831487	PXDH1870-KC	18,7	XP1425		◉	PXDZ180
7831490	PXDH1900-KC	19	XP1425		◉	PXDZ190
7831495	PXDH1950-KC	19,5	XP1425		◉	PXDZ190
7831500	PXDH2000-KC	20	XP1425		◉	PXDZ200
7831505	PXDH2050-KC	20,5	XP1425		◉	PXDZ200
7831507	PXDH2070-KC	20,7	XP1425		◉	PXDZ200
7831510	PXDH2100-KC	21	XP1425		◉	PXDZ210
7831515	PXDH2150-KC	21,5	XP1425		◉	PXDZ210
7831520	PXDH2200-KC	22	XP1425		◉	PXDZ220
7831524	PXDH2240-KC	22,4	XP1425		◉	PXDZ200
7831525	PXDH2250-KC	22,5	XP1425		◉	PXDZ220
7831530	PXDH2300-KC	23	XP1425		◉	PXDZ230
7831535	PXDH2350-KC	23,5	XP1425		◉	PXDZ230
7831540	PXDH2400-KC	24	XP1425		◉	PXDZ240
7831545	PXDH2450-KC	24,5	XP1425		◉	PXDZ240
7831550	PXDH2500-KC	25	XP1425		◉	PXDZ250
7831554	PXDH2540-KC	25,4	XP1425		◉	PXDZ250





- Applicable head for non ferrous metals

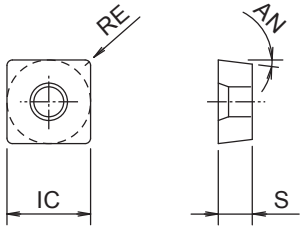
B.536

EDP	Designation	DC	Grade	N		Applicable body DC
				dry		
7831740	PXDH1400-NC	14	CF225		◉	PXDZ140
7831745	PXDH1450-NC	14,5	CF225		◉	PXDZ145
7831750	PXDH1500-NC	15	CF225		◉	PXDZ150
7831755	PXDH1550-NC	15,5	CF225		◉	PXDZ150
7831760	PXDH1600-NC	16	CF225		◉	PXDZ160
7831765	PXDH1650-NC	16,5	CF225		◉	PXDZ160
7831767	PXDH1670-NC	16,7	CF225		◉	PXDZ160
7831770	PXDH1700-NC	17	CF225		◉	PXDZ170
7831775	PXDH1750-NC	17,5	CF225		◉	PXDZ170
7831780	PXDH1800-NC	18	CF225		◉	PXDZ180
7831785	PXDH1850-NC	18,5	CF225		◉	PXDZ180
7831787	PXDH1870-NC	18,7	CF225		◉	PXDZ180
7831790	PXDH1900-NC	19	CF225		◉	PXDZ190
7831795	PXDH1950-NC	19,5	CF225		◉	PXDZ190
7831800	PXDH2000-NC	20	CF225		◉	PXDZ200
7831805	PXDH2050-NC	20,5	CF225		◉	PXDZ200
7831807	PXDH2070-NC	20,7	CF225		◉	PXDZ200
7831810	PXDH2100-NC	21	CF225		◉	PXDZ210
7831815	PXDH2150-NC	21,5	CF225		◉	PXDZ210
7831820	PXDH2200-NC	22	CF225		◉	PXDZ220
7831824	PXDH2240-NC	22,4	CF225		◉	PXDZ220
7831825	PXDH2250-NC	22,5	CF225		◉	PXDZ220
7831830	PXDH2300-NC	23	CF225		◉	PXDZ230
7831835	PXDH2350-NC	23,5	CF225		◉	PXDZ230
7831840	PXDH2400-NC	24	CF225		◉	PXDZ240
7831845	PXDH2450-NC	24,5	CF225		◉	PXDZ240
7831850	PXDH2500-NC	25	CF225		◉	PXDZ250
7831854	PXDH2540-NC	25,4	CF225		◉	PXDZ250

PHP

Drilling | Indexable | Inserts and heads





- Applicable insert for PHP drill

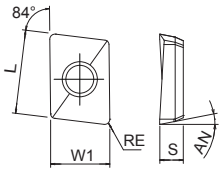
B.538

EDP	Designation	IC	S	AN	RE	Grade	P		M		K		N		S		H		Applicable body DC
							dry		dry		GG	GGG	dry		dry		dry		
7818001	SCMT042204-DM	4,8	2,2	7	0,4	XP9040		●		●				●		○			14-16
7818002	SCMT052404-DM	5,4	2,4	7	0,4	XP9040		●		●				●		○			16,5-18
7818003	SCMT062806-DM	6,2	2,8	7	0,6	XP9040		●		●				●		○			18,5-20,5
7818004	SCMT073206-DM	7,2	3,2	7	0,6	XP9040		●		●				●		○			21-24
7818005	SCMT083608-DM	8,6	3,6	7	0,8	XP9040		●		●				●		○			24,5-28
7818006	SCMT104208-DM	10	4,2	7	0,8	XP9040		●		●				●		○			29-34
7818007	SCMT125008-DM	12,3	5	7	0,8	XP9040		●		●				●		○			35-40
7817001	SCMT042204-DM	4,8	2,2	7	0,4	XP9025		○		○		●		○					14-16
7817002	SCMT052404-DM	5,4	2,4	7	0,4	XP9025		○		○		●		○					16,5-18
7817003	SCMT062806-DM	6,2	2,8	7	0,6	XP9025		○		○		●		○					18,5-20,5
7817004	SCMT073206-DM	7,2	3,2	7	0,6	XP9025		○		○		●		○					21-24
7817005	SCMT083608-DM	8,6	3,6	7	0,8	XP9025		○		○		●		○					24,5-28
7817006	SCMT104208-DM	10	4,2	7	0,8	XP9025		○		○		●		○					29-34
7817007	SCMT125008-DM	12,3	5	7	0,8	XP9025		○		○		●		○					35-40

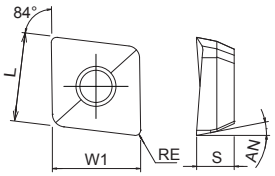


- Counterboring cutter
- 2 corners inserts

Type 1



Type 2



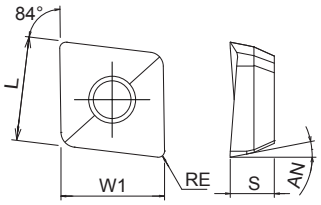
B.540

EDP	Designation	W1	L	S	AN	RE	Type	Grade	P		M		K		N		S		H		Applicable body DC
									dry		dry		GG	GGG	dry		dry		dry		
7814101	ZPNT040104ER	6,35	4,45	1,76	11	0,4	1	XP8030		●		●	○	○		○		○		○	14
7814103	ZPNT060204EN	6,95	6,95	2,93	11	0,4	2	XP8030		●		●	○	○		○		○		○	17,5-23
7814106	ZPNT090404EN	9,94	9,94	4,65	11	0,4	2	XP8030		●		●	○	○		○		○		○	26-48
7814109	ZPNT130504EN	13,92	13,92	5,46	11	0,4	2	XP8030		●		●	○	○		○		○		○	54-72
7814111	ZPNT170608EN	17,85	17,85	6,31	11	0,8	2	XP8030		●		●	○	○		○		○		○	76-82
7815101	ZPNT040104ER	6,35	4,45	1,76	11	0,4	1	XC8035	○	○		○	●	●							14
7815103	ZPNT060204EN	6,95	6,95	2,93	11	0,4	2	XC8035	○	○		○	●	●							17,5-23
7815106	ZPNT090404EN	9,94	9,94	4,65	11	0,4	2	XC8035	○	○		○	●	●							26-48
7815109	ZPNT130504EN	13,92	13,92	5,46	11	0,4	2	XC8035	○	○		○	●	●							54-72
7815111	ZPNT170608EN	17,85	17,85	6,31	11	0,8	2	XC8035	○	○		○	●	●							76-82

PDZ

Drilling | Indexable | Inserts and heads



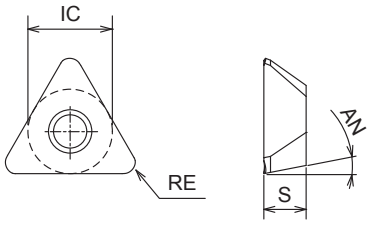


- Counterboring cutter
- 2 corners inserts

B.528

EDP	Designation	W1	L	S	AN	RE	Specification	Grade	P		M		K		N		S		H		Applicable body DC
									dry		dry		GG	GGG	dry		dry		dry		
7814102	ZPNT050204EN	5,9	5,9	2,25	11	0,4	Center cutting	XP8030		◉		◉	◎	◎		◎		◎		◎	16-18,5
7814103	ZPNT060204EN	6,95	6,95	2,93	11	0,4	Center cutting	XP8030		◉		◉	◎	◎		◎		◎		◎	19-22
7814104	ZPNT070304EN	7,84	7,84	3,87	11	0,4	Center cutting	XP8030		◉		◉	◎	◎		◎		◎		◎	23-26
7814105	ZPNT080304EN	8,85	8,85	3,92	11	0,4	Center cutting	XP8030		◉		◉	◎	◎		◎		◎		◎	27-31
7814106	ZPNT090404EN	9,94	9,94	4,65	11	0,4	Center cutting	XP8030		◉		◉	◎	◎		◎		◎		◎	32-34
7814108	ZPNT100408EN	10,95	10,95	4,65	11	0,8	Center cutting	XP8030		◉		◉	◎	◎		◎		◎		◎	35-38
7814110	ZPNT130508EN	13,92	13,92	5,46	11	0,8	Center cutting	XP8030		◉		◉	◎	◎		◎		◎		◎	39-43
7815102	ZPNT050204EN	5,9	5,9	2,25	11	0,4	Peripheral	XC8035	◎	◎		◎	◉	◉								16-18,5
7815103	ZPNT060204EN	6,95	6,95	2,93	11	0,4	Peripheral	XC8035	◎	◎		◎	◉	◉								19-22
7815104	ZPNT070304EN	7,84	7,84	3,87	11	0,4	Peripheral	XC8035	◎	◎		◎	◉	◉								23-26
7815105	ZPNT080304EN	8,85	8,85	3,92	11	0,4	Peripheral	XC8035	◎	◎		◎	◉	◉								27-31
7815106	ZPNT090404EN	9,94	9,94	4,65	11	0,4	Peripheral	XC8035	◎	◎		◎	◉	◉								32-34
7815108	ZPNT100408EN	10,95	10,95	4,65	11	0,8	Peripheral	XC8035	◎	◎		◎	◉	◉								35-38
7815110	ZPNT130508EN	13,92	13,92	5,46	11	0,8	Peripheral	XC8035	◎	◎		◎	◉	◉								39-43





- Applicable insert for PLDS drill

B.542

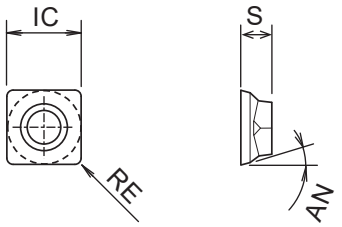
EDP	Designation	IC	S	AN	RE	Grade	P		M		K		N		S		H		Applicable body DC
							dry		dry		GG	GGG	dry		dry		dry		
7814205	TPKT110308ER-DM	6,35	3,18	11	0,8	XP9020		●		○	●	●		○		○		○	14,4-17,3
7813205	TPKT110308ER-DM	6,35	3,18	11	0,8	XP2040	○	○	○	●				○		●		●	14,4-17,3

PMEN

Chamfering | Indexables

INSERTS NEW

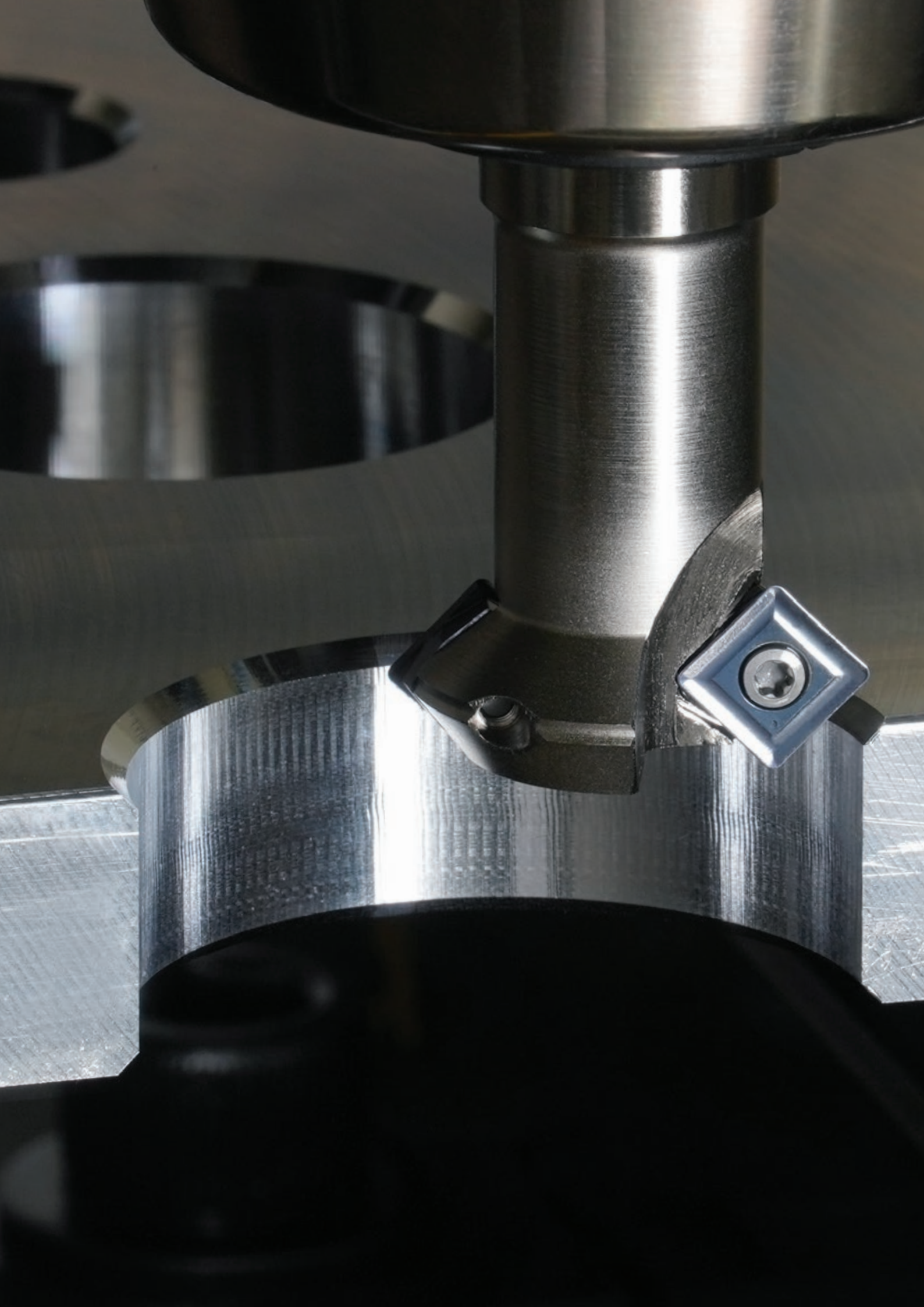




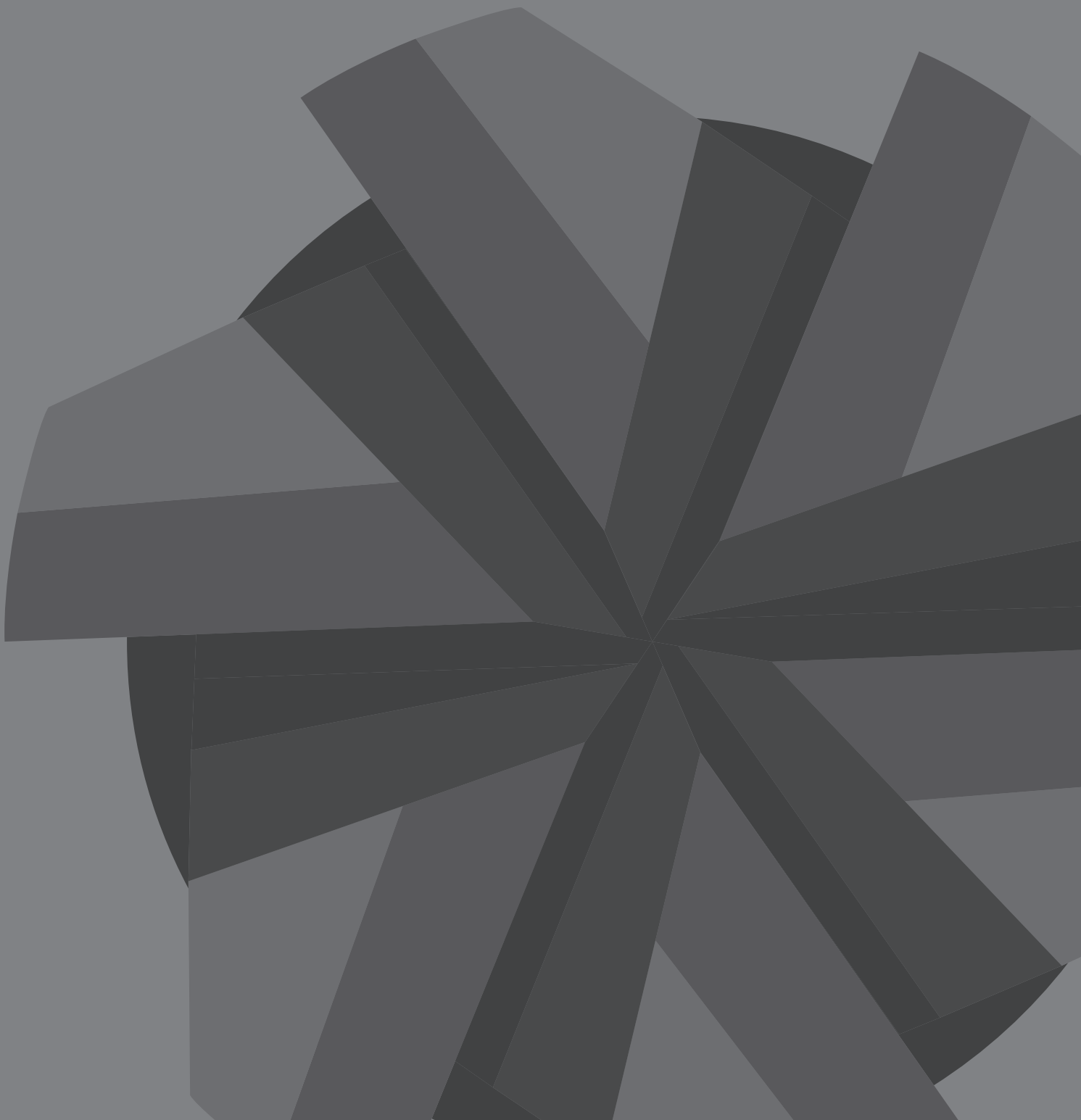
- Inserts for Chamfering Cutter

B.544

EDP	Designation	Z	IC	S	AN	RE	Grade	P		M		K		N		S		H	
								dry		dry		GG	GGG	dry		dry		dry	
7811072	SOMT090308EN-NM	4	9,52	3,18	14°	0,8	CK010							◉					
7817072	SOMT090308EN-GM	4	9,52	3,18	14°	0,8	XP3015	◉				◉	◉						
7813072	SOMT090308EN-GM	4	9,52	3,18	14°	0,8	XP2040	◎	◎	◎	◉						◎	◎	



MILLING



ICONS LEGEND

Material

CARBIDE — Carbide

CBN — CBN

XPM — High grade powder metallurgy HSS (XPM) (Co10+V5)

CPM — Powder Metallurgy HSS (PM-T15) (Co5 + V5)

HSS-Co — HSS Cobalt (Co8)

CERAMIC — Ceramic

HONEYCOMB — Honeycomb

CFRP — CFRP

Coating / surface treatment

FX — Multilayer coating TiAlN

WX — Multilayer composite TiAlN

CrN — Chromium nitride

DIA — Diamond

DLC — DLC coating

WDI — Multilayer coating WDI

TiAlN — Multilayer coating TiAlN

V — Multilayer coating TiCN

DG — DG coating

WXS — Multilayer coating WXS

WXL — Multilayer coating WXL

DUARISE — Duarise coating

DLC-IGUSS — DLC IGUSS coating

DUROREY — DURORAY coating

AlCrN — AlCrN coating

Helix angle

30° — Helix angle

± 0° — Taper angle per side

45° — 45° degrees cutter

Shank

Long pencil neck

Pencil neck

Short neck

Long neck

Extra long neck

Slim shank

SHRINK FIT — Suitable for Shrink fit system

HB — Weldon

Straight shank

Tolerance

Milling diameter tolerance

R ± 0.01 — Radius tolerance

Coolant

Internal coolant

Coolant

A-Brand

A-Brand product

ICONS LEGEND

Cutting specification


Centre cutting


Sharp corner



Right angle



220° cutting edge



High feed corner radius



High feed


Square


Corner radius


Ball nose


Radius cutter


Roughing

Recommendation



Steel
Full recommendation



Stainless steel
Full recommendation



Cast iron
Full recommendation



Steel
Suitable



Stainless steel
Suitable



Cast iron
Suitable



Non-ferrous materials
Full recommendation



Super alloys
Full recommendation



Hardened material
Full recommendation



Non-ferrous materials
Suitable



Super alloys
Suitable



Hardened material
Suitable

Page reference


Cutting conditions page reference


Body page reference


Arbor/holder page reference


Inserts page reference


Holder page reference

Application


Side milling


Side milling


Side milling


Slotting


Slotting


Slotting


Contouring


Profile milling


Profile milling


Plunging


High feed corner radius


High feed long neck corner radius

Long neck slotting

Long neck profile milling

Deep pocket

Deep wall milling

Deep slotting

Product group

Solid end mills

Indexable milling

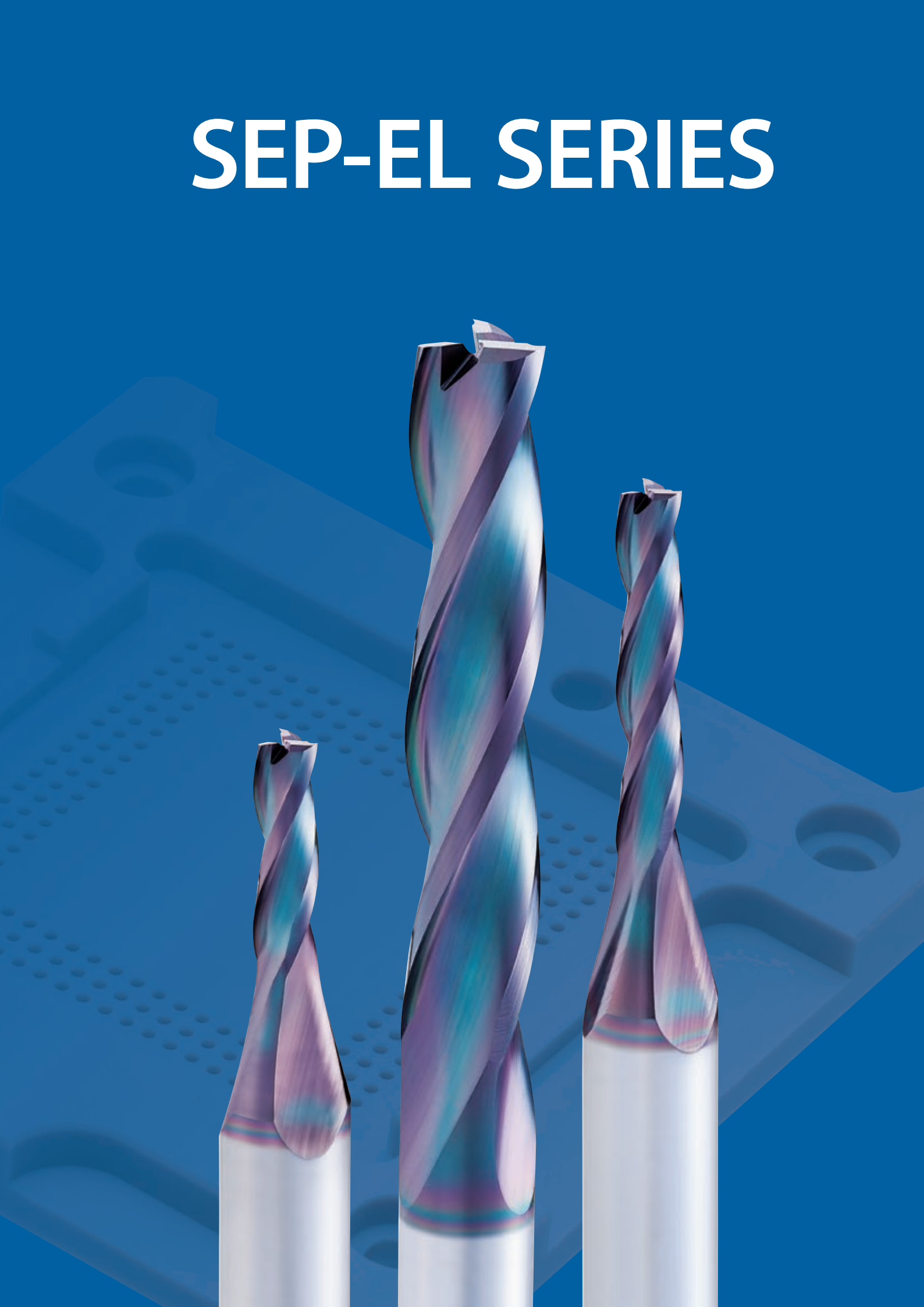
MATERIAL OVERVIEW

Milling | Overview DIN ISO 513

Work Material			DIN
P	~45 HRC	Steel	**1.0501** (C35)
	~55 HRC		**1.0535** (C55) **1.0553** (S355J0)
H	~60 HRC	Hardened steel	
	~65 HRC		
M	~35 HRC	Stainless steel	**1.4301** (X5CrNi18-10)
K	~350 HB	Cast iron	**0.6025** (EN-GJL-250/GG25)
N		Aluminium	**3.0205** (Al99)
S		Titanium	**3.7164** (Ti6Al4V)

CFRP	CFRP
Honeycomb	Honeycomb
Graphite	Graphite

SEP-EL SERIES



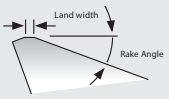
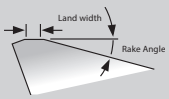
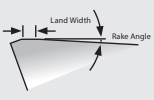
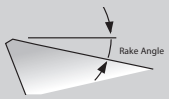
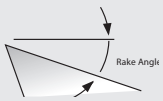
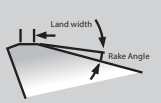
GRADE & CHIPBREAKER SELECTION

Indexables | Milling

Grades for milling

Material	Grades	Coolant/ dry	Coating	Hardness (HRA)	Surface main component	Surface coating thickness	Features
P	XC3020	Dry	CVD	90,5	$TiCN+Al_2O_3$	10 µm	For steel and cast iron High strength and tough material, wear resistant coating
	XC3025	Dry	CVD	90,8	$TiCN+TiN+Al_2O_3$	4 µm	For steel, stainless steel and cast iron High strength material, excellent wear resistant coating
	XP3025	Dry	PVD	90,5	TiAlN	5 µm	For steel and cast iron High strength and tough material, wear resistant coating
	XC3030	Dry	CVD	89,5	$TiCN+Al_2O_3$	10 µm	For steel and cast iron High strength and tough material, wear resistant coating
	XP3035	Dry	PVD	89,5	TiAlN-TiN	5 µm	For machining steel, stainless steel and cast irons. A grade for general-purpose milling. Made of a tough, high-strength carbide. Treated with chipping-resistant and wear-resistant coating.
	XP3225	Dry	PVD	91,5	Cr	3 µm	For machining steel, stainless steel and cast iron. High-strength and tough material, wear-resistant coating
	XP3310	Dry	PVD	92,5	SiC Silicon-based heat-resistant coating	3 µm	For steel and cast iron. A tough carbide base grade and excellent general purpose coating
	XP3320	Dry	PVD	91,5	SiC Silicon-based heat-resistant coating	3 µm	For machining steel, stainless steel and cast irons. A tough carbide grade with a heat-resistant and wear-resistant coating
	XP3930	Dry	PVD	90,8	TiAlN	3 µm	For machining steel, cast irons and stainless steel Excellent balance, can accommodate a range of workpiece materials
M	XP2025	Coolant	PVD	91,0	TiAlN	5 µm	For stainless steel and steel Composed of a tough carbide material with a wear resistant coating
	XP2040	Coolant	PVD	89,6	TiAlN	5 µm	For machining stainless steel and steel. Grade for general-purpose milling. A tough, high-strength carbide grade with an anti-chipping and wear-resistant coating
K	XC1015	Dry	CVD	91,5	$TiCN-Al_2O_3$	10 µm	For machining cast irons. Grade for milling cast-iron. Tough, high-strength carbide grade with an anti-chipping and wear-resistant coating
	XP1020	Dry	PVD	91,4	TiAlN	5 µm	For cast iron. High rigidity of cutting edge is acquired by optimal land width and rake angle.
N	CK010	-	-	92,0	-	-	For machining non-ferrous materials A non-coated carbide grade with both anti-chipping and wear resistant features
	XC4505	Dry	CVD	93,0	DIA	12 µm	High strength coating of fine diamond
S	XC5035	Coolant	CVD	89.3	$TiN-Ti(CN)-Al_2O_3-Ti(BN)$	6µm	Grade for machining heat-resistant steel. Tough, carbide grade with an oxidation-resistant and high-lubricity coating
	XC5040	Coolant	CVD	89.3	$TiN-TiB_2$	4µm	Grade for machining heat-resistant steel. For wet machining. Tough, carbide grade with an oxidation-resistant and high-lubricity coating
H	XP6015	Dry	PVD	92.2	TiAlN	4µm	A grade designed for milling high hardness steel, made of tough, high strength carbide material with a wear resistant coating
	XP6305	Dry	PVD	93.0	SiC Silicon-based heat-resistant coating	3µm	For machining high hardness materials High temperature hardness levels and excellent thermal conductivity for machining high hardness materials

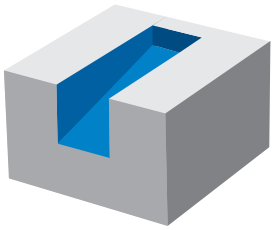
Chipbreakers for milling

Chipbreaker	Material	Cutting edge	Rake angle	Features
GL	P M		25°	For milling stainless-steel Chipbreaker with a large rake angle and a small flat land to reduce cutting force.
GM	P M K		15° (35° PAS)	For machining various materials (steel, stainless steel, cast iron) Chipbreaker with a superior balance of rake angle and flat land.
GR	P M K H		7° (35° PAS)	For machining various materials from steel to cast iron: a highly rigid breaker with large rake angle and flat land to provide a sharp cutting edge and enable efficient milling.
SM	S		15°	For machining difficult materials Chipbreaker with a sharp cutting edge to reduce cutting force and provide smooth chip evacuation.
NM	N		30°	For machining non-ferrous materials Chipbreaker with a sharp cutting edge and a large rake angle to suppress welding, improve the milling surface and prevent burrs.
HR	H		3°	For milling high hardened steel : a breaker with sharpness and rigidity on the cutting edge.

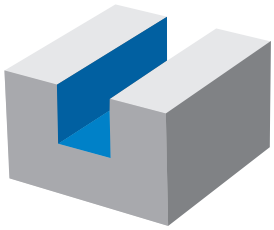
MULTI PURPOSE



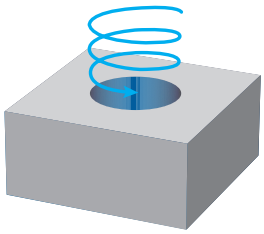
Side milling



Ramping



Slotting



Helical milling

A DUARISE CARBIDE

AE-VM Series



First choice in quality and performance

Carbide end mill with DUARISE coating

Wide variety in applications and work materials

4 flutes, variable helix and unequal spacing

C.616

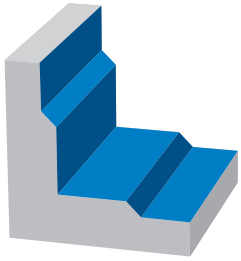
THE OSG ADVANTAGE

- Variable helix
- Unequal spacing
- Coating

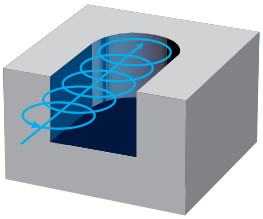
SIDE MILLING / TROCHOIDAL MILLING



Side milling



Side milling



Trochoidal milling

A DUARISE CARBIDE

AE-VML

First choice in quality and performance

Carbide end mill with DUARISE coating

Also with chipbreaker



C.624

WXL CARBIDE

WXL Series

Carbide end mill with WXL coating

For steels, stainless, copper

4 flutes, up to 4xD applications, square



C.683

A DUROREY CARBIDE

AE-H Series

First choice in quality and performance

Carbide end mill with DUROREY coating

For hardened materials up to 70 HRC

Multi flute, high speed machining



C.628

THE OSG ADVANTAGE

- Flute geometry
- Suitable coatings

MOLD AND DIE INDUSTRY



Copper



52 HRC

A DLC-IGUSS CARBIDE

AE-N Series

First choice in quality and performance

Carbide end mill with DLC coating

For non-ferrous materials

2-flute long neck ball type for high precision finishing

370 sizes



C.748

WXL CARBIDE

WXL Series

Carbide end mill with WXL coating

For hardened steels up to **52 HRC**

2 flutes, long neck, square or ball nose
(not shown)

1.173 sizes



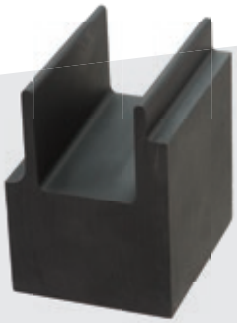
C.685

THE OSG ADVANTAGE

• Semi roughing - high feed productivity
• F=4000 mm/min



62 HRC



Graphite

A DUROREY CARBIDE

AE-H Series

First choice in quality and performance

Carbide end mill with DUROREY coating

For hardened materials up to 70 HRC

2 flutes, long neck type for high precision finishing

1.487 sizes



C.633

DG CARBIDE

DG Series

Carbide end mill with diamond coating

For **graphite** milling

2 flutes, ball nose, long neck for deep reach



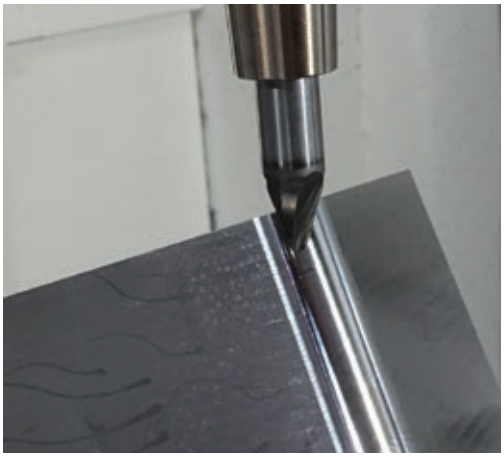
C.721

Product map

THE OSG ADVANTAGE

- Flute geometry
- Suitable coatings

HIGH EFFICIENCY FINISHING



WXL CARBIDE

VU Series

Carbide end mill with WXL coating

For general steel and hardened material

High-efficiency multi-flute specification

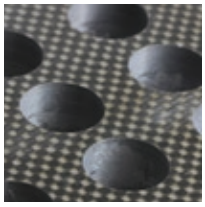


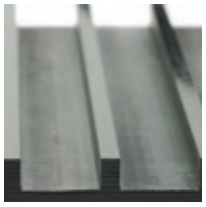
C.710

THE OSG ADVANTAGE

- Flute geometry
- Suitable coating

COMPOSITE MATERIAL





CFRP



Honeycomb

DIA CARBIDE

DIA Series

Carbide end mill with diamond coating

For CFRP milling

Multi flute, fine nick geometry
(specification from shown example, DIA-HBC)

4 flutes, left-hand / right-hand flute to suppress delamination
(specification from shown example, DIA-HBC)



C.723

CARBIDE

HBC60

Carbide end mill, bright finish

For honeycomb composite materials

2 flutes, left-hand / right-hand flute



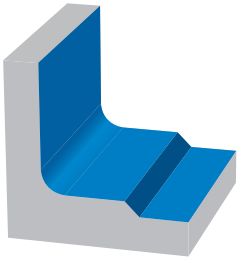
C.727

Product map

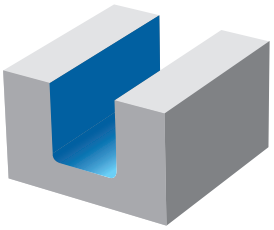
THE OSG ADVANTAGE

- No delamination
- Surface finish
- DIA coating - sharp

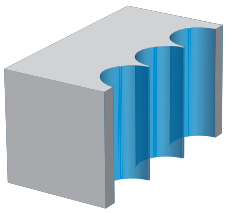
PLASTICS



Side milling



Slotting



Plunging

DLC-IGUSS CARBIDE

SEP-EL

DLC coated carbide end mill for super engineering plastics

2-3 flutes, sharp corner edge

3&5XD Cutting length

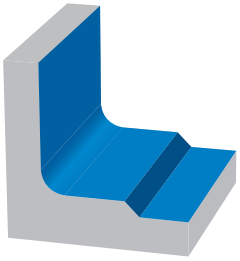


C.747

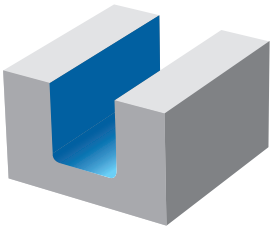
THE OSG ADVANTAGE

- Flute geometry
- Suitable coating

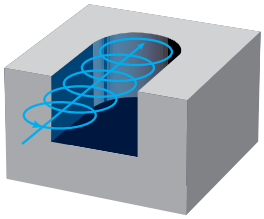
TITANIUM



Side milling



Slotting



Trochoidal milling

FX CARBIDE

UVX-Ti Series

First choice in quality and performance

Carbide end mill with FX coating

For Titanium alloys

4 or 5 flutes, variable helix and unequal spacing, corner radius



C.728

THE OSG ADVANTAGE

- Anti vibration
- Special flute geometry
- Extra long cutting edge

ALUMINIUM





M.R.R. (metal removal rate)

A DLC CARBIDE

AE-N Series

First choice in quality and performance

Carbide end mill with DLC coating

For non-ferrous materials

3 flutes



C.738

DLC CARBIDE

AERO Series

Carbide end mill with DLC coating

For ultra high volume milling of aluminium alloys

3 or 2 flutes, corner radius

Also long neck available

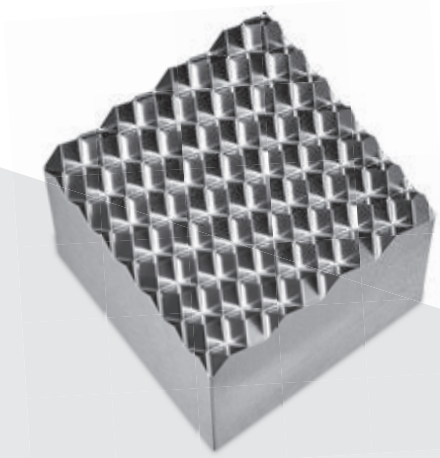


C.756

THE OSG ADVANTAGE

• Aggressive flute design to achieve maximum MRR (metal removal rate)
• Optimised for AL milling

HIGH HARDNESS MATERIALS



CARBIDE

CBN-FB2

2-flute CBN ball end mill

Superior Ball R precision

For hardened materials up to 70 HRC



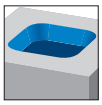
C.718

THE OSG ADVANTAGE

• Micro relief suppresses shape deformation caused by wear
• Superior ball R precision
• High-accuracy shank optimized shank length

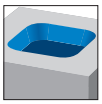
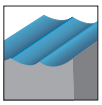
SELECTION CHART

Milling | Selection chart | By application & material

Application	A-Brand	Product name	Page		Z	Range	P		H		M	K	N	S	O	O	O
							~45 HRC	~55 HRC	~60 HRC	~65 HRC	~35 HRC	~350 HB			PET	PEI	PEEK
	A	AE-VMS NEW SIZES	C.616	DURARISE	4	1 ~ 25	◉	◉	◎		◉	◉	◎	◎			
	A	AE-VMS RA NEW SIZES	C.618	DURARISE	4	1 ~ 6	◉	◉	◎		◉	◉	◎	◎			
	A	AE-VMSS	C.619	DURARISE	4	1 ~ 12	◉	◉	◎		◉	◉	◎	◎			
	A	AE-VMSS RA	C.621	DURARISE	4	1 ~ 6	◉	◉	◎		◉	◉	◎	◎			
	A	AE-VMSX NEW	C.623	DURAREY	4	3 ~ 12	◉	◉		◎	◉	◉		◉			
		NEO-PHS	C.764	FX	4	3 ~ 20	◉	◉	◎		◉	◉		◉			
		UP-PHS	C.761	FX	4	3 ~ 12	◉	◉	◎		◉	◉	◎	◉			
		UVX-Ti-4FL	C.728	FX	4	12 ~ 25					◎			◉			
		UVX-Ti-4FL SAFE-LOCK®	C.729	FX	4	12 ~ 25					◎			◉			
		UVX-Ti-5FL	C.730	FX	5	12 ~ 25					◎			◉			
		UVX-Ti-5FL-HB	C.731	FX	5	12 ~ 20					◎			◉			
		UVX-Ti-5FL SAFE-LOCK®	C.732	FX	5	12 ~ 25					◎			◉			
		UVXL-Ti-5FL	C.733	FX	5	12 ~ 25					◎			◉			
		UVXL-Ti-5FL SAFE-LOCK®	C.734	FX	5	12 ~ 25					◎			◉			
	A	AE-TS-N	C.738	DLC	3	1 ~ 25							◉				
	A	AE-TS-N SP	C.739	DLC	3	1 ~ 12							◉				
	A	AE-VTS-N	C.744	DLC-IGUSS	3	1 ~ 12							◉				
	A	AE-VTS-N SP	C.745	DLC-IGUSS	3	1 ~ 12							◉				
		AERO-ETS	C.756	DLC	3	12 ~ 25							◉				
	A	AE-VTSS	C.713	DURARISE	3	3 ~ 12	◎		◎		◉	◉	◎	◎			
		WX-G-ETSS	C.714	WX	3	3 ~ 16	◉	◉	◎		◉			◉			
		CA-ETS	C.770	-	3	3 ~ 20							◉				
		EPN-AL-3FS	C.800	-	3	3 ~ 20							◉				
		EPN-AL-3FL	C.799	-	3	3 ~ 20							◉				
		EPA-AL-3FS	C.798	ALC	3	3 ~ 20							◉				
		EPA-AL-3FL	C.797	ALC	3	3 ~ 20							◉				
		HYP-HI-(W)EMS	C.802	TiAlN	4	4 ~ 20	◉	◉	◎		◉	◉	◎	◉			
		HYP-HP-WRESF	C.804	TiAlN	4/5/6	6 ~ 25	◉	◉			◎	◎					
		EPL-HP-4FL	C.771	EgiAs	4	3-20	◉	◉			◉	◉	◎	◉			
		EPL-HP-5FL	C.773	EgiAs	5	6-20	◉	◉			◉	◉	◎	◉			
		EPL-HI-(W)EMS	C.777	TiAlN	4	4 ~ 20	◉	◉	◎		◉	◉	◎	◉			
		EPL-ETS	C.781	TiAlN	3	4 ~ 16	◉	◉	◎		◉	◉	◎	◉			
		EPL-WRESF	C.780	TiAlN	3/4	4 ~ 25	◉	◉			◎	◎	◎				
		SEP-EL NEW	C.747	DLC-IGUSS	2/3	0,5 ~ 6							◎		◉	◉	◉

SELECTION CHART

Milling | Selection chart | By application & material

Application	A-Brand	Product name	Page		Z	Range	P		H		M	K	N	S	CFRP	GRAPHITE
							~45 HRC	~55 HRC	~60 HRC	~65 HRC	~35 HRC	~350 HB				
	A	AE-VMS NEW SIZES	C.616	DUARISE	4	1 ~ 25	◉	◉	◎		◉	◉	◎	◎		
		NEO-CR-PHS	C.765	FX	4	3 ~ 20	◉	◉	◎		◉	◉		◉		
		UVX-Ti-4FL	C.728	FX	4	12 ~ 25					◎			◉		
		UVX-Ti-4FL SAFE-LOCK®	C.729	FX	4	12 ~ 25					◎			◉		
		UVX-Ti-5FL	C.730	FX	5	12 ~ 25					◎			◉		
		UVX-Ti-5FL-HB	C.731	FX	5	12 ~ 20					◎			◉		
		UVX-Ti-5FL SAFE-LOCK®	C.732	FX	5	12 ~ 25					◎			◉		
		UVXL-Ti-5FL	C.733	FX	5	12 ~ 25					◎			◉		
		UVXL-Ti-5FL SAFE-LOCK®	C.734	FX	5	12 ~ 25					◎			◉		
	A	AE-TS-N	C.738	DLC	3	1 ~ 25							◉			
	A	AE-VTS-N	C.744	DLC-IGUSS	3	1 ~ 12							◉			
		AERO-(O)-ETS	C.758	DLC	3	12 ~ 25							◉			
		DLC-AIR-EDS	C.754	DLC	2	12 ~ 25							◉			
		HYP-CR-HI-WEMS	C.801	TiAlN	4	4 ~ 20	◉	◉	◎		◉	◉	◎	◉		
		HYP-CR-HD-WEMS	C.803	TiAlN	4	6 ~ 20	◉	◉	◎		◉	◉	◎	◉		
		EPL-HI-CR-(W)EMS	C.778	TiAlN	4	4 ~ 20	◉	◉	◎		◉	◉	◎	◉		
		EPL-HP-4FL	C.771	EgiAs	4	3-20	◉	◉			◉	◉	◎	◉		
		EPL-HP-5FL	C.773	EgiAs	5	6-20	◉	◉			◉	◉	◎	◉		

Application	A-Brand	Product name	Page		Z	Range	P		H		M	K	N	S	CFRP	GRAPHITE
							~45 HRC	~55 HRC	~60 HRC	~65 HRC	~35 HRC	~350 HB				
		WXL-1,5D-DE	C.673	WXL	2	0,1 ~ 12	◉	◉			◉	◉	◎	◎		
		WXL-2D-DE	C.675	WXL	2	0,1 ~ 30	◉	◉			◉	◉	◎	◎		
		WXL-3D-DE	C.679	WXL	2	0,1 ~ 20	◉	◉			◉	◉	◎	◎		
		WXL-4D-DE	C.681	WXL	2	0,2 ~ 12	◉	◉			◉	◉	◎	◎		
		CA-RG-EDS	C.769	-	2	1 ~ 20							◉			
		HYP-F1	C.807	-	1	3 ~ 12							◉			

SELECTION CHART

Milling | Selection chart | By application & material

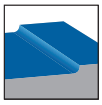
Application	A-Brand	Product name	Page		Z	Range	P ~45 HRC	P ~55 HRC	H ~60 HRC	H ~65 HRC	M ~35 HRC	K ~350 HB	N	S	CFRP	GRAPHITE
	A	AE-VML	C.624	DURARISE	4/5	6 ~ 20	◉	◉	◎		◉	◉	◎	◎		
	A	AE-VML CHIPBREAKER	C.626	DURARISE	4/5	6 ~ 20	◉	◉	◎		◉	◉	◎	◎		
	A	AE-MS-H	C.629	DURAREY	4/6	1 ~ 20	◉	◉	◉	◉	◎	◎		◎		
	A	AE-MSS-H	C.628	DURAREY	4/6	3 ~ 12	◉	◉	◉	◉	◎	◎		◎		
	A	AE-ML-H	C.630	DURAREY	4/6	3 ~ 20	◉	◉	◉	◉	◎	◎		◎		
		WXL-EMS	C.683	WXL	4	1 ~ 30	◉	◉	◎		◉	◉	◎	◎		
		WXS-EMS	C.660	WXS	4/6	1 ~ 20	◉	◉	◉	◉	◎	◉		◎		
		NEO-EMS	C.763	FX	6	6 ~ 20	◉	◉			◉	◉		◉		
	A	AE-TL-N	C.740	DLC	3	3 ~ 25							◉			
	A	AE-TL-N SP	C.741	DLC	3	3 ~ 12							◉			
	A	AE-TL-N CHIPBREAKER NEW	C.742	DLC	3	6 ~ 20							◉			
		AERO-ETL	C.759	DLC	3	12 ~ 20							◉			
		EPL-TI-7FL NEW	C.774	AlCrN	7	10 ~ 20	◉				◉	◎		◉		

Application	A-Brand	Product name	Page		Z	Range	P ~45 HRC	P ~55 HRC	H ~60 HRC	H ~65 HRC	M ~35 HRC	K ~350 HB	N	S	CFRP	GRAPHITE
		WXL-CR-EDS-6	C.690	WXL	2	0,6 ~ 2,5	◉	◉	◎		◉	◉	◎	◉		

Application	A-Brand	Product name	Page		Z	Range	P ~45 HRC	P ~55 HRC	H ~60 HRC	H ~65 HRC	M ~35 HRC	K ~350 HB	N	S	CFRP	GRAPHITE
	A	AE-VML	C.624	DURARISE	4/5	6 ~ 20	◉	◉	◎		◉	◉	◎	◎		
	A	AE-MS-H	C.629	DURAREY	4/6	1 ~ 20	◉	◉	◉	◉	◎	◎		◎		
		NEO-CR-EMS	C.762	FX	6	6 ~ 20	◉	◉	◎		◉	◉		◉		
		UVXL-Ti-5FL	C.733	FX	5	12 ~ 25					◎			◉		
		UVXL-Ti-5FL SAFE-LOCK®	C.734	FX	5	12 ~ 25					◎			◉		
		AERO-ETL	C.759	DLC	3	12 ~ 20							◉			
		AERO-EXTL	C.760	DLC	3	20							◉			
		CM-RMS	C.736	-	4/6	6 ~ 12								◉		
		FX-CR-MG-EMS	C.766	FX	4	4 ~ 12	◉	◎	◎		◎	◉	◎	◎		
		EPL-TI-7FL NEW	C.774	AlCrN	7	10 ~ 20	◉				◉	◎		◉		

SELECTION CHART

Milling | Selection chart | By application & material

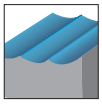
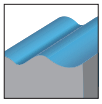
Application	A-Brand	Product name	Page		Z	Range	P ~45 HRC	P ~55 HRC	H ~60 HRC	H ~65 HRC	M ~35 HRC	K ~350 HB	N	S	CFRP	GRAPHITE
	A	AE-(HS)-CRE-H NEW	C.639	DUROREY	4/5	1 ~ 13	◉	◉	◉	◉	◎	◎		◎		
		WXS-(HS)-CRE	C.655	WXS	4/5	2 ~ 12	◉	◉	◉	◉		◉		◎		
		SX-(HS)-CRE NEW	C.656	EgiAs	4/5	2 ~ 12	◉	◉			◉			◉		
		WX-(HS)-CRE	C.716	WX	4/3	2 ~ 13	◉	◉	◉	◎	◉	◉				
		HFC-Ti	C.735	-	6/8	16 ~ 25								◉		
		CM-CRE	C.737	DUROREY	5/7	16 ~ 25								◉		
		AM-CRE	C.705	DUROREY	6/8	6 ~ 20	◎	◉	◉	◉	◉			◉		
	A	AE-HFE-H	C.641		4/5	1 ~ 12	◉	◉	◉	◉	◎	◎		◎		
	A	AM-HFC	C.706	DUROREY	6	4 ~ 12	◎	◉	◉	◉	◉			◉		

Application	A-Brand	Product name	Page		Z	Range	P ~45 HRC	P ~55 HRC	H ~60 HRC	H ~65 HRC	M ~35 HRC	K ~350 HB	N	S	CFRP	GRAPHITE
	A	AE-CPR4-H	C.642	DUROREY	4	0,2 ~ 6	◉	◉	◉	◉	◎	◎		◎		
	A	AE-CPR2-H	C.649	DUROREY	2	0,2 ~ 3	◉	◉	◉	◉	◎	◎		◎		
		PHX-LN-CRE	C.708	WXS	4	0,8 ~ 3	◉	◉	◎		◎	◎	◎	◎		
		WXS-CPR	C.667	WXS	2/4	0,2 ~ 4	◉	◉	◉	◉	◎					
	A	AE-CPR-N	C.750	DLC-IGUSS	2/3	0,2 ~ 6							◉			
		DG-CPR	C.722	DG	2/4	0,5 ~ 12										◉
		EPL-CPR	C.793	TiAlN	2	2 ~ 8	◉	◉	◉	◎	◎	◎		◎		
		EPS-CPR	C.788	TiAlN	2/4	1 ~ 4	◎	◎	◉	◉	◎					
		EPL-CPR-DIA	C.796	DIA	2	4 ~ 8										◉

Application	A-Brand	Product name	Page		Z	Range	P ~45 HRC	P ~55 HRC	H ~60 HRC	H ~65 HRC	M ~35 HRC	K ~350 HB	N	S	CFRP	GRAPHITE
		WXL-LN-EDS	C.685	WXL	2	0,1 ~ 12	◉	◉	◎		◎	◉	◎	◎		
		WXL-LN-EMS-6	C.684	WXL	4	1 ~ 6	◉	◉	◎		◎	◉	◎	◎		

Application	A-Brand	Product name	Page		Z	Range	P ~45 HRC	P ~55 HRC	H ~60 HRC	H ~65 HRC	M ~35 HRC	K ~350 HB	N	S	CFRP	GRAPHITE
	A	AE-VMFE	C.627	DUARISE	4/5	6 ~ 22	◉	◉	◎		◉	◉	◎	◎		
	A	AE-VTFE-N	C.746	DLC-IGUSS	3	6 ~ 22							◉			
		AERO-LN-EDS	C.755	DLC	2	16 ~ 25							◉			
		AERO-LN-ETS	C.757	DLC	3	16 ~ 25							◉			
		FXS-PKE	C.767	FX	4	3 ~ 12	◉	◉	◎		◉	◉		◉		

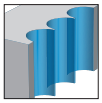
SELECTION CHART

Application	A-Brand	Product name	Page		Z	Range	P		H		M	K	N	S	CFRP	GRAPHITE
							~45 HRC	~55 HRC	~60 HRC	~65 HRC	~35 HRC	~350 HB				
	A	AE-BD-H	C.632	DUROREY	2	R0,5 ~ R6	◉	◉	◉	◉	◎	◎		◎		
	A	AE-BM-H	C.631	DUROREY	4	R1~ R6	◉	◉	◉	◉	◎	◎		◎		
		WXL-EBD	C.692	WXL	2	R0,05 ~ R10	◉	◉	◎		◉	◉	◎	◎		
		WXL-HS-EBD	C.691	WXL	2	R0,1~ R6	◉	◉	◎		◉	◉	◎	◎		
		AM-EBT	C.707	DUROREY	3	R1 ~ R10	◎	◉	◉	◉	◉			◉		
		DG-EBD	C.720	DG	2	R2 ~ R6	◎	◉	◉	◉						◉
		FXS-HS-EBM	C.768	FX	4	R3 ~ R10	◉	◉	◉	◎						
		FXS-EQD	C.717	FX	2	R0,5 ~ R5	◉	◉	◎		◉	◉		◎		
		CBN-FB2 NEW	C.718	-		R0,1 ~ R1,5	◎	◉	◉	◉						
		HYP-SB-EBD	C.805	TiAlN	2	R1,5 ~ R6	◉	◎	◎		◉	◉	◎	◎		
		EPL-SB-EBD	C.782	TiAlN	2	R0,5 ~ R10	◉	◎	◎		◉	◉	◎	◎		
		EPL-SB-LN-EBD	C.783	TiAlN	2	R0,5 ~ R10	◉	◎	◎		◎	◉	◎	◎		
		EPL-SB-EBM	C.784	TiAlN	4	R2 ~ R6	◉	◎	◎		◎	◉	◎	◎		

Application	A-Brand	Product name	Page		Z	Range	P		H		M	K	N	S	CFRP	GRAPHITE
							~45 HRC	~55 HRC	~60 HRC	~65 HRC	~35 HRC	~350 HB				
	A	AE-LNBD-H NEW SIZE	C.633	DUROREY	2	R0,05 ~ R3	◉	◉	◉	◉	◎	◎		◎		
		WXS-LN-EBD	C.662	WXS	2	R0,05 ~ R3	◎	◉	◉	◉	◎	◎	◎	◎		
		WXL-LN-EBD	C.694	WXL	2	R0,05 ~ R3	◉	◉	◎		◉	◉	◎	◎		
		WXL-PC-EBD	C.701	WXL	2	R0,2 ~ R6	◉	◉	◎		◉	◉	◎	◎		
		PHX-LN-DBT	C.709	WXS	3	R0,3 ~ R3	◉	◉	◎		◎	◎	◎	◎		
	A	AE-LNBD-N	C.748	DLC-IGUSS	2	R0,05 ~ R3							◉			
		DG-LN-EBD	C.721	DG	2	R0,2 ~ R2										◉
		EPL-LN-EBD	C.789	TiAlN	2	R0,15 ~ R3	◉	◎	◎		◉	◉	◎	◎		
		EPL-PC-EBD	C.791	TiAlN	2	R0,5 ~ R4	◉	◎	◎		◉	◉	◎	◎		
		EPS-LN-EBD	C.785	TiAlN	2	R0,1 ~R3	◎	◎	◉	◉	◎	◎	◎	◎		
		EPL-PC-EBD-DIA	C.792	DIA	2	R0,5 ~ R4										◉

SELECTION CHART

Milling | Selection chart | By application & material

Application	A-Brand	Product name	Page		Z	Range	P		H		M	K	N	S	CFRP	GRAPHITE
							~45 HRC	~55 HRC	~60 HRC	~65 HRC	~35 HRC	~350 HB				
	A	AE-VTSS	C.713	DUARISE	3	3 ~ 12	◎		◎		◉	◉	◎	◎		
		WX-G-ETSS	C.714	WX	3	3 ~ 16	◉	◉			◉			◉		
		HYP-ZDS	C.806	TiAlN	2	4 ~ 10	◉	◎			◉	◉	◎	◎		

Material	A-Brand	Product name	Page		Z	Range	P		H		M	K	N	S	CFRP	HONEYCOMB
							~45 HRC	~55 HRC	~60 HRC	~65 HRC	~35 HRC	~350 HB				
CFRP HONEYCOMB		DIA-BNC	C.723	DIA	8/10/ 12/14	6 ~ 12									◉	
		DIA-HBC	C.724	DIA	4	6 ~ 12									◉	
		DIA-MFC	C.725	DIA	8/ 10/12	6 ~ 10									◉	
		DIA-REC	C.726	DIA	4/6	6 ~ 10									◉	
		HBC60	C.727	-	2	6 ~ 12										◉

SELECTION CHART

Face milling cutters

Milling | Indexables

	Product name	Page	Tool specification	Features
	PAS BORE	C.836	45°	45° face milling with double side 8 corner inserts
	PAO BORE	C.837	45°	45° face milling with double side 16 corner inserts
	PFAL BORE	C.838	-	Finishing cutter for aluminium with PCD blades
	PFDC	C.839	90°	Economical 4-corner insert with 90° cutting angle

Shoulder cutters

Milling | Indexables

	Product name	Page	Tool specification	Features
	PSTW SS	C.840	90°	90° shoulder milling with double side 6 corner inserts
	PSTW BORE	C.841	90°	90° shoulder milling with double side 6 corner inserts
	PSE WS/PSE SS	C.842	90°	90° shoulder milling with 2 corner insert with bottom notch
	PSE BORE	C.844	90°	90° shoulder milling with 2 corner insert with bottom notch
	PSE SCREW FIT	C.845	90°	90° shoulder milling with 2 corner insert with bottom notch
	PSEL SS	C.846	90°	90° shoulder milling with long length of cut
	PSEL BORE	C.847	90°	90° shoulder milling with long length of cut
	PSF SS	C.848	-	Shoulder milling with 4 corner inserts
	PSF BORE	C.849	-	Shoulder milling with 4 corner inserts

SELECTION CHART

Application	Z	Range	P	M	K	N	S	H
	4 - 8	50 -125 mm	◉	◉	◉	◉	◎	◎
	5 - 25	50 -200 mm	◉	◉	◉	◉	◉	◎
	5 - 20	50 -160 mm				◉		
	4-5	80 -125 mm				◉		

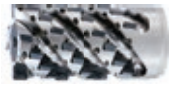
Application	Z	Range	P	M	K	N	S	H
	2 - 5	25 - 40 mm						
	3 - 9	40 - 125 mm	◉	◉	◉		◉	◎
	2 - 5	10 - 63 mm	◉	◉	◉	◉	◉	◉
	4 - 10	40 - 100 mm	◉	◉	◉	◉	◉	◉
	2 - 6	10 - 40 mm	◉	◉	◉	◉	◉	◉
	2 - 4	25 - 50 mm	◉	◉	◉	◉	◉	◉
	3 - 4	50 - 80 mm	◉	◉	◉	◉	◉	◉
	3 - 5	25 - 40 mm	◉	◉	◉	◉	◉	◎
	6 - 9	50 - 80 mm	◉	◉	◉	◉	◉	◎

SELECTION CHART

Milling | Selection chart | By application & material

Shoulder cutters

Milling | Indexables

	Product name	Page	Tool specification	Features
	PSFL SS	C.850	90°	90° shoulder milling with long length of cut
	PSFL BORE	C.851	90°	90° shoulder milling with long length of cut
	PMD SS	C.852	90°	Multi function cutter, milling and drilling
	PMD SF	C.853	90°	Multi function cutter, milling and drilling

Radius Cutter

Milling | Indexables

	Product name	Page	Tool specification	Features
	PHC SS	C.854	HIGH FEED	High feed cutter for long over hang 4xD ~
	PHC BORE	C.855	HIGH FEED	High feed cutter
	PHC SCREW FIT	C.856	HIGH FEED	High feed cutter
	PRC SS	C.857		Radius cutter with round inserts ~ 4xD
	PRC BORE	C.858		Radius cutter with round inserts
	PRC SCREW FIT	C.859		Radius cutter with round inserts
	PDR SS	C.860	HIGH FEED CORNER RADIUS	Corner radius cutter for deep depth of cut
	PDR BORE	C.861	HIGH FEED CORNER RADIUS	Corner radius cutter for deep depth of cut

SELECTION CHART

Milling | Selection chart | By application & material

Application	Z	Range	P	M	K	N	S	H
	10 - 18	32 - 40 mm	◉	◉	◉	◉	◉	◎
	28 - 72	50 - 100 mm	◉	◉	◉	◉	◉	◎
	1	16 - 32 mm	◉	◉	◉	◉	◉	◎
	1	16 - 32 mm	◉	◉	◉	◉	◉	◎

Application	Z	Range	P	M	K	N	S	H
	2 - 5	16 - 40 mm	◉	◉	◉		◉	◎
	4 - 8	40 - 100 mm	◉	◉	◉		◉	◎
	2 - 5	16 - 40 mm	◉	◉	◉		◉	◎
	2 - 4	20 - 63 mm	◉	◉	◉	◉	◉	◉
	4 - 10	50 - 100 mm	◉	◉	◉	◉	◉	◉
	2 - 4	20 - 40 mm	◉	◉	◉	◉	◉	◉
	2 - 3	40 - 50 mm	◉		◉			
	3 - 6	63 - 125 mm	◉		◉			

SELECTION CHART

Profile finishing

Milling | Indexables

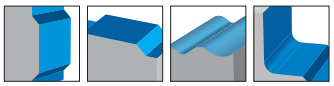
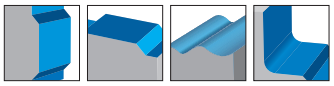
	Product name	Page	Tool specification	Features
	PFB	C.862		Finishing ball nose cutter
	PFB SCREW FIT	C.863		Finishing ball nose cutter
	PFR	C.864		Finishing corner radius cutter
	PFR SCREW FIT	C.865		Finishing corner radius cutter

Exchangeable Milling Head

Milling | Indexables

	Product name	Page	Tool specification	Features
	PXNL	C.888		Low variable helix with roughing shape ~45HRC ~5xD
	PXNL OH	C.889		Variable helix solid carbide head with coolant hole ~45HRC ~5xD
	PXNH	C.888		High variable helix with roughing shape ~45HRC ~5xD
	PXNH OH	C.890		Variable helix solid carbide head with coolant hole ~45HRC ~5xD
	PXVC	C.891		High variable helix for L/D up to 7xD ~55HRC 4xD -7xD
	PXSE	C.892		Variable helix for L/D up to 5xD ~55HRC ~5xD
	PXSE OH	C.893		Variable helix solid carbide head with coolant hole ~55HRC ~5xD
	PXSM	C.894		Multi flute variable helix for L/D up to 5xD ~55HRC ~5xD

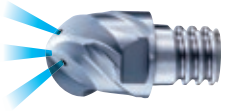
SELECTION CHART

Application	Z	Range	P	M	K	N	S	H
	2	6 - 32 mm	◉	◉	◉	◉	◉	◉
	2	10 - 30 mm	◉	◉	◉	◉	◉	◉
	2	6 - 32 mm	◉	◉	◉	◉	◉	◉
	2	10 - 32 mm	◉	◉	◉	◉	◉	◉

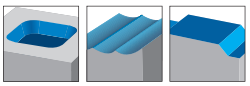
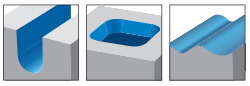
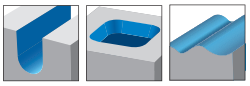
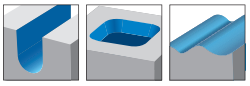
Application	Z	Range	P	M	K	N	S	H
	4	10 - 25 mm	◉	◉	◉		◎	◎
	4	12 - 25 mm	◉	◉	◉		◎	◎
	4	12 - 25 mm	◉	◉	◉		◎	◎
	4	12 - 25 mm	◉	◉	◉		◎	◎
	4	10 - 32 mm	◉	◉	◉		◎	◎
	4	10 - 25 mm	◉	◉	◉		◎	◎
	4	12 - 25 mm	◉	◉	◉		◎	◎
	6 - 10	10 - 25 mm	◉	◉	◉		◎	◎

Exchangeable Milling Head

Milling | Indexables

	Product name	Page	Tool specification	Features
	PXRE	C.895		Corner radius with straight flute for L/D up to 5xD ~60HRC ~5xD
	PXDR-P	C.895		Corner radius with high helix flute for L/D up to 7xD ~52HRC ~7xD
	PXDR-N	C.895		Corner radius with high helix flute for L/D up to 7xD ~60HRC 4xD / 7xD
	PXSH	C.896		Multi flute square solid carbide head For high hardness steels
	PXBE	C.897		Multi flute variable helix solid carbide head for L/D up to 5xD ~60HRC ~5xD
	PXBE OH	C.898		Multi flute variable helix solid carbide head with coolant holes for L/D up to 5xD ~60HRC ~5xD
	PXBM	C.897		Multi flute ball nose for L/D up to 5xD ~60HRC ~5xD
	PXAL	C.899		3 flutes variable helix for aluminium and copper alloys
	PXHF-AM	C.900		Multi flute for high feed additive manufacturing milling ~70HRC

SELECTION CHART

Application	Z	Range	P	M	K	N	S	H
	4 - 6	10 - 20 mm	◉		◉			◉
	3	10 - 20 mm	◉	◉	◉			◎
	3	10 - 20 mm	◉	◉				◉
	6-8	12 - 25 mm						◉
	3	10 - 20 mm	◉	◉	◉		◎	◎
	3	12 - 20 mm	◉	◉	◉		◎	◉
	4 - 6	10 - 20 mm	◉	◉	◉		◎	◉
	3	10 - 25 mm				◉		
	6	12 - 20 mm						◉

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Milling

CFRP

Milling | Carbide end mills



Product name		A-brand	Features	Range	Page
DIA-BNC	DIA		For CFRP milling Multi flute, fine nick geometry	6 - 12	C.723
DIA-HBC	DIA		For CFRP milling 4 flutes, left-hand / right-hand flute to suppress delamination	6 - 12	C.724
DIA-MFC	DIA		For CFRP milling Multi flute, for excellent surface finishing	6 - 10	C.725
DIA-REC	DIA		For CFRP milling Multi flute, roughing and semi finishing	6 - 10	C.726
HBC60	-		For honeycomb composite materials 2 flutes, left-hand / right-hand flute	6 - 12	C.727

Ceramic end mills

Milling | Ceramic end mills



Product name		A-brand	Features	Range	Page
CM-RMS	CERAMIC		Ceramic end mill, peripheral cutting edge type 4 or 6 flutes	6 - 12	C.736
CM-CRE	CERAMIC		Ceramic end mill, end cutting edge type 5-7 flutes	16 - 25	C.737

For super engineering plastics

Milling | Carbide end mills



Product name		A-brand	Features	Range	Page
SEP-EL NEW	DLC-IGUS		DLC coated carbide end mill for super engineering plastics 2-3 flutes, sharp corner edge	0,5 - 6	C.747

Variant Radius end mills

Milling | Carbide end mills



Product name		A-brand	Features	Range	Page
VU-TBR	WXL		Ball end mill for finishing, Taper barrel solid type	R150 - R500	C.710
VU-EGG	WXL		Ball end mill for finishing, Oval shape type	R50	C.711
VU-EGG-H	DUROREY		Ball end mill for finishing, Oval shape type	R50	C.712
PFB-BR			Ball end mill for finishing, Barrel type	R15 - R48	C.882
PFB-LZ			Ball end mill for finishing, Lens type	R15 - R48	C.883

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Milling

Super radius end mills

Milling | Carbide end mills

	Product name		A-brand	Features	Range	Page
	AE-CRE-H	DUROREY	A	High efficiency radius type carbide end mill for high-hardness steels 4-5 flutes	1 - 13	C.639
	AE-HS-CRE-H	DUROREY	A	For hardened steels up to 70 HRC 5 flutes, shorter overall length	6 - 12	C.640
	WXS-HS-CRE	WXS		For hardened steels up to 65 HRC and stainless steels 5 flutes, shorter overall length, super radius	6 - 12	C.715
	WXS-CRE	WXS		For hardened steels up to 65 HRC and stainless steels Multi flute with super radius	2 - 12	C.716
	SX-CRE NEW	EgiAs		For steels, stainless steel and Titanium alloys Multi flute with super radius	2 - 12	C.656
	SX-HS-CRE NEW	EgiAs		For steels, stainless steel and Titanium alloys Shorter overall length, super radius	6 - 12	C.657
	WX-HS-CRE	WX		For general applications 4 flutes, shorter overall length, super radius	6 - 12	C.715
	WX-CRE	WX		For general applications Multi flute, super radius	2 - 13	C.716
	AE-HFE-H			High feed radius type carbide end mill for high-hardness steels 4-5 flutes	1 - 12	C.641
	HFC-TI	-		For high feed Titanium alloy milling Multi flute	16 - 25	C.735
	AM-HFC	DUROREY	A	For high feed additive manufacturing milling Multi flute	4 - 12	C.706

Corner radius long neck

Milling | Carbide end mills

	Product name		A-brand	Features	Range	Page
	AE-CPR4-H	DUROREY	A	Carbide end mill with DUROREY coating For hardened material up to 70HRC 4 flutes, unequal spacing. New spiral-shaped gash specification	0,2 - 6	C.642
	AE-CPR2-H	DUROREY	A	Carbide end mill with DUROREY coating For hardened material up to 70HRC 2 flutes, unequal spacing.	0,2 - 3	C.649
	PHX-LN-CRE	WXS		For steels up to 60 HRC 4 flutes, long neck, corner radius	0,8 - 3	C.708
	WXS-CPR	WXS		For hardened steels up to 65 HRC and stainless steels 2 flutes, long and pencil neck, corner radius, for mould and die 164 sizes	0,2 - 4	C.667
	AE-CPR-N	DLC-IGUS	A	DLC-IGUSS Coated Carbide End Mill for Copper Electrodes Long neck radius type for high-efficiency finishing 2-3 flutes	0,2 - 6	C.750

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Milling

Corner radius long neck

Milling | Carbide end mills



Product name		A-brand	Features	Range	Page
DG-CPR	DG		For graphite milling Multi flute, long neck for deep reach, corner radius	0,5 - 12	C.722
EPL-CPR	TiAlN		For general applications 2 flutes, long neck, corner radius	2 - 8	C.793
EPL-CPR-DIA	DIA		For steels and stainless steels 2 flutes, long neck, corner radius	4 - 8	C.796
EPS-CPR	TiAlN		For hardened steels up to 65 HRC 2 flutes, long and pencil neck, corner radius	1 - 4	C.788

Corner radius end mills

Milling | Carbide end mills



Product name		A-brand	Features	Range	Page
AE-VMS	DURARISE	A	Wide variety in applications and work materials 4 flutes, variable helix and unequal spacing	1 - 25	C.616
AE-VML	DURARISE	A	Wide variety in applications and work materials 4 flutes, variable helix and unequal spacing For side milling up to 4xD	6 - 20	C.624
AE-VMFE	DURARISE	A	Wide variety in applications and work materials 4 flutes, variable helix and unequal spacing Radius at both ends of cutting edge, deep wall milling	6 - 22	C.627
NEO-CR-PHS	FX		For exotic materials 4 flutes, variable helix and unequal spacing, corner radius	3 - 20	C.765
NEO-CR-EMS	FX		For exotic materials 6 flutes, variable helix and unequal spacing, corner radius	6 - 20	C.762
AE-MS-H	DUROREY	A	For hardened steels up to 65 HRC and stainless steels 4-6 flutes, corner radius	1 - 20	C.629
WXL-CR-EDS-6	WXL		For general applications 2 flutes, corner radius Shank diameter 6	0,6 - 2,5	C.690
AM-CRE	DUROREY		For additive manufacturing. 6-8 flutes	6 - 20	C.705
UVX-TI-4FL	FX		For steels and Titanium alloys 4 flutes, variable helix and unequal spacing, corner radius	12 - 25	C.728
UVX-TI-4FL SAFE-LOCK®	FX		For steels and Titanium alloys 4 flutes, variable helix and unequal spacing, corner radius SafeLock shank	12 - 25	C.729
UVX-TI-5FL	FX		For steels and Titanium alloys 5 flutes, variable helix and unequal spacing, corner radius	12 - 25	C.730
UVX-TI-5FL-HB	FX		For steels and Titanium alloys 5 flutes, variable helix and unequal spacing, corner radius Weldon shank	12 - 20	C.731
UVX-TI-5FL SAFE-LOCK®	FX		For steels and Titanium alloys 5 flutes, variable helix and unequal spacing, corner radius SafeLock shank	12 - 25	C.732

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Milling

Corner radius end mills

Milling | Carbide end mills

	Product name		A-brand	Features	Range	Page
	UVXL-TI-5FL	FX		For steels and Titanium alloys 5 flutes, long length of cut, variable helix and unequal spacing, corner radius	12 - 25	C.733
	UVXL-TI-5FL SAFE-LOCK	FX		For steels and Titanium alloys 5 flutes, long length of cut, variable helix and unequal spacing, corner radius SafeLock shank	12 - 25	C.734
	AE-TS-N	DLC	A	For non-ferrous materials 3 flutes, 1,5xD flute length (Neck length 3xD)	1 - 25	C.738
	AE-VTS-N	DLC-IGUSS	A	For non-ferrous materials 3 flutes, 1,5xD flute length (Neck length 3xD), high performance	1 - 12	C.744
	AE-VTFE-N	DLC-IGUSS	A	For aluminium and copper alloys 3 flutes, variable helix and unequal spacing Long shank for deep reach	6 - 22	C.746
	AERO-O-ETS	DLC		For ultra high volume milling of aluminium alloys 3 flutes, short length of cut, corner radius	20 - 25	C.758
	AERO-ETS	DLC		For ultra high volume milling of aluminium alloys 3 flutes, short length of cut, corner radius	12 - 25	C.756
	AERO-LN-ETS	DLC		For ultra high volume milling of aluminium alloys 3 flutes, long neck, corner radius	16 - 25	C.757
	AERO-ETL	DLC		For ultra high volume milling of aluminium alloys 3 flutes, long length of cut, corner radius	12 - 20	C.759
	AERO-EXTL	DLC		For ultra high volume milling of aluminium alloys 3 flutes, extra long length of cut, corner radius	20	C.760
	AERO-LN-EDS	DLC		For ultra high volume milling of aluminium alloys 2 flutes, long neck, corner radius	16 - 25	C.755
	DLC-AIR-EDS	DLC		For high volume milling of aluminium alloys 2 flutes, short length of cut, corner radius	12 - 25	C.754
	EPL-HP-4FL	EgiAs		For general applications and exotic materials 4 flutes, variable helix and unequal spacing, corner radius Weldon shank	3 - 20	C.771
	EPL-HP-5FL	EgiAs		For general applications and exotic materials 5 flutes, variable helix and unequal spacing, corner radius Weldon shank	6 - 20	C.773
	EPL-TI-7FL NEW	AlCrN		For Aerospace Alloys 7 flutes, centre cutting, square end and corner radius	10 - 20	C.774
	FX-CR-MG-EMS	FX		For general applications and cast iron 4 flutes, short length of cut, corner radius	4 - 12	C.766
	FXS-PKE	FX		For general applications 4 flutes, corner radius, for pocketing	3 - 12	C.767
	EPN-AL-3FS	-		For aluminium and copper alloys 3 flutes, short length of cut	3 - 20	C.798
	EPN-AL-3FL	-		For aluminium and copper alloys 3 flutes, long length of cut	3 - 20	C.799

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Milling

Corner radius end mills

Milling | Carbide end mills



Product name		A-brand	Features	Range	Page
EPA-AL-3FS	ALC		For aluminium and copper alloys 3 flutes, with ALC coating, short length of cut	3 - 20	C.800
EPA-AL-3FL	ALC		For aluminium and copper alloys 3 flutes, with ALC coating, long length of cut	3 - 20	C.797
HYP-CR-HI-WEMS	FX		For general applications 4 flutes, variable helix and unequal spacing, corner radius Weldon shank	4 - 20	C.801
HYP-CR-HD-WEMS	FX		For general applications 4 flutes, variable helix and unequal spacing, corner radius Weldon shank	6 - 20	C.803
EPL-HI-CR-WEMS	FX		For general applications 4 flutes, variable helix and unequal spacing, corner radius Weldon shank	4 - 20	C.779
EPL-HI-CR-EMS	FX		For general applications 4 flutes, variable helix and unequal spacing, corner radius	4 - 16	C.778

Ball nose end mills

Milling | Carbide end mills



Product name		A-brand	Features	Range	Page
AE-BD-H	DUROREY	A	For high hardness steels 2-flute ball type for high precision finishing	R0,5 - R6	C.632
AE-BM-H	DUROREY	A	For high hardness steels 4-flute ball type for high efficiency processing	R1 - R6	C.631
WXS-HS-EBD	WXS		For hardened steels up to 65 HRC and stainless steels 2 flutes, shorter overall length, ball nose	R0,5 - R6	C.661
WXL-EBD	WXL		For high speed milling in steels, stainless and cast iron 2 flutes, ball nose	R0,05 - R10	C.692
WXL-HS-EBD	WXL		For high speed milling in steels, stainless and cast iron 2 flutes, shorter overall length, ball nose	R0,1 - R6	C.691
DG-EBD	DG		For graphite milling 2 flutes, ball nose	R2 - R6	C.720
FXS-HS-EBM	FX		For high speed milling in hardened steels 4 flutes, ball nose, shorter overall length	R3 - R10	C.768
FXS-EQD	FX		For general applications 2 flutes, 220 degree ball nose	R0,5 - R5	C.717
AM-EBT	DUROREY		For additive manufacturing 3 flutes	R1 - R10	C.707
CBN-FB2 NEW	-		2 fl utes CBN ball end mill Excellent ball radius accuracy for high-quality surface fi nishing Optimized shank design for ultra-high precision	R0,1 - R1,5	C.718

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Milling

Ball nose end mills

Milling | Carbide end mills



Product name		A-brand	Features	Range	Page
HYP-SB-EBD	TiAlN		For general applications 2 flutes, ball nose	R1,5 - R6	C.805
EPL-SB-EBD	TiAlN		For general applications 2 flutes, ball nose	R0,5 - R10	C.782
EPL-SB-LN-EBD	TiAlN		For general applications 2 flutes, long neck, ball nose	R0,5 - R10	C.783
EPL-SB-EBM	TiAlN		For general applications 4 flutes, ball nose	R2 - R6	C.784

Ball nose end mills long neck

Milling | Carbide end mills



Product name		A-brand	Features	Range	Page
AE-LNBD-H	DUROREY	A	For hardened steels up to 70 HRC and stainless steels 2 flutes, long neck, ball nose	R0,05 - R3	C.633
WXS-LN-EBD	WXS		For hardened steels up to 65 HRC and stainless steels 2 flutes, long neck, ball nose	R0,05 - R3	C.662
WXL-LN-EBD	WXL		For hardened steels up to 52 HRC and stainless steels 2 flutes, long neck, ball nose	R0,05 - R3	C.694
WXL-PC-EBD	WXL		For hardened steels up to 52 HRC 2 flutes, ball nose, pencil neck	R0,2 - R6	C.701
PHX-LN-DBT	WXS		For steels up to 60 HRC 3 flutes, long neck, ball nose	R0,3 - R3	C.709
AE-LNBD-N	DLC-IGUS	A	For aluminium and copper alloys 2 flutes, long neck, ball nose	R0,05 - R3	C.748
DG-LN-EBD	DG		For graphite milling 2 flutes, ball nose, long neck for deep reach	R0,2 - R2	C.721
EPL-LN-EBD	TiAlN		For general applications 2 flutes, long neck, ball nose	R0,15 - R3	C.789
EPS-LN-EBD	TiAlN		For hardened steels up to 65 HRC 2 flutes, long neck, ball nose	R0,1 - R3	C.785
EPL-PC-EBD	TiAlN		For general applications 2 flutes, pencil neck, ball nose	R0,5 - R4	C.791
EPL-PC-EBD-DIA	DIA		For steels and stainless steels 2 flutes, pencil neck, ball nose	R0,5 - R4	C.792

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Milling

Square end mills

Milling | Carbide end mills



Product name		A-brand	Features	Range	Page
WXL-1.5D-DE	WXL		For steels, stainless, copper 2 flutes, 1.5xD applications, square	0,1 - 12	C.673
WXL-2D-DE	WXL		For steels, stainless, copper 2 flutes, 2xD applications, square	0,1 - 30	C.675
WXL-3D-DE	WXL		For steels, stainless, copper 2 flutes, 3xD applications, square	0,1 - 20	C.679
WXL-4D-DE	WXL		For steels, stainless, copper 2 flutes, 4xD applications, square	0,2 - 12	C.681
CA-RG-EDS	-		For aluminium and copper alloys 2 flutes, short length of cut	1 - 20	C.769
HYP-F1	-		For aluminium milling 1 flute	3 - 12	C.807

Square end mills multi flute

Milling | Carbide end mills



Product name		A-brand	Features	Range	Page
AE-VMS	DUARISE	A	Wide variety in applications and work materials 4 flutes, anti-vibration carbide end mill	3 - 25	C.616
AE-VMS RA	DUARISE	A	Wide variety in applications and work materials 4 flutes, anti-vibration carbide end mill With right corner for milling straight corners	3-6	C.618
AE-VMSS	DUARISE	A	Wide variety in applications and work materials 4 flutes, anti-vibration stub carbide end mill	1 - 12	C.619
AE-VMSS RA	DUARISE	A	Wide variety in applications and work materials 4 flutes, anti-vibration stub carbide end mill With right corner for milling straight corners	1-6	C.621
AE-VMSX NEW	DURAREY	A	4 flutes, variable helix and unequal spacing Reinforced cutting edge and micro relief	3 - 12	C.623
AE-VML	DUARISE	A	Wide variety in applications and work materials 4 flutes, anti-vibration long carbide end mill	6 - 20	C.624
AE-VMFE	DUARISE	A	Wide variety in applications and work materials 4 flutes, anti-vibration carbide end mill Long shank for deep reach	6 - 22	C.627
AE-MS-H	DURAREY	A	For hardened steels up to 65 HRC and stainless steels 4-6 flutes, anti-vibration carbide end mill	1 - 20	C.629
AE-MSS-H	DURAREY	A	For hardened steels up to 65 HRC and stainless steels 4-6 flutes anti-vibration stub carbide endmills	3 - 12	C.628
AE-ML-H	DURAREY	A	For hardened steels up to 65 HRC and stainless steels 4-6 flutes anti-vibration long carbide endmills	3 - 20	C.630
WXS-EMS	WXS		For hardened steels and stainless steels Multi flute, high speed machining	1 - 20	C.660

Square end mills multi flute

Milling | Carbide end mills

	Product name		A-brand	Features	Range	Page
	WXL-EMS	WXL		For high speed milling in steels, stainless and cast iron 4 flutes, square	1 - 30	C.683
	NEO-EMS	FX		For exotic materials 6 flutes, variable helix and unequal spacing	6 - 20	C.763
	NEO-PHS	FX		For exotic materials 4 flutes, variable helix and unequal spacing	3 - 20	C.764
	UP-PHS	FX		For steels, stainless, Titanium alloys 4 flutes, anti-vibration	3 - 12	C.761
	UVX-TI-4FL	FX		For steels and Titanium alloys 4 flutes, variable helix and unequal spacing, corner radius	12 - 25	C.728
	UVX-TI-4FL SAFE-LOCK	FX		For steels and Titanium alloys 4 flutes, variable helix and unequal spacing, corner radius SafeLock shank	12 - 25	C.729
	UVX-TI-5FL	FX		For steels and Titanium alloys 5 flutes, variable helix and unequal spacing, corner radius	12 - 25	C.730
	UVX-TI-5FL-HB	FX		For steels and Titanium alloys 5 flutes, variable helix and unequal spacing, corner radius Weldon shank	12 - 20	C.731
	UVX-TI-5FL SAFE-LOCK	FX		For steels and Titanium alloys 5 flutes, variable helix and unequal spacing, corner radius SafeLock shank	12 - 25	C.732
	UVXL-TI-5FL	FX		For steels and Titanium alloys 5 flutes, long length of cut, variable helix and unequal spacing, corner radius	12 - 25	C.733
	UVXL-TI-5FL SAFE-LOCK	FX		For steels and Titanium alloys 5 flutes, long length of cut, variable helix and unequal spacing, corner radius SafeLock shank	12 - 25	C.734
	WX-G-ETSS	WX		For general applications 3 flutes, extra short length of cut	3 - 16	C.714
	AE-TS-N	DLC	A	For aluminium and copper alloys 3 flutes, up to 3xD	1 - 25	C.738
	AE-TS-N SP	DLC	A	For aluminium and copper alloys 3 flutes, up to 3xD With sharp corner edge for straight corner finishing	1 - 12	C.739
	AE-TL-N	DLC	A	For aluminium and copper alloys 3 flutes, up to 5D	3 - 25	C.740
	AE-TL-N SP	DLC	A	For aluminium and copper alloys 3 flutes, up to 5D With sharp corner edge for straight corner finishing	3 - 12	C.741
	AE-TL-N CHIPBREAKER NEW	DLC	A	For non-ferrous materials 3 flutes, long length of cut	6 - 20	C.742
	AE-VTS-N	DLC-IGUSS	A	For aluminium and copper alloys 3 flutes, variable helix and unequal spacing Up to 3xD	1 - 12	C.744
	AE-VTS-N SP	DLC-IGUSS	A	For aluminium and copper alloys 3 flutes, variable helix and unequal spacing up to 3xD With sharp corner edge for straight corner finishing	1 - 12	C.745



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Milling

Square end mills multi flute

Milling | Carbide end mills













Product name		A-brand	Features	Range	Page
AE-VTFE-N	DLC-IGUSS	A	For aluminium and copper alloys 3 flutes, variable helix and unequal spacing Long shank for deep reach	6 - 22	C.746
AERO-ETS	DLC		For ultra high volume milling of aluminium alloys 3 flutes, short length of cut, corner radius	12 - 25	C.756
AERO-ETL	DLC		For ultra high volume milling of aluminium alloys 3 flutes, long length of cut, corner radius	12 - 20	C.759
CA-ETS	-		For aluminium and copper alloys 3 flutes, short length of cut	3 - 20	C.770
EPL-HP-4FL	EgiAs		For general applications and exotic materials 4 flutes, variable helix and unequal spacing, corner radius Weldon shank	3 - 20	C.771
EPL-HP-5FL	EgiAs		For general applications and exotic materials 5 flutes, variable helix and unequal spacing, corner radius Weldon shank	6 - 20	C.773
EPL-TI-7FL NEW	AlCrN		For Aerospace Alloys 7 flutes, centre cutting, square end and corner radius	10 - 20	C.774
HYP-HI-(W)EMS	TiAlN		For general applications 4 flutes, variable helix and unequal spacing Also with Weldon shank	4 - 20	C.802
EPL-ETS	TiAlN		For general applications 3 flutes, square	4 - 16	C.781
EPL-HI-WEMS	TiAlN		For general applications 4 flutes, variable helix and unequal spacing Weldon shank	4 - 20	C.777
EPL-HI-EMS	TiAlN		For general applications 4 flutes, variable helix and unequal spacing	4 - 20	C.776

Square end mills long neck

Milling | Carbide end mills




Product name		A-brand	Features	Range	Page
WXL-LN-EDS	WXL		For hardened steels up to 52 HRC 2 flutes, long neck, square	0,1 - 12	C.685
WXL-LN-EMS-6	WXL		For hardened steels up to 52 HRC 4 flutes, long neck Shank diameter 6	1 - 6	C.684

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Milling

Roughing

Milling | Carbide end mills



Product name		A-brand	Features	Range	Page
HYP-HP-WRESF	TiAlN		For general applications Multi flute, for roughing Weldon shank	6 - 25	C.804
EPL-WRESF	TiAlN		For general applications 4 flutes, roughing Weldon shank	4 - 25	C.780

Plunging

Milling | Carbide end mills



Product name		A-brand	Features	Range	Page
AE-VTSS	DURARISE	A	Anti-Vibration Carbide End Mill Compatible with Sliding Head Lathes Wide variety in applications and work materials 3 flutes, variable helix and unequal spacing	3 - 12	C.713
WX-G-ETSS	WX		For general applications 3 flutes, extra short length of cut	3 - 16	C.714
HYP-ZDS	TiAlN		For general applications For counterboring	4 - 10	C.806

Slotting

Milling | HSS/PM end mills



Product name		A-brand	Features	Range	Page
V-XPM-WEDS	V		Powder metal end mill with V coating 2 flutes square, short length of cut Weldon shank	2 - 30	C.808
V-XPM-WEDL	V		Powder metal end mill with V coating 2 flutes square, long length of cut Weldon shank	3 - 30	C.811
V-WEDS	V		HSS-Co end mill with V coating 2 flutes square, short length of cut Weldon shank	1 - 40	C.809
V-WEDL	V		HSS-Co end mill with V coating 2 flutes square, long length of cut Weldon shank	1,5 - 30	C.812

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Milling

Multi fluted end mills

Milling | HSS/PM end mills



Product name		A-brand	Features	Range	Page
V-XPM-WETS	V		Powder metal end mill with V coating 3 flutes square, short length of cut Weldon shank	3 - 30	C.813
V-XPM-WETL	V		Powder metal end mill with V coating 3 flutes square, long length of cut Weldon shank	3 - 30	C.816
V-XPM-WEHS	V		Powder metal end mill with V coating Multi flute square with 50° helix, short length of cut Weldon shank	2 - 30	C.814
V-XPM-WEMS	V		Powder metal end mill with V coating Multi flute square, short length of cut Weldon shank	3 - 30	C.818
V-XPM-WEML	V		Powder metal end mill with V coating Multi flute square, long length of cut Weldon shank	3 - 30	C.820
V-WETS	V		HSS-Co end mill with V coating 3 flutes square, short length of cut Weldon shank	1,5 - 30	C.815
V-WETL	V		HSS-Co end mill with V coating 3 flutes square, long length of cut Weldon shank	3 - 30	C.817
V-WEMS	V		HSS-Co end mill with V coating Multi flute square, short length of cut Weldon shank	1,5 - 40	C.819
V-WEML	V		Powder metal end mill with V coating Multi flute square, long length of cut Weldon shank	2 - 40	C.821

Roughing end mills

Milling | HSS/PM end mills



Product name		A-brand	Features	Range	Page
V-XPM-WRESF	V		Powder metal end mill with V coating Roughing multi flute square, short length of cut Weldon shank	6 - 32	C.823
VP-RESF-SP	V		Powder metal end mill with V coating Roughing multi flute square, short length of cut Weldon shank	6 - 25	C.825
VP-RELF	V		Powder metal end mill with V coating Roughing multi flute square, long length of cut Weldon shank	10 - 25	C.826
V-WREES	V		HSS-Co end mill with V coating Roughing multi flute square, short length of cut Weldon shank	6 - 40	C.827
V-WREEL	V		HSS-Co end mill with V coating Roughing multi flute square, long length of cut Weldon shank	8 - 40	C.828
SI-WH-WRESF	WXL		Powder metal end mill with WXL coating Roughing fine pitch, multi flute square Short length of cut, variable helix and unequal spacing Weldon shank	6 - 25	C.822
V-WRESF	V		HSS-Co end mill with V coating Roughing fine pitch, multi flute square, short length of cut Weldon shank	6 - 40	C.824

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Milling

Face milling cutters

Milling | Indexables






Product series	Tool specification	Features	Size range	Z	Page
PAS BORE	45°	45° face milling with double side 8 corner inserts	50 -125 mm	4 - 8	C.836
PAO BORE	45°	45° face milling with double side 16 corner inserts	50 -200 mm	5 - 25	C.837
PFAL BORE	-	Face milling finishing cutter for aluminium with PCD blades	50 -160 mm	5 - 20	C.838
PFDC	90°	Economical 4-corner insert with 90° cutting angle	80 -125 mm	4-5	C.839

Shoulder cutters

Milling | Indexables











Product series	Tool specification	Features	Size range	Z	Page
PSTW SS	90°	90° shoulder milling with double side 6 corner inserts	25 - 40 mm	2 - 5	C.840
PSTW BORE	90°	90° shoulder milling with double side 6 corner inserts	40 - 125 mm	3 - 9	C.841
PSE WS/PSE SS	90°	90° shoulder milling with 2 corner insert with bottom notch	10 - 63 mm	2 - 6	C.842
PSE BORE	90°	90° shoulder milling with 2 corner insert with bottom notch	40 - 100 mm	4 - 10	C.844
PSE SCREW FIT	90°	90° shoulder milling with 2 corner insert with bottom notch	10 - 40 mm	2 - 6	C.845
PSEL SS	90°	90° shoulder milling with long length of cut	25 - 50 mm	2 - 4	C.846
PSEL BORE	90°	90° shoulder milling with long length of cut	50 - 80 mm	3 - 4	C.847
PSF SS	-	Shoulder milling with 4 corner inserts	25 - 40 mm	3 - 5	C.848
PSF BORE	-	Shoulder milling with 4 corner inserts	50 - 80 mm	6 - 9	C.849

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Milling

Shoulder cutters

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Product series	Tool specification	Features	Size range	Z	Page
PSFL SS	-	Shoulder milling with 4 corner inserts with long length of cut	32 - 40 mm	2 - 3	C.850
PSFL BORE	-	Shoulder milling with 4 corner inserts with long length of cut	50 - 100 mm	4 - 6	C.851
PMD SS	90°	Multi function cutter, milling and drilling	16 - 32 mm	2	C.852
PMD SF	90°	Multi function cutter, milling and drilling	16 - 32 mm	2	C.853

Radius cutters

Milling | Indexables











Product series	Tool specification	Features	Size range	Z	Page
PHC SS	HIGH FEED	High feed cutter for long overhang	16 - 40 mm	2 - 5	C.854
PHC BORE	HIGH FEED	High feed cutter	40 - 100 mm	4 - 8	C.855
PHC SCREW FIT	HIGH FEED	High feed cutter	16 - 40 mm	2 - 5	C.856
PRC SS		Radius cutter with round inserts	20 - 63 mm	2 - 4	C.857
PRC BORE		Radius cutter with round inserts	50 - 100 mm	4 - 10	C.858
PRC SCREW FIT		Radius cutter with round inserts	20 - 40 mm	2 - 4	C.859
PDR SS	HIGH FEED CORNER RADIUS	Corner radius cutter for deep depth of cut	40 - 50 mm	2 - 3	C.860
PDR BORE	HIGH FEED CORNER RADIUS	Corner radius cutter for deep depth of cut	63 - 125 mm	3 - 6	C.861

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Milling

Profile finishing

Milling | Indexables






Product series	Tool specification	Features	Size range	Z	Page
PFB		Finishing ball nose cutter	6 - 32 mm	2	C.862
PFB SCREW FIT		Finishing ball nose cutter	10 - 30 mm	2	C.863
PFR		Finishing corner radius cutter	6 - 32 mm	2	C.864
PFR SCREW FIT		Finishing corner radius cutter	10 - 32 mm	2	C.865

Exchangeable Milling Head

Milling | Indexables











Product series	Tool specification	Features	Size range	Z	Page
PXNL		Low variable helix with roughing shape	10 - 25 mm	4	C.888
PXNL OH		Low variable helix with roughing shape	12 - 25 mm	4	C.889
PXNH		High variable helix with roughing shape	10 - 25 mm	4	C.888
PXNH OH		High variable helix with roughing shape	12 - 25 mm	4	C.890
PXVC		High variable helix for L/D up to 7xD	10 - 32 mm	4	C.891
PXSE		Variable helix for L/D up to 5xD	10 - 25 mm	4	C.892
PXSE OH		Variable helix for L/D up to 5xD	12 - 25 mm	4	C.893
PXSM		Multi flute variable helix for L/D up to 5xD	10 - 25 mm	6 - 10	C.894
PXRE		Corner radius with straight flute for L/D up to 5xD	10 - 20 mm	4 - 6	C.895

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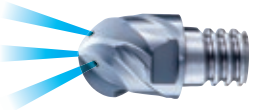
Milling

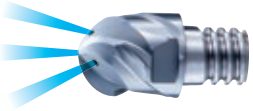
Exchangeable Milling Head

Milling | Indexables












Product series	Tool specification	Features	Size range	Z	Page
PXDR-P		Corner radius with high helix flute for L/D up to 7xD	10 - 20 mm	3	C.895
PXDR-N		Corner radius with high helix flute for L/D up to 7xD	10 - 20 mm	3	C.895
PXSH		Multi flute square solid carbide head For high hardness steels	12 - 25 mm	6-8	C.896
PXBE-P		3 flute ball nose for L/D up to 7xD	10 - 20 mm	3	C.895
PXBE-P OH		3 flute ball nose for L/D up to 7xD	12 - 20 mm	3	C.898
PXBE-N		3 flute ball nose for L/D up to 5xD	10 - 20 mm	3	C.897
PXBE-N OH		3 flute ball nose for L/D up to 5xD	12 - 20 mm	3	C.898
PXBM		Multi flute ball nose for L/D up to 5xD	10 - 20 mm	4 - 6	C.897
PXAL		3 flutes variable helix for aluminium and copper alloys	10 - 25 mm	3	C.899
PXHF-AM		Multi flute for high feed additive manufacturing milling	12 - 20 mm	6	C.900

ISO 13399 LEGEND

ISO code	Description
APMX	Depth of cut maximum
CHW	Corner chamfer width
DC	Cutting diameter
DCF	Cutting diameter face contact
DCON	Connection diameter
DN	Neck diameter
DNX	Neck diameter maximum
LCF	Length chip flute
LF	Functional length
LH	Head length
LU	Usable length
RE	Corner radius
RE2	Secondary radius
RE3	Tertiary radius
ULDR	Usable length diameter ratio
ZEFP	Peripheral effective cutting edge count
θk	Tool piece angle
θn	Neck half taper angle

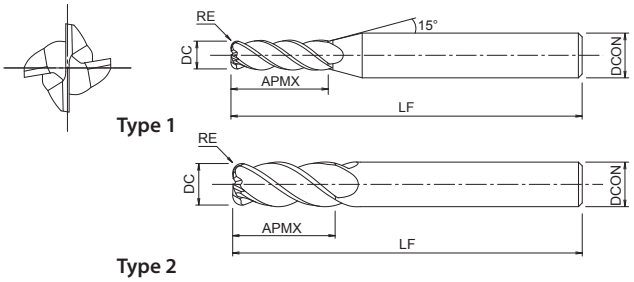
AE-VMS

Milling | Solid carbide

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NEW SIZES





- First choice in quality and performance
- Carbide end mill with DUARISE coating
- Wide variety in applications and work materials
- 4 flutes, variable helix and unequal spacing

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S | H ~60 HRC

A | CARBIDE | DUARISE | 37°~40° | 0~-0.02 | SHRINK FIT | C.905

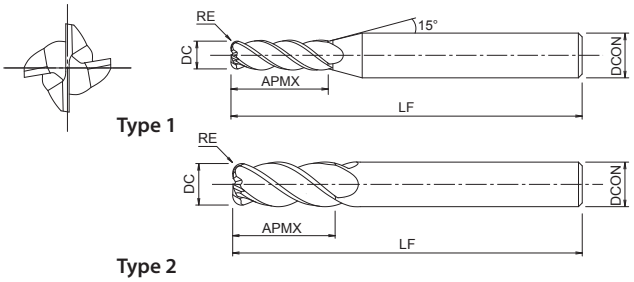
EDP	DC	RE	APMX	DCON	LF	ZEFP	Type
8556020 NEW	1	0,1	2,5	4	50	4	1
8556021 NEW	1	0,2	2,5	4	50	4	1
8555821 NEW	1	-	2,5	4	50	4	1
8555822 NEW	1,5	-	4	4	50	4	1
8555823 NEW	2	-	5	4	50	4	1
8556022 NEW	2	0,1	5	4	50	4	1
8556023 NEW	2	0,2	5	4	50	4	1
8555824 NEW	2,5	-	6,5	4	50	4	1
8555830	3	-	8	6	60	4	1
8556050	3	0,2	8	6	60	4	1
8556060	3	0,5	8	6	60	4	1
8555835 NEW	3,5	-	10	6	60	4	1
8555840	4	-	11	6	60	4	1
8556070	4	0,2	11	6	60	4	1
8556080	4	0,5	11	6	60	4	1
8556090	4	1	11	6	60	4	1
8555845 NEW	4,5	-	11	6	60	4	1
8555850	5	-	13	6	60	4	1
8556100	5	0,2	13	6	60	4	1
8556110	5	0,5	13	6	60	4	1
8556120	5	1	13	6	60	4	1
8555855 NEW	5,5	-	13	6	60	4	1
8555860	6	-	13	6	60	4	2
8556130	6	0,3	13	6	60	4	2
8556140	6	0,5	13	6	60	4	2
8556150	6	1	13	6	60	4	2
8555880	8	-	19	8	70	4	2
8556160	8	0,3	19	8	70	4	2
8556170	8	0,5	19	8	70	4	2
8556180	8	1	19	8	70	4	2
8556190	8	1,5	19	8	70	4	2
8556200	8	2	19	8	70	4	2
8555900	10	-	22	10	80	4	2
8556210	10	0,3	22	10	80	4	2
8556220	10	0,5	22	10	80	4	2
8556230	10	1	22	10	80	4	2
8556240	10	1,5	22	10	80	4	2
8556250	10	2	22	10	80	4	2
8556260	10	3	22	10	80	4	2
8555920	12	-	26	12	90	4	2
48354123	12	0,3	26	12	90	4	2
8556270	12	0,5	26	12	90	4	2
8556280	12	1	26	12	90	4	2
8556290	12	1,5	26	12	90	4	2
8556300	12	2	26	12	90	4	2
8556310	12	3	26	12	90	4	2

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Milling | Solid carbide

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- First choice in quality and performance
- Carbide end mill with DUARISE coating
- Wide variety in applications and work materials
- 4 flutes, variable helix and unequal spacing

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S | H ~60 HRC

A | CARBIDE | DUARISE | 37°~40° | 0~-0.02 | SHRINK FIT | C.905

EDP	DC	RE	APMX	DCON	LF	ZEFP	Type
8555960	16	-	32	16	100	4	2
8557300	16	0,5	32	16	100	4	2
8557301	16	1	32	16	100	4	2
48354163	16	1,5	32	16	100	4	2
8557302	16	2	32	16	100	4	2
8557303	16	2,5	32	16	100	4	2
8557304	16	3	32	16	100	4	2
8557305	16	4	32	16	100	4	2
8556000	20	-	40	20	110	4	2
8557310	20	0,5	40	20	110	4	2
8557311	20	1	40	20	110	4	2
8557312	20	2	40	20	110	4	2
8557313	20	2,5	40	20	110	4	2
8557314	20	3	40	20	110	4	2
8557315	20	4	40	20	110	4	2
8557316	20	5	40	20	110	4	2
8556010	25	-	50	25	120	4	2
8557321	25	1	50	25	120	4	2
8557322	25	2	50	25	120	4	2
8557324	25	3	50	25	120	4	2
8557325	25	4	50	25	120	4	2
8557326	25	5	50	25	120	4	2

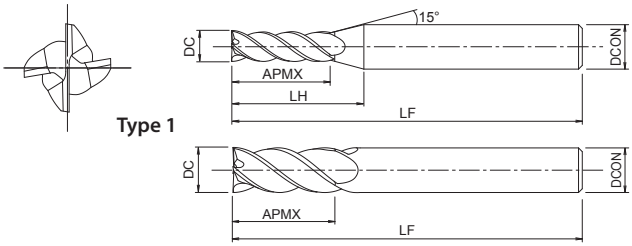
AE-VMS RA

Milling | Solid carbide

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NEW SIZES





Type 1

Type 2

- First choice in quality and performance
- Carbide end mill with DUARISE coating
- Wide variety in applications and work materials
- 4 flutes, variable helix and unequal spacing
- Right angle for milling straight corners

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S | H ~60 HRC

A | CARBIDE | DUARISE | 37°~40° | 0~-0.02 | SHRINK FIT | RA

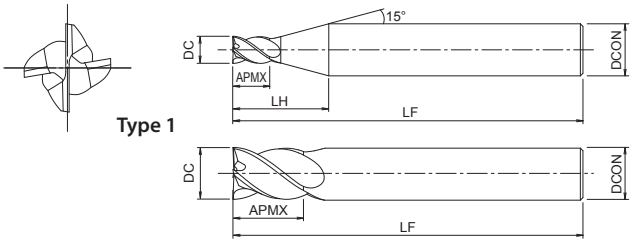
C.905

EDP	DC	APMX	DCON	LF	LH	ZEFP	Type
8555728 NEW	1	2,5	4	50	8,9	4	1
8555729 NEW	2	5	4	50	10,2	4	1
8555730	3	8	6	60	15,9	4	1
8555740	4	11	6	60	17,1	4	1
8555750	5	13	6	60	17,2	4	1
8555760	6	13	6	60	-	4	2

AE-VMSS

Milling | Solid carbide





- First choice in quality and performance
- Carbide end mill with DUARISE coating
- Wide variety in applications and work materials
- 4 flutes, variable helix and unequal spacing
- Stub length of cut

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S | H ~60 HRC

A | CARBIDE | DUARISE | 37°~40° | 0~-0.02 | SHRINK FIT | C.906

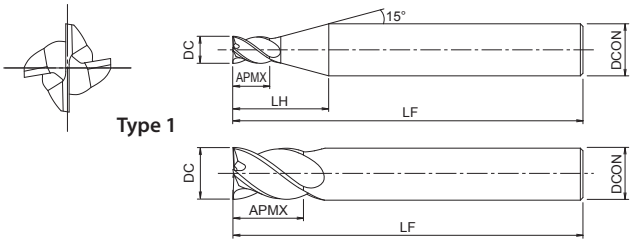
EDP	DC	APMX	DCON	LF	LH	ZEFP	Type
8556410	1	1,5	4	40	7,9	4	1
8556411	1,1	1,7	4	40	8	4	1
8556412	1,2	1,8	4	40	7,9	4	1
8556413	1,3	2	4	40	7,9	4	1
8556414	1,4	2,1	4	40	8	4	1
8556415	1,5	2,3	4	40	7,8	4	1
8556416	1,6	2,4	4	40	7,9	4	1
8556417	1,7	2,6	4	40	7,7	4	1
8556418	1,8	2,7	4	40	7,6	4	1
8556419	1,9	2,9	4	40	7,7	4	1
8556420	2	3	4	40	8,2	4	1
8556421	2,1	3,2	4	40	8,2	4	1
8556422	2,2	3,3	4	40	8,1	4	1
8556423	2,3	3,5	4	40	8,1	4	1
8556424	2,4	3,6	4	40	8	4	1
8556425	2,5	3,8	4	40	8	4	1
8556426	2,6	3,9	4	40	8,5	4	1
8556427	2,7	4,1	4	40	8,5	4	1
8556428	2,8	4,2	4	40	8,4	4	1
8556429	2,9	4,4	4	40	8,4	4	1
8556430	3	4,5	6	45	12,2	4	1
8556431	3,1	4,7	6	45	12,2	4	1
8556432	3,2	4,8	6	45	12,2	4	1
8556433	3,3	5	6	45	12,2	4	1
8556434	3,4	5,1	6	45	12,1	4	1
8556435	3,5	5,3	6	45	12,1	4	1
8556436	3,6	5,4	6	45	12	4	1
8556437	3,7	5,6	6	45	12	4	1
8556438	3,8	5,7	6	45	11,9	4	1
8556439	3,9	5,9	6	45	11,9	4	1
8556440	4	6	6	45	11,9	4	1
8556441	4,1	6,2	6	45	12,1	4	1
8556442	4,2	6,3	6	45	12	4	1
8556443	4,3	6,5	6	45	12	4	1
8556444	4,4	6,6	6	45	11,9	4	1
8556445	4,5	6,8	6	45	11,9	4	1
8556446	4,6	6,9	6	45	11,8	4	1
8556447	4,7	7,1	6	45	11,9	4	1
8556448	4,8	7,2	6	45	11,8	4	1
8556449	4,9	7,4	6	45	11,8	4	1
8556450	5	7,5	6	45	11,7	4	1
8556451	5,1	7,7	6	45	11,7	4	1
8556452	5,2	7,8	6	45	11,6	4	1
8556453	5,3	8	6	45	11,6	4	1
8556454	5,4	8,1	6	45	11,5	4	1
8556455	5,5	8,3	6	45	11,6	4	1

AE-VMSS

Milling | Solid carbide

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Type 1

Type 2

- First choice in quality and performance
- Carbide end mill with DUARISE coating
- Wide variety in applications and work materials
- 4 flutes, variable helix and unequal spacing
- Stub length of cut







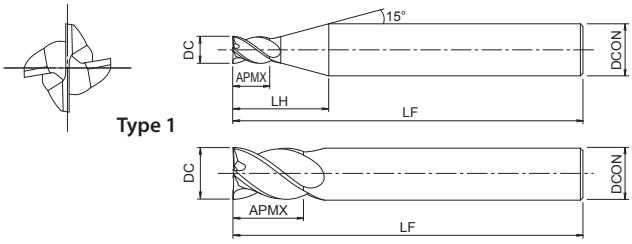
EDP	DC	APMX	DCON	LF	LH	ZEFP	Type
8556456	5,6	8,4	6	45	11,5	4	1
8556457	5,7	8,6	6	45	11,5	4	1
8556458	5,8	8,7	6	45	11,4	4	1
8556459	5,9	8,9	6	45	11,4	4	1
8556460	6	9	6	45	-	4	2
8556465	6,5	9,8	8	60	14,9	4	1
8556470	7	10,5	8	60	14,7	4	1
8556475	7,5	11,3	8	60	14,6	4	1
8556480	8	12	8	60	-	4	2
8556485	8,5	12,8	10	70	17,9	4	1
8556490	9	13,5	10	70	17,7	4	1
8556495	9,5	14,3	10	70	17,6	4	1
8556500	10	15	10	70	-	4	2
8556505	10,5	15,8	12	75	20,9	4	1
8556510	11	16,5	12	75	20,7	4	1
8556515	11,5	17,3	12	75	20,6	4	1
8556520	12	18	12	75	-	4	2

AE-VMSS RA

Milling | Solid carbide

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Type 1

Type 2

- First choice in quality and performance
- Carbide end mill with DUARISE coating
- Wide variety in applications and work materials
- 4 flutes, variable helix and unequal spacing
- Stub length of cut, right angle for milling 90° corners

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S | H ~60 HRC

A | CARBIDE | DUARISE | 37°~40° | 0~-0.02 | SHRINK FIT | RA

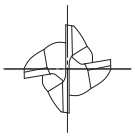
C.906

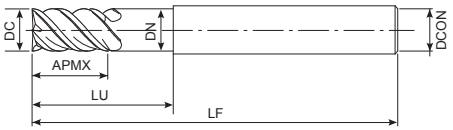
EDP	DC	APMX	DCON	LF	LH	ZEFP	Type
8556550	1	1,5	4	40	7,9	4	1
8556555	1,5	2,3	4	40	7,8	4	1
8556560	2	3	4	40	8,2	4	1
8556565	2,5	3,8	4	40	8	4	1
8556570	3	4,5	6	45	12,2	4	1
8556575	3,5	5,3	6	45	12,1	4	1
8556580	4	6	6	45	11,9	4	1
8556585	4,5	6,8	6	45	11,9	4	1
8556590	5	7,5	6	45	11,7	4	1
8556595	5,5	8,3	6	45	11,6	4	1
8556600	6	9	6	45	-	4	2

AE-VMSS

Milling | Solid carbide







- First choice in quality and performance
- Carbide end mill with DUARISE coating
- Wide variety in applications and work materials
- 4 flutes, variable helix and unequal spacing
- Stub length of cut, long neck type







EDP	DC	LU	APMX	DCON	DN	LF	ZEFP
8556618	6	18	9	6	5,8	60	4
8556630	6	30	9	6	5,8	70	4
8556724	8	24	12	8	7,7	70	4
8556740	8	40	12	8	7,7	80	4
8556830	10	30	15	10	9,7	80	4
8556850	10	50	15	10	9,7	100	4
8556936	12	36	18	12	11,7	90	4
8556960	12	60	18	12	11,7	110	4

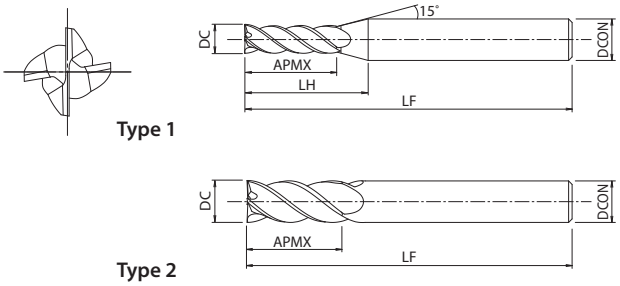
AE-VMSX

Milling | Solid carbide

INDEX

NEW





- First choice in quality and performance
- Carbide end mill with DUROREY coating
- 4 flutes, variable helix and unequal spacing
- Reinforced cutting edge and micro relief

P ~45 HRC | P ~55 HRC | P ~60 HRC | M ~35 HRC | K ~350 HB | S Ti | H ~65 HRC

A | CARBIDE | DUROREY | 39°~42° | 0~-0.02 | SHRINK FIT

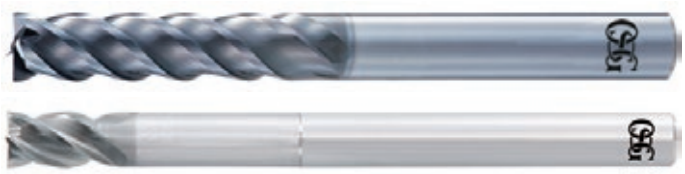
C.1048

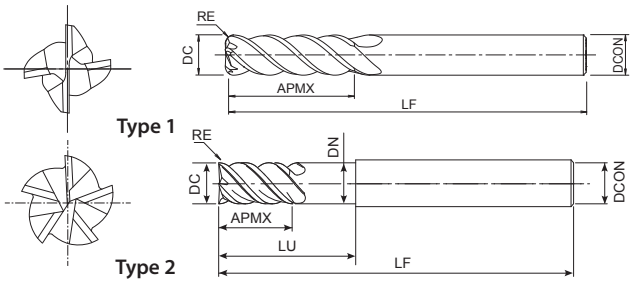
EDP	DC	APMX	DCON	LH	LF	ZEFP	Type
8558030	3	8	6	15,9	60	4	1
8558040	4	11	6	17,1	60	4	1
8558050	5	13	6	17,2	60	4	1
8558060	6	13	6	-	60	4	2
8558080	8	19	8	-	70	4	2
8558100	10	22	10	-	80	4	2
8558120	12	26	12	-	90	4	2

AE-VML

Milling | Solid carbide

INDEX





- First choice in quality and performance
- Carbide end mill with DUARISE coating
- For side milling with length of cut up to 4xD
- 4 or 5 flutes, variable helix and unequal spacing

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S | H ~60 HRC

A | CARBIDE | DUARISE | 42° ~44° | 0~-0.02 | SHRINK FIT

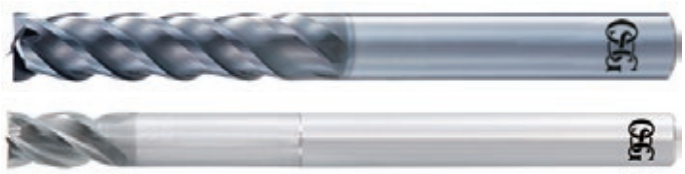
C.908

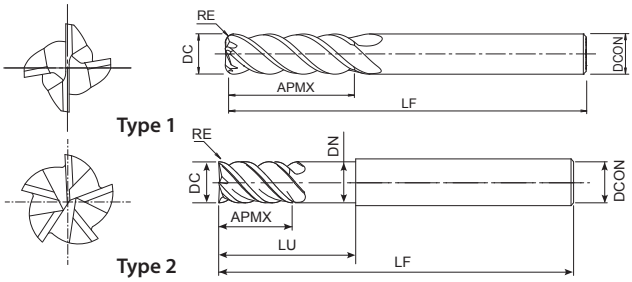
EDP	DC	RE	APMX	DCON	LF	ULDR	ZEFP	Type
8556320	6	-	19	6	70	3	4	1
8556328	6	-	24	6	70	4	4	1
8556336	6	0,3	19	6	70	3	4	1
8556355	6	0,3	24	6	70	4	4	1
8556337	6	0,5	19	6	70	3	4	1
8556356	6	0,5	24	6	70	4	4	1
8556338	6	1	19	6	70	3	4	1
8556357	6	1	24	6	70	4	4	1
8556322	8	-	25	8	80	3	4	1
8556330	8	-	32	8	90	4	4	1
8556339	8	0,3	25	8	80	3	4	1
8556358	8	0,3	32	8	90	4	4	1
8556340	8	0,5	25	8	80	3	4	1
8556359	8	0,5	32	8	90	4	4	1
8556341	8	1	25	8	80	3	4	1
8556360	8	1	32	8	90	4	4	1
8556342	8	1,5	25	8	80	3	4	1
8556361	8	1,5	32	8	90	4	4	1
8556343	8	2	25	8	80	3	4	1
8556362	8	2	32	8	90	4	4	1
8556324	10	-	31	10	90	3	4	1
8556332	10	-	40	10	100	4	4	1
8556344	10	0,3	31	10	90	3	4	1
8556363	10	0,3	40	10	100	4	4	1
8556345	10	0,5	31	10	90	3	4	1
8556364	10	0,5	40	10	100	4	4	1
8556346	10	1	31	10	90	3	4	1
8556365	10	1	40	10	100	4	4	1
8556347	10	1,5	31	10	90	3	4	1
8556366	10	1,5	40	10	100	4	4	1
8556348	10	2	31	10	90	3	4	1
8556367	10	2	40	10	100	4	4	1
8556349	10	3	31	10	90	3	4	1
8556368	10	3	40	10	100	4	4	1

AE-VML

Milling | Solid carbide

INDEX





- First choice in quality and performance
- Carbide end mill with DUARISE coating
- For side milling with length of cut up to 4xD
- 4 or 5 flutes, variable helix and unequal spacing

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S | H ~60 HRC

A | CARBIDE | DUARISE | 42°~44° | 0~-0.02 | SHRINK FIT

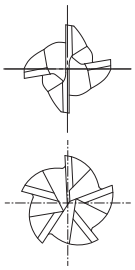
C.908

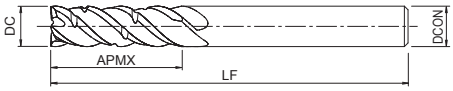
EDP	DC	RE	LU	APMX	DCON	DN	LF	ULDR	ZEFP	Type
8556326	12	-	-	38	12	-	100	3	4	1
8556334	12	-	-	48	12	-	110	4	4	1
8556350	12	0,5	-	38	12	-	100	3	4	1
8556369	12	0,5	-	48	12	-	110	4	4	1
8556351	12	1	-	38	12	-	100	3	4	1
8556370	12	1	-	48	12	-	110	4	4	1
8556352	12	1,5	-	38	12	-	100	3	4	1
8556371	12	1,5	-	48	12	-	110	4	4	1
8556353	12	2	-	38	12	-	100	3	4	1
8556372	12	2	-	48	12	-	110	4	4	1
8556354	12	3	-	38	12	-	100	3	4	1
8556373	12	3	-	48	12	-	110	4	4	1
8556374	16	-	-	50	16	-	125	3	5	1
8556378	16	-	-	64	16	-	140	4	5	1
48330162	16	1	100	64	16	15,5	150	4	4	2
8556376	20	-	-	62	20	-	135	3	5	1
8556380	20	-	-	80	20	-	155	4	5	1
48330202	20	1	100	80	20	19,4	150	4	4	2

AE-VML

Milling | Solid carbide

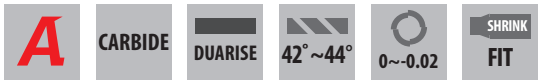






- First choice in quality and performance
- Carbide end mill with DUARISE coating
- For side milling with length of cut up to 4xD
- 4 or 5 flutes, variable helix and unequal spacing
- With chipbreaker







EDP	DC	APMX	DCON	LF	ZEFP
8556321	6	19	6	70	4
8556329	6	24	6	70	4
8556323	8	25	8	80	4
8556331	8	32	8	90	4
8556325	10	31	10	90	4
8556333	10	40	10	100	4
8556327	12	38	12	100	4
8556335	12	48	12	110	4
8556375	16	50	16	125	5
8556379	16	64	16	140	5
8556377	20	62	20	135	5
8556381	20	80	20	155	5

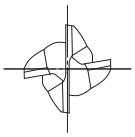


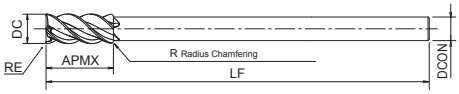
AE-VMFE

Milling | Solid carbide

INDEX

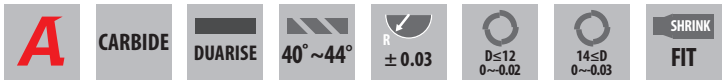






- First choice in quality and performance
- Carbide end mill with DUARISE coating
- For deep wall milling
- 4 or 5 flutes, variable helix and unequal spacing







EDP	DC	RE	APMX	DCON	LF	ZEFP
8549916	6	-	15	4	100	4
8549945	6	0,5	15	4	100	4
8549918	8	-	20	6	110	4
8549955	8	0,5	20	6	110	4
8549920	10	-	25	8	130	4
8549965	10	0,5	25	8	130	4
8549966	10	1	25	8	130	4
8549922	12	-	30	10	150	4
8549975	12	0,5	30	10	150	4
8549976	12	1	30	10	150	4
8549924	14	-	35	12	160	5
8549985	14	0,5	35	12	160	5
8549986	14	1	35	12	160	5
8549928	18	-	45	16	180	5
8549995	18	0,5	45	16	180	5
8549996	18	1	45	16	180	5
8549932	22	-	55	20	200	5
8550005	22	0,5	55	20	200	5
8550006	22	1	55	20	200	5

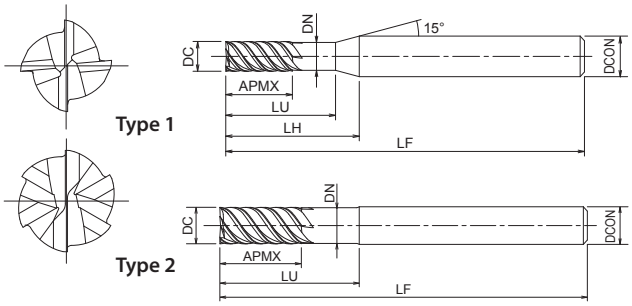


AE-MSS-H

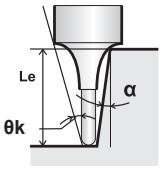
Milling | Solid carbide

INDEX





- First choice in quality and performance
- Carbide end mill with DUROREY coating
- For hardened materials up to 70HRC
- Multi flute, variable helix and unequal spacing
- 1.5XD length of cut, long neck up to 3XD



P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | S | H ~60 HRC | H ~65 HRC | H ~70 HRC

A | CARBIDE | DUROREY | 43° | SHRINK FIT | 0~-0.02 | C.911

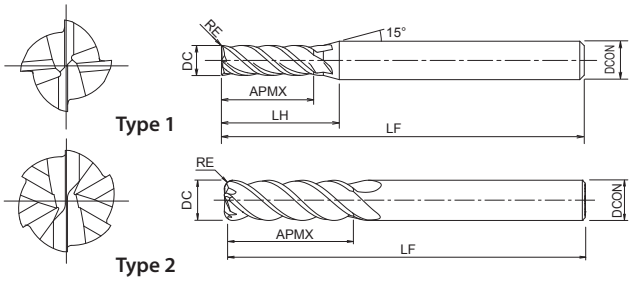
EDP	DC	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=3°)	ZEFP	Type
48364199	1	3	1,5	6	0,95	45	12,3	11,46	3,1	3,21	3,33	3,45	3,73	4	1
48364299	2	6	3	6	1,95	45	13,9	8,19	6,65	6,88	7,13	7,39	7,99	4	1
8549830	3	9	4,5	6	2,85	45	14,8	5,78	9,46	9,87	10,23	10,62	11,48	4	1
8549831	4	12	6	6	3,85	50	16	3,59	12,6	13,09	13,56	14,07	15,21	4	1
8549832	5	15	7,5	6	4,85	60	17,1	1,68	15,72	16,3	16,88	-	-	4	1
8549833	6	18	9	6	5,85	80	-	-	-	-	-	-	-	6	2
8549834	8	24	12	8	7,85	90	-	-	-	-	-	-	-	6	2
8549835	10	30	15	10	9,85	100	-	-	-	-	-	-	-	6	2
8549836	12	36	18	12	11,8	110	-	-	-	-	-	-	-	6	2

AE-MS-H

Milling | Solid carbide

INDEX





- First choice in quality and performance
- Carbide end mill with DUROREY coating
- For hardened materials up to 70HRC
- Multi flute, variable helix and unequal spacing

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | S | H ~60 HRC | H ~65 HRC | H ~70 HRC

A | CARBIDE | DUROREY | 43° | SHRINK FIT | R ±0.02 | 0~-0.02 | C.912

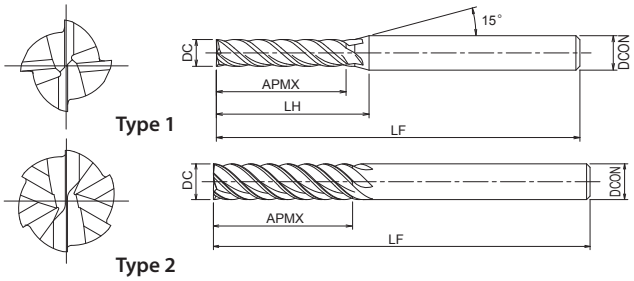
EDP	DC	RE	APMX	DCON	LF	LH	ZEFP	Type
8549710	1	-	2,5	6	60	12,7	4	1
8549715	1,5	-	3,8	6	60	13	4	1
8549720	2	-	5	6	60	13,9	4	1
8549725	2,5	-	6,3	6	60	14,5	4	1
8549730	3	-	7,5	6	60	15,4	4	1
8549842	3	0,2	7,5	6	60	15,4	4	1
8549845	3	0,5	7,5	6	60	15,4	4	1
8549735	3,5	-	8,8	6	60	15,6	4	1
8549740	4	-	10	6	60	16,1	4	1
8549852	4	0,2	10	6	60	16,1	4	1
8549855	4	0,5	10	6	60	16,1	4	1
8549856	4	1	10	6	60	16,1	4	1
8549745	4,5	-	11,3	6	60	16,4	4	1
8549750	5	-	12,5	6	60	16,7	4	1
8549862	5	0,2	12,5	6	60	16,7	4	1
8549865	5	0,5	12,5	6	60	16,7	4	1
8549866	5	1	12,5	6	60	16,7	4	1
8549755	5,5	-	13,8	6	60	17,1	4	1
8549760	6	-	15	6	60	-	6	2
8549873	6	0,3	15	6	60	-	6	2
8549875	6	0,5	15	6	60	-	6	2
8549876	6	1	15	6	60	-	6	2
8549780	8	-	20	8	70	-	6	2
8549883	8	0,3	20	8	70	-	6	2
8549885	8	0,5	20	8	70	-	6	2
8549886	8	1	20	8	70	-	6	2
8549887	8	1,5	20	8	70	-	6	2
8549888	8	2	20	8	70	-	6	2
8549810	10	-	25	10	80	-	6	2
8549893	10	0,3	25	10	80	-	6	2
8549895	10	0,5	25	10	80	-	6	2
8549896	10	1	25	10	80	-	6	2
8549897	10	1,5	25	10	80	-	6	2
8549898	10	2	25	10	80	-	6	2
8549899	10	3	25	10	80	-	6	2
8549812	12	-	30	12	90	-	6	2
8549903	12	0,3	30	12	90	-	6	2
8549905	12	0,5	30	12	90	-	6	2
8549906	12	1	30	12	90	-	6	2
8549907	12	1,5	30	12	90	-	6	2
8549908	12	2	30	12	90	-	6	2
8549909	12	3	30	12	90	-	6	2
8549816	16	-	40	16	105	-	6	2
8549820	20	-	50	20	120	-	6	2

AE-ML-H

Milling | Solid carbide

INDEX





- First choice in quality and performance
- Carbide end mill with DUROREY coating
- For hardened materials up to 70HRC
- Multi flute, variable helix and unequal spacing
- For side milling, length of cut up to 4xD

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | S | H ~60 HRC | H ~65 HRC | H ~70 HRC

A | CARBIDE | DUROREY | 43° | SHRINK FIT | 0~-0.02 | C.913

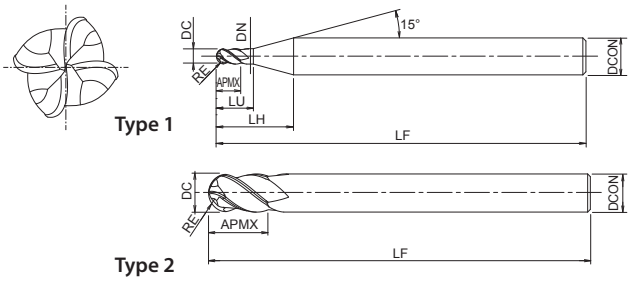
EDP	DC	APMX	DCON	LF	LH	ZEFP	Type
8550010	3	12	6	60	19,9	4	1
8550011	4	16	6	60	22,1	4	1
8550012	5	20	6	70	24,2	4	1
8550013	6	24	6	70	-	6	2
8550014	8	32	8	80	-	6	2
8550015	10	40	10	100	-	6	2
8550016	12	48	12	110	-	6	2
8550017	16	64	16	130	-	6	2
8550018	20	80	20	150	-	6	2

AE-BM-H

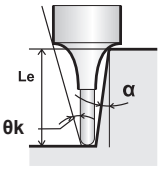
Milling | Solid carbide

INDEX





- First choice in quality and performance
- Carbide end mill with DUROREY coating
- For hardened materials up to 70HRC
- 4 flutes, ball nose



P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | S | H ~60 HRC | H ~65 HRC | H ~70 HRC

A | CARBIDE | DUROREY | 40° | SHRINK FIT | ± 0.005 R≤1,5 | ± 0.007 1,5<R≤3 | ± 0.01 3<R

C.914

EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=3°)	ZEFP	Type
8549602	2	1	4	2	6	1,95	50	11,9	10,64	4,19	4,3	4,42	4,55	4,85	4	1
8549603	3	1,5	6	3	6	2,85	50	11,8	8,15	6,44	6,61	6,79	7	7,45	4	1
8549604	4	2	8	4	6	3,85	60	12	5,65	8,49	8,71	8,96	9,22	9,81	4	1
8549605	5	2,5	10	5	6	4,85	60	12,1	2,95	10,54	10,82	11,12	11,45	-	4	1
8549606	6	3	-	9	6	-	60	-	-	-	-	-	-	-	4	2
8549608	8	4	-	12	8	-	70	-	-	-	-	-	-	-	4	2
8549610	10	5	-	15	10	-	80	-	-	-	-	-	-	-	4	2
8549612	12	6	-	18	12	-	90	-	-	-	-	-	-	-	4	2

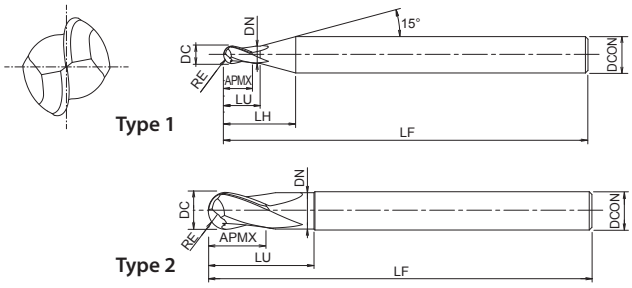


AE-BD-H

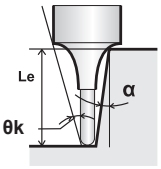
Milling | Solid carbide

INDEX





- First choice in quality and performance
- Carbide end mill with DUROREY coating
- For hardened materials up to 70HRC
- 2 flutes, ball nose



P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | S | H ~60 HRC | H ~65 HRC | H ~70 HRC

A | CARBIDE | DUROREY | 25° | SHRINK FIT | SHRINK h4 | R ± 0.005

C.916

EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=3°)	ZEFP	Type
3042001	1	0,5	2	0,8	4	0,95	50	7,6	11,71	2,14	2,2	2,26	2,33	2,48	2	1
3042002	1,5	0,75	3	1,2	4	1,45	50	7,8	10,03	3,17	3,25	3,34	3,44	3,66	2	1
3042003	2	1	4	1,6	6	1,95	50	11,9	10,64	4,19	4,3	4,42	4,55	4,85	2	1
3042004	3	1,5	6	2,4	6	2,85	60	11,8	8,15	6,44	6,61	6,79	7	7,45	2	1
3042005	4	2	8	3,2	4	3,85	60	-	-	-	-	-	-	-	2	2
3042006	4	2	8	3,2	6	3,85	70	12	5,65	8,49	8,71	8,96	9,22	9,81	2	1
3042007	4	2	8	3,2	6	3,85	45	12	5,65	8,49	8,71	8,96	9,22	9,81	2	1
3042008	5	2,5	10	4	6	4,8	80	12,1	2,92	10,63	10,9	11,22	11,55	-	2	1
3042009	5	2,5	10	4	6	4,8	50	12,1	2,92	10,63	10,9	11,22	11,55	-	2	1
3042010	6	3	18	9	6	5,8	90	-	-	-	-	-	-	-	2	2
3042011	6	3	18	9	6	5,8	55	-	-	-	-	-	-	-	2	2
3042012	8	4	24	12	8	7,7	100	-	-	-	-	-	-	-	2	2
3042013	8	4	24	12	8	7,7	75	-	-	-	-	-	-	-	2	2
3042014	10	5	30	15	10	9,7	100	-	-	-	-	-	-	-	2	2
3042015	10	5	30	15	10	9,7	75	-	-	-	-	-	-	-	2	2
3042016	12	6	36	18	12	11,7	110	-	-	-	-	-	-	-	2	2
3042017	12	6	36	18	12	11,7	80	-	-	-	-	-	-	-	2	2

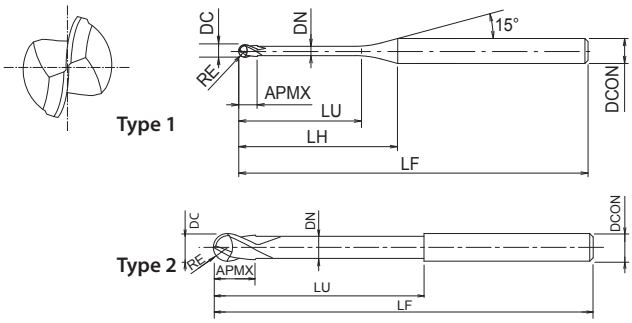
AE-LNBD-H

Milling | Solid carbide

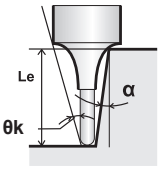
INDEX

NEW SIZE





- First choice in quality and performance
- Carbide end mill with DUROREY coating
- For hardened materials up to 70HRC
- 2 flutes, long neck, ball nose
- 262 sizes



P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | S | H ~60 HRC | H ~65 HRC | H ~70 HRC

A | CARBIDE | DUROREY | 30° | SHRINK FIT | SHANK h4 | R ± 0.003 ≤0,25 | R ± 0.005 0,25<R

C.917

EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=3°)	ZEFP	Type
3056100	0,1	0,05	0,2	0,08	4	0,1	45	7,5	14,69	0,21	0,22	0,22	0,23	0,24	2	1
3056101	0,1	0,05	0,3	0,08	4	0,1	45	7,6	14,52	0,3	0,31	0,32	0,33	0,36	2	1
3056102	0,1	0,05	0,5	0,08	4	0,1	45	7,8	14,16	0,51	0,53	0,54	0,56	0,6	2	1
3056103	0,2	0,1	0,3	0,16	4	0,19	45	7,4	14,55	0,32	0,33	0,34	0,35	0,37	2	1
3056104	0,2	0,1	0,5	0,16	4	0,19	45	7,6	14,18	0,53	0,54	0,56	0,58	0,62	2	1
3056105	0,2	0,1	0,75	0,16	4	0,19	45	7,9	13,74	0,79	0,81	0,84	0,86	0,93	2	1
3056106	0,2	0,1	1	0,16	4	0,19	45	8,1	13,33	1,04	1,08	1,11	1,15	1,24	2	1
3056107	0,2	0,1	1	0,16	6	0,19	45	11,8	13,86	1,04	1,08	1,11	1,15	1,24	2	1
3056108	0,2	0,1	1,25	0,16	4	0,19	45	8,4	12,94	1,3	1,35	1,39	1,44	1,55	2	1
3056109	0,2	0,1	1,5	0,16	4	0,19	45	8,6	12,58	1,56	1,61	1,67	1,73	1,86	2	1
3056110	0,2	0,1	1,75	0,16	4	0,19	45	8,9	12,23	1,82	1,88	1,94	2,01	2,17	2	1
3056111	0,2	0,1	2	0,16	4	0,19	45	9,1	11,9	2,08	2,15	2,22	2,3	2,48	2	1
3056112	0,2	0,1	2,5	0,16	4	0,19	45	9,6	11,29	2,6	2,68	2,78	2,88	3,1	2	1
3056113	0,2	0,1	3	0,16	4	0,19	45	10,1	10,74	3,11	3,22	3,33	3,45	3,72	2	1
3056114	0,3	0,15	0,5	0,24	4	0,29	45	7,4	14,24	0,53	0,54	0,55	0,57	0,6	2	1
3056115	0,3	0,15	0,6	0,24	4	0,29	45	7,5	14,06	0,63	0,65	0,66	0,68	0,73	2	1
3056116	0,3	0,15	0,75	0,24	4	0,29	45	7,7	13,79	0,78	0,81	0,83	0,86	0,92	2	1
3056117	0,3	0,15	1	0,24	4	0,29	45	7,9	13,36	1,04	1,07	1,11	1,14	1,23	2	1
3056118	0,3	0,15	1,25	0,24	4	0,29	45	8,2	12,96	1,3	1,34	1,39	1,43	1,54	2	1
3056119	0,3	0,15	1,5	0,24	4	0,29	45	8,4	12,59	1,56	1,61	1,66	1,72	1,85	2	1
3056120	0,3	0,15	1,5	0,24	6	0,29	45	12,2	13,34	1,56	1,61	1,66	1,72	1,85	2	1
3056121	0,3	0,15	1,75	0,24	4	0,29	45	8,7	12,23	1,82	1,88	1,94	2,01	2,16	2	1
3056122	0,3	0,15	2	0,24	4	0,29	45	8,9	11,89	2,08	2,14	2,22	2,29	2,47	2	1
3056123	0,3	0,15	2,25	0,24	4	0,29	45	9,2	11,57	2,34	2,41	2,49	2,58	2,78	2	1
3056124	0,3	0,15	2,5	0,24	4	0,29	45	9,4	11,27	2,59	2,68	2,77	2,87	3,09	2	1
3056125	0,3	0,15	3	0,24	4	0,29	45	9,9	10,71	3,11	3,21	3,32	3,44	3,71	2	1
3056126	0,3	0,15	3,5	0,24	4	0,29	45	10,4	10,2	3,63	3,75	3,88	4,02	4,33	2	1
3056127	0,3	0,15	4	0,24	4	0,29	45	10,9	9,74	4,14	4,28	4,43	4,59	4,96	2	1
3056128	0,3	0,15	4,5	0,24	4	0,29	45	11,4	9,31	4,66	4,82	4,99	5,17	5,58	2	1
3056129	0,3	0,15	5	0,24	4	0,29	45	11,9	8,93	5,18	5,35	5,54	5,74	6,2	2	1
3056130	0,4	0,2	0,5	0,3	4	0,38	45	7,3	14,27	0,54	0,56	0,57	0,58	0,62	2	1
3056131	0,4	0,2	0,75	0,3	4	0,38	45	7,5	13,8	0,8	0,82	0,85	0,87	0,93	2	1
3056132	0,4	0,2	0,8	0,3	4	0,38	45	7,6	13,71	0,85	0,88	0,9	0,93	0,99	2	1
3056133	0,4	0,2	1	0,3	4	0,38	45	7,8	13,37	1,06	1,09	1,12	1,16	1,24	2	1
3056134	0,4	0,2	1	0,3	6	0,38	45	11,5	13,91	1,06	1,09	1,12	1,16	1,24	2	1
3056135	0,4	0,2	1,5	0,3	4	0,38	45	8,3	12,57	1,58	1,63	1,68	1,73	1,86	2	1
3056136	0,4	0,2	2	0,3	4	0,38	45	8,8	11,86	2,09	2,16	2,23	2,31	2,48	2	1
3056137	0,4	0,2	2	0,3	6	0,38	45	12,5	12,82	2,09	2,16	2,23	2,31	2,48	2	1
3056138	0,4	0,2	2,5	0,3	4	0,38	45	9,3	11,22	2,61	2,7	2,79	2,88	3,1	2	1
3056139	0,4	0,2	3	0,3	4	0,38	45	9,8	10,65	3,13	3,23	3,34	3,46	3,72	2	1
3056140	0,4	0,2	3,5	0,3	4	0,38	45	10,3	10,14	3,64	3,76	3,89	4,03	4,35	2	1
3056141	0,4	0,2	4	0,3	4	0,38	45	10,8	9,67	4,16	4,3	4,45	4,61	4,97	2	1
3056142	0,4	0,2	4,5	0,3	4	0,38	45	11,3	9,24	4,68	4,83	5	5,18	5,59	2	1
3056143	0,4	0,2	5	0,3	4	0,38	45	11,8	8,85	5,2	5,37	5,56	5,76	6,21	2	1
3056144	0,4	0,2	5,5	0,3	4	0,38	45	12,3	8,49	5,71	5,9	6,11	6,33	6,83	2	1
3056145	0,4	0,2	6	0,3	4	0,38	45	12,8	8,15	6,23	6,44	6,66	6,91	7,45	2	1



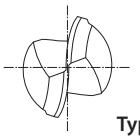
AE-LNBD-H

Milling | Solid carbide

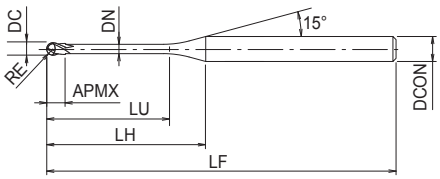
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NEW SIZE

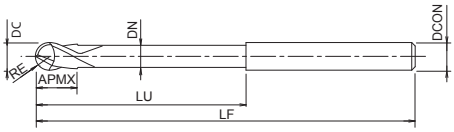




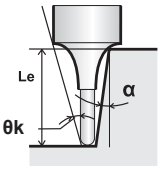
Type 1



Type 2



- First choice in quality and performance
- Carbide end mill with DUROREY coating
- For hardened materials up to 70HRC
- 262 sizes



P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | S | H ~60 HRC | H ~65 HRC | H ~70 HRC

A | CARBIDE | DUROREY | 30° | SHRINK FIT | SHANK h4 | R ± 0.003 ≤0,25 | R ± 0.005 0,25<R

C.917

EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=3°)	ZEFP	Type
3056146	0,5	0,25	0,75	0,4	4	0,48	45	7,3	13,85	0,8	0,82	0,84	0,86	0,91	2	1
3056147	0,5	0,25	1	0,4	4	0,48	45	7,6	13,4	1,06	1,09	1,12	1,15	1,23	2	1
3056148	0,5	0,25	1,5	0,4	4	0,48	45	8,1	12,58	1,58	1,62	1,67	1,73	1,85	2	1
3056149	0,5	0,25	2	0,4	4	0,48	45	8,6	11,85	2,09	2,16	2,23	2,3	2,47	2	1
3056150	0,5	0,25	2,5	0,4	4	0,48	45	9,1	11,2	2,61	2,69	2,78	2,88	3,09	2	1
3056151	0,5	0,25	3	0,4	4	0,48	45	9,6	10,62	3,13	3,23	3,33	3,45	3,71	2	1
3056152	0,5	0,25	3,5	0,4	4	0,48	45	10,1	10,09	3,64	3,76	3,89	4,03	4,33	2	1
3056153	0,5	0,25	4	0,4	4	0,48	45	10,6	9,61	4,16	4,3	4,44	4,6	4,95	2	1
3056154	0,5	0,25	4,5	0,4	4	0,48	45	11,1	9,18	4,68	4,83	5	5,18	5,58	2	1
3056155	0,5	0,25	5	0,4	4	0,48	45	11,6	8,78	5,19	5,37	5,55	5,75	6,2	2	1
3056156	0,5	0,25	5,5	0,4	4	0,48	45	12,1	8,41	5,71	5,9	6,11	6,33	6,82	2	1
3056157	0,5	0,25	6	0,4	4	0,48	45	12,6	8,08	6,23	6,44	6,66	6,9	7,44	2	1
3056158	0,5	0,25	7	0,4	4	0,48	45	13,6	7,48	7,26	7,51	7,77	8,05	8,68	2	1
3056159	0,5	0,25	8	0,4	4	0,48	45	14,6	6,97	8,29	8,58	8,88	9,2	9,93	2	1
3056160	0,5	0,25	9	0,4	4	0,48	45	15,6	6,52	9,33	9,64	9,98	10,35	11,17	2	1
3056161	0,5	0,25	10	0,4	4	0,48	45	16,6	6,12	10,36	10,71	11,09	11,5	12,41	2	1
3056162	0,6	0,3	0,75	0,5	4	0,55	45	7,2	13,8	0,86	0,88	0,9	0,92	0,97	2	1
3056163	0,6	0,3	1	0,5	4	0,55	45	7,4	13,34	1,12	1,14	1,17	1,21	1,28	2	1
3056164	0,6	0,3	1,2	0,5	4	0,55	45	7,6	12,99	1,32	1,36	1,4	1,44	1,53	2	1
3056165	0,6	0,3	1,5	0,5	4	0,55	45	7,9	12,5	1,63	1,68	1,73	1,78	1,9	2	1
3056166	0,6	0,3	2	0,5	4	0,55	45	8,4	11,76	2,15	2,21	2,28	2,36	2,53	2	1
3056167	0,6	0,3	2	0,5	6	0,55	45	12,2	12,78	2,15	2,21	2,28	2,36	2,53	2	1
3056168	0,6	0,3	2,5	0,5	4	0,55	45	8,9	11,1	2,67	2,75	2,84	2,93	3,15	2	1
3056169	0,6	0,3	3	0,5	4	0,55	45	9,4	10,51	3,18	3,28	3,39	3,51	3,77	2	1
3056170	0,6	0,3	3	0,5	6	0,55	45	13,2	11,83	3,18	3,28	3,39	3,51	3,77	2	1
3056171	0,6	0,3	3,5	0,5	4	0,55	45	9,9	9,98	3,7	3,82	3,95	4,08	4,39	2	1
3056172	0,6	0,3	4	0,5	4	0,55	45	10,4	9,5	4,22	4,35	4,5	4,66	5,01	2	1
3056173	0,6	0,3	4	0,5	6	0,55	45	14,2	11	4,22	4,35	4,5	4,66	5,01	2	1
3056174	0,6	0,3	4,5	0,5	4	0,55	45	10,9	9,06	4,73	4,89	5,05	5,23	5,63	2	1
3056175	0,6	0,3	5	0,5	4	0,55	45	11,4	8,67	5,25	5,42	5,61	5,81	6,26	2	1
3056176	0,6	0,3	5,5	0,5	4	0,55	45	11,9	8,3	5,77	5,96	6,16	6,38	6,88	2	1
3056177	0,6	0,3	6	0,5	4	0,55	45	12,4	7,96	6,28	6,49	6,72	6,96	7,5	2	1
3056178	0,6	0,3	6,5	0,5	4	0,55	45	12,9	7,65	6,8	7,03	7,27	7,53	8,12	2	1
3056179	0,6	0,3	7	0,5	4	0,55	45	13,4	7,37	7,32	7,56	7,82	8,11	8,74	2	1
3056180	0,6	0,3	7,5	0,5	4	0,55	45	13,9	7,1	7,83	8,1	8,38	8,68	9,36	2	1
3056181	0,6	0,3	8	0,5	4	0,55	45	14,4	6,85	8,35	8,63	8,93	9,26	9,99	2	1
3056182	0,6	0,3	8,5	0,5	4	0,55	45	14,9	6,62	8,87	9,17	9,49	9,83	10,61	2	1
3056183	0,6	0,3	9	0,5	4	0,55	45	15,4	6,41	9,38	9,7	10,04	10,41	11,23	2	1
3056184	0,6	0,3	9,5	0,5	4	0,55	45	15,9	6,2	9,9	10,24	10,6	10,98	11,85	2	1
3056185	0,6	0,3	10	0,5	4	0,55	45	16,4	6,01	10,42	10,77	11,15	11,56	12,47	2	1
3056186	0,6	0,3	11	0,5	4	0,55	50	17,4	5,67	11,45	11,84	12,26	12,71	13,71	2	1
3056187	0,6	0,3	12	0,5	4	0,55	50	18,4	5,36	12,49	12,91	13,37	13,86	14,96	2	1
3056188	0,8	0,4	1	0,6	4	0,75	45	7,1	13,41	1,11	1,14	1,16	1,19	1,26	2	1
3056189	0,8	0,4	1,5	0,6	4	0,75	45	7,6	12,52	1,63	1,67	1,72	1,77	1,88	2	1
3056190	0,8	0,4	2	0,6	4	0,75	45	8,1	11,74	2,15	2,21	2,27	2,34	2,5	2	1
3056191	0,8	0,4	2	0,6	6	0,75	45	11,8	12,81	2,15	2,21	2,27	2,34	2,5	2	1

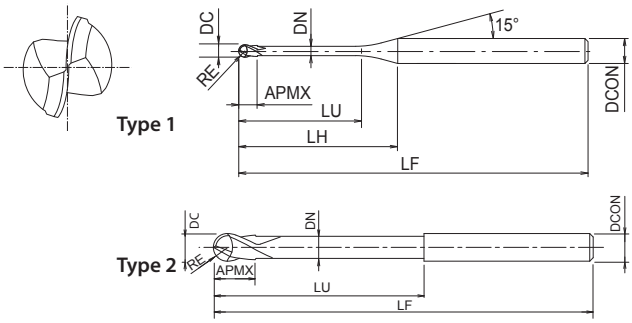
AE-LNBD-H

Milling | Solid carbide

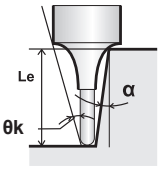
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C.917

EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=3°)	ZEFP	Type
3056192	0,8	0,4	2,5	0,6	4	0,75	45	8,6	11,04	2,66	2,74	2,83	2,92	3,12	2	1
3056193	0,8	0,4	3	0,6	4	0,75	45	9,1	10,42	3,18	3,28	3,38	3,49	3,75	2	1
3056194	0,8	0,4	4	0,6	4	0,75	45	10,1	9,37	4,21	4,35	4,49	4,64	4,99	2	1
3056195	0,8	0,4	5	0,6	4	0,75	45	11,1	8,51	5,25	5,42	5,6	5,79	6,23	2	1
3056196	0,8	0,4	6	0,6	4	0,75	45	12,1	7,8	6,28	6,49	6,71	6,94	7,48	2	1
3056197	0,8	0,4	7	0,6	4	0,75	45	13,1	7,19	7,31	7,55	7,81	8,09	8,72	2	1
3056198	0,8	0,4	8	0,6	4	0,75	45	14,1	6,67	8,35	8,62	8,92	9,24	9,96	2	1
3056199	0,8	0,4	9	0,6	4	0,75	45	15,1	6,22	9,38	9,69	10,03	10,39	11,2	2	1
3056200	0,8	0,4	10	0,6	4	0,75	45	16,1	5,83	10,41	10,76	11,14	11,54	12,45	2	1
3056201	0,8	0,4	12	0,6	4	0,75	50	18,1	5,18	12,48	12,9	13,36	13,84	14,93	2	1
3056202	1	0,5	1,5	0,8	4	0,95	45	7,2	12,54	1,63	1,66	1,71	1,75	1,86	2	1
3056203	1	0,5	2	0,8	4	0,95	45	7,7	11,71	2,14	2,2	2,26	2,33	2,48	2	1
3056204	1	0,5	2	0,8	6	0,95	45	11,4	12,83	2,14	2,2	2,26	2,33	2,48	2	1
3056205	1	0,5	2,5	0,8	4	0,95	45	8,2	10,97	2,66	2,73	2,82	2,9	3,1	2	1
3056206	1	0,5	3	0,8	4	0,95	45	8,7	10,33	3,18	3,27	3,37	3,48	3,72	2	1
3056207	1	0,5	3	0,8	6	0,95	45	12,4	11,8	3,18	3,27	3,37	3,48	3,72	2	1
3056208	1	0,5	4	0,8	4	0,95	45	9,7	9,23	4,21	4,34	4,48	4,63	4,97	2	1
3056209	1	0,5	4	0,8	6	0,95	45	13,4	10,91	4,21	4,34	4,48	4,63	4,97	2	1
3056210	1	0,5	5	0,8	4	0,95	45	10,7	8,35	5,24	5,41	5,59	5,78	6,21	2	1
3056211	1	0,5	5	0,8	6	0,95	45	14,4	10,15	5,24	5,41	5,59	5,78	6,21	2	1
3056212	1	0,5	6	0,8	4	0,95	45	11,7	7,62	6,28	6,48	6,69	6,93	7,45	2	1
3056213	1	0,5	6	0,8	6	0,95	45	15,4	9,49	6,28	6,48	6,69	6,93	7,45	2	1
3056214	1	0,5	7	0,8	4	0,95	45	12,7	7	7,31	7,55	7,8	8,08	8,69	2	1
3056215	1	0,5	7	0,8	6	0,95	45	16,4	8,91	7,31	7,55	7,8	8,08	8,69	2	1
3056216	1	0,5	8	0,8	4	0,95	45	13,7	6,48	8,34	8,62	8,91	9,23	9,94	2	1
3056217	1	0,5	8	0,8	6	0,95	45	17,4	8,39	8,34	8,62	8,91	9,23	9,94	2	1
3056218	1	0,5	9	0,8	4	0,95	45	14,7	6,03	9,38	9,69	10,02	10,38	11,18	2	1
3056219	1	0,5	10	0,8	4	0,95	45	15,7	5,64	10,41	10,76	11,13	11,53	12,42	2	1
3056220	1	0,5	10	0,8	6	0,95	50	19,4	7,52	10,41	10,76	11,13	11,53	12,42	2	1
3056221	1	0,5	12	0,8	4	0,95	45	17,7	4,99	12,48	12,9	13,34	13,83	14,91	2	1
3056222	1	0,5	13	0,8	4	0,95	50	18,7	4,71	13,51	13,97	14,45	14,98	16,15	2	1
3056223	1	0,5	14	0,8	4	0,95	50	19,7	4,47	14,55	15,04	15,56	16,13	17,4	2	1
3056224	1	0,5	16	0,8	4	0,95	50	21,7	4,05	16,61	17,18	17,78	18,43	19,88	2	1
3056225	1	0,5	18	0,8	4	0,95	55	23,7	3,7	18,68	19,31	19,99	20,73	22,37	2	1
3056226	1	0,5	20	0,8	4	0,95	55	25,7	3,41	20,75	21,45	22,21	23,03	24,86	2	1
3056227	1	0,5	22	0,8	4	0,95	60	27,7	3,16	22,82	23,59	24,43	25,33	27,34	2	1
3056228	1	0,5	22	0,8	6	0,95	60	31,4	4,62	22,82	23,59	24,43	25,33	27,34	2	1
3056229	1,2	0,6	2	1	4	1,15	45	7,3	11,67	2,14	2,19	2,25	2,31	2,46	2	1
3056230	1,2	0,6	2	1	6	1,15	45	11,1	12,86	2,14	2,19	2,25	2,31	2,46	2	1
3056231	1,2	0,6	2,4	1	4	1,15	45	7,7	11,04	2,55	2,62	2,69	2,77	2,95	2	1
3056232	1,2	0,6	2,5	1	4	1,15	45	7,8	10,9	2,66	2,73	2,81	2,89	3,08	2	1
3056233	1,2	0,6	3	1	4	1,15	45	8,3	10,22	3,17	3,26	3,36	3,46	3,7	2	1
3056234	1,2	0,6	4	1	4	1,15	45	9,3	9,08	4,21	4,33	4,47	4,61	4,94	2	1
3056235	1,2	0,6	4	1	6	1,15	45	13,1	10,87	4,21	4,33	4,47	4,61	4,94	2	1
3056236	1,2	0,6	6	1	4	1,15	45	11,3	7,42	6,27	6,47	6,68	6,91	7,43	2	1
3056237	1,2	0,6	8	1	4	1,15	45	13,3	6,27	8,34	8,61	8,9	9,21	9,91	2	1

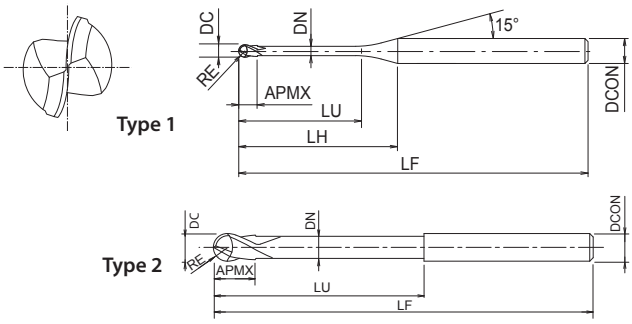
AE-LNBD-H

Milling | Solid carbide

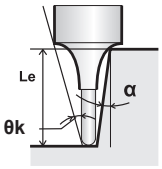
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EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=3°)	ZEFP	Type
3056238	1,2	0,6	10	1	4	1,15	45	15,3	5,43	10,41	10,75	11,12	11,51	12,4	2	1
3056239	1,2	0,6	12	1	4	1,15	45	17,3	4,78	12,48	12,89	13,33	13,81	14,89	2	1
3056240	1,2	0,6	14	1	4	1,15	50	19,3	4,28	14,54	15,03	15,55	16,11	17,37	2	1
3056241	1,2	0,6	16	1	4	1,15	50	21,3	3,87	16,61	17,17	17,77	18,41	19,86	2	1
3056242	1,2	0,6	18	1	4	1,15	55	23,3	3,53	18,68	19,31	19,98	20,71	22,35	2	1
3056243	1,2	0,6	20	1	4	1,15	55	25,3	3,24	20,74	21,45	22,2	23,01	24,83	2	1
3056244	1,5	0,75	2	1,2	4	1,45	45	6,8	11,61	2,13	2,18	2,23	2,29	2,42	2	1
3056245	1,5	0,75	2,5	1,2	4	1,45	45	7,3	10,76	2,65	2,72	2,79	2,87	3,04	2	1
3056246	1,5	0,75	3	1,2	4	1,45	45	7,8	10,03	3,17	3,25	3,34	3,44	3,66	2	1
3056247	1,5	0,75	3	1,2	6	1,45	45	11,5	11,75	3,17	3,25	3,34	3,44	3,66	2	1
3056248	1,5	0,75	4	1,2	4	1,45	45	8,8	8,81	4,2	4,32	4,45	4,59	4,91	2	1
3056249	1,5	0,75	5	1,2	4	1,45	45	9,8	7,86	5,23	5,39	5,56	5,74	6,15	2	1
3056250	1,5	0,75	5	1,2	6	1,45	45	13,5	9,97	5,23	5,39	5,56	5,74	6,15	2	1
3056251	1,5	0,75	6	1,2	4	1,45	45	10,8	7,09	6,27	6,46	6,67	6,89	7,39	2	1
3056252	1,5	0,75	6	1,2	6	1,45	45	14,5	9,26	6,27	6,46	6,67	6,89	7,39	2	1
3056253	1,5	0,75	8	1,2	4	1,45	45	12,8	5,93	8,34	8,6	8,88	9,19	9,88	2	1
3056254	1,5	0,75	8	1,2	6	1,45	45	16,5	8,11	8,34	8,6	8,88	9,19	9,88	2	1
3056255	1,5	0,75	10	1,2	4	1,45	45	14,8	5,09	10,4	10,74	11,1	11,49	12,36	2	1
3056256	1,5	0,75	12	1,2	4	1,45	45	16,8	4,46	12,47	12,88	13,32	13,79	14,85	2	1
48363151	1,5	0,75	12	1,2	6	1,45	50	20,5	6,49	12,48	12,89	13,33	13,8	14,87	2	1
3056257	1,5	0,75	14	1,2	4	1,45	50	18,8	3,97	14,54	15,02	15,53	16,09	17,34	2	1
3056258	1,5	0,75	16	1,2	4	1,45	50	20,8	3,58	16,6	17,16	17,75	18,39	19,82	2	1
3056259	1,5	0,75	18	1,2	4	1,45	55	22,8	3,25	18,67	19,3	19,97	20,69	22,31	2	1
3056260	1,5	0,75	20	1,2	4	1,45	55	24,8	2,98	20,74	21,44	22,18	22,99	-	2	1
3056261	1,5	0,75	22	1,2	4	1,45	60	26,8	2,75	22,81	23,58	24,4	25,29	-	2	1
3056262	1,5	0,75	25	1,2	4	1,45	65	29,8	2,47	25,91	26,79	27,73	28,74	-	2	1
3056263	1,5	0,75	30	1,2	4	1,45	70	34,8	2,11	31,08	32,13	33,27	34,49	-	2	1
3056264	1,6	0,8	4	1,3	4	1,55	45	8,6	8,72	4,2	4,32	4,45	4,58	4,89	2	1
3056265	1,6	0,8	8	1,3	4	1,55	45	12,6	5,81	8,33	8,6	8,88	9,18	9,87	2	1
3056266	1,6	0,8	12	1,3	4	1,55	45	16,6	4,35	12,47	12,88	13,31	13,78	14,84	2	1
3056267	1,6	0,8	16	1,3	4	1,55	50	20,6	3,47	16,6	17,15	17,75	18,38	19,81	2	1
3056268	1,6	0,8	20	1,3	4	1,55	55	24,6	2,89	20,74	21,43	22,18	22,98	-	2	1
3056269	2	1	2,5	1,6	4	1,95	45	6,3	10,46	2,64	2,7	2,76	2,83	2,98	2	1
3056270	2	1	3	1,6	4	1,95	45	6,8	9,61	3,16	3,23	3,32	3,4	3,6	2	1
3056271	2	1	3	1,6	6	1,95	45	10,6	11,7	3,16	3,23	3,32	3,4	3,6	2	1
3056272	2	1	4	1,6	4	1,95	45	7,8	8,25	4,19	4,3	4,42	4,55	4,85	2	1
3056273	2	1	4	1,6	6	1,95	45	11,6	10,64	4,19	4,3	4,42	4,55	4,85	2	1
3056274	2	1	5	1,6	4	1,95	45	8,8	7,23	5,23	5,37	5,53	5,7	6,09	2	1
3056275	2	1	6	1,6	4	1,95	45	9,8	6,43	6,26	6,44	6,64	6,85	7,33	2	1
3056276	2	1	6	1,6	6	1,95	45	13,6	9	6,26	6,44	6,64	6,85	7,33	2	1
3056277	2	1	8	1,6	4	1,95	45	11,8	5,26	8,33	8,58	8,86	9,15	9,82	2	1
3056278	2	1	8	1,6	6	1,95	45	15,6	7,79	8,33	8,58	8,86	9,15	9,82	2	1
3056279	2	1	10	1,6	4	1,95	45	13,8	4,45	10,39	10,72	11,07	11,45	12,31	2	1
3056280	2	1	10	1,6	6	1,95	50	17,6	6,87	10,39	10,72	11,07	11,45	12,31	2	1
3056281	2	1	12	1,6	4	1,95	45	15,8	3,86	12,46	12,86	13,29	13,75	14,79	2	1
3056282	2	1	12	1,6	6	1,95	50	19,6	6,14	12,46	12,86	13,29	13,75	14,79	2	1

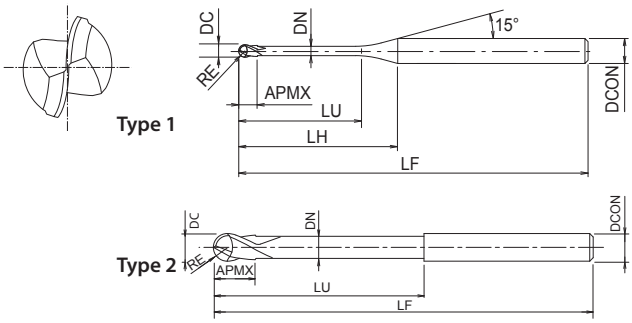
AE-LNBD-H

Milling | Solid carbide

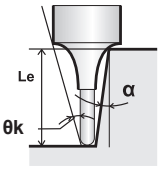
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3056283	2	1	13	1,6	4	1,95	50	16,8	3,61	13,5	13,93	14,4	14,9	16,04	2	1
3056284	2	1	14	1,6	4	1,95	50	17,8	3,4	14,53	15	15,51	16,05	17,28	2	1
3056285	2	1	16	1,6	4	1,95	50	19,8	3,04	16,6	17,14	17,72	18,35	19,76	2	1
3056286	2	1	16	1,6	6	1,95	55	23,6	5,06	16,6	17,14	17,72	18,35	19,76	2	1
3056287	2	1	18	1,6	4	1,95	55	21,8	2,75	18,66	19,28	19,94	20,65	-	2	1
3056288	2	1	20	1,6	4	1,95	55	23,8	2,51	20,73	21,42	22,16	22,95	-	2	1
3056289	2	1	20	1,6	6	1,95	60	27,6	4,31	20,73	21,42	22,16	22,95	24,74	2	1
3056290	2	1	22	1,6	4	1,95	60	25,8	2,31	22,8	23,56	24,37	25,25	-	2	1
3056291	2	1	25	1,6	4	1,95	65	28,8	2,06	25,9	26,77	27,7	28,7	-	2	1
3056292	2	1	25	1,6	6	1,95	65	32,6	3,63	25,9	26,77	27,7	28,7	30,95	2	1
3056293	2	1	30	1,6	4	1,95	70	33,8	1,75	31,07	32,12	33,24	-	-	2	1
3056294	2	1	35	1,6	4	1,95	70	38,8	1,52	36,24	37,46	38,78	-	-	2	1
3056295	2	1	40	1,6	4	1,95	80	43,8	1,34	41,4	42,81	-	-	-	2	1
3056296	2,5	1,25	6	2	4	2,35	45	9,1	5,44	6,44	6,63	6,82	7,03	7,51	2	1
3056297	2,5	1,25	8	2	4	2,35	45	11,1	4,35	8,51	8,77	9,04	9,33	9,99	2	1
3056298	2,5	1,25	10	2	4	2,35	45	13,1	3,62	10,58	10,9	11,25	11,63	12,48	2	1
3056299	2,5	1,25	15	2	4	2,35	50	18,1	2,55	15,75	16,25	16,8	17,38	-	2	1
3056300	2,5	1,25	20	2	4	2,35	55	23,1	1,97	20,92	21,6	22,34	-	-	2	1
3056301	2,5	1,25	25	2	4	2,35	65	28,1	1,61	26,08	26,95	27,88	-	-	2	1
3056302	2,5	1,25	30	2	4	2,35	70	33,1	1,35	31,25	32,3	-	-	-	2	1
3056303	2,5	1,25	35	2	4	2,35	70	38,1	1,17	36,42	37,65	-	-	-	2	1
3056304	3	1,5	6	2,4	6	2,85	50	11,9	8,15	6,44	6,61	6,79	7	7,45	2	1
3056305	3	1,5	8	2,4	6	2,85	50	13,9	6,87	8,5	8,75	9,01	9,29	9,93	2	1
3056306	3	1,5	10	2,4	6	2,85	50	15,9	5,93	10,57	10,89	11,23	11,59	12,42	2	1
3056307	3	1,5	12	2,4	6	2,85	55	17,9	5,22	12,64	13,03	13,44	13,89	14,91	2	1
3056308	3	1,5	13	2,4	6	2,85	55	18,9	4,92	13,67	14,1	14,55	15,04	16,15	2	1
3056309	3	1,5	14	2,4	6	2,85	55	19,9	4,66	14,71	15,17	15,66	16,19	17,39	2	1
3056310	3	1,5	15	2,4	6	2,85	55	20,9	4,42	15,74	16,24	16,77	17,34	18,63	2	1
3056311	3	1,5	16	2,4	6	2,85	55	21,9	4,2	16,77	17,31	17,88	18,49	19,88	2	1
3056312	3	1,5	20	2,4	6	2,85	60	25,9	3,52	20,91	21,58	22,31	23,09	24,85	2	1
3056313	3	1,5	25	2,4	6	2,85	65	30,9	2,92	26,08	26,93	27,85	28,84	-	2	1
3056314	3	1,5	30	2,4	6	2,85	70	35,9	2,5	31,24	32,28	33,39	34,59	-	2	1
3056315	3	1,5	35	2,4	6	2,85	80	40,9	2,18	36,41	37,63	38,94	40,34	-	2	1
3056316	3	1,5	40	2,4	6	2,85	90	45,9	1,94	41,58	42,98	44,48	-	-	2	1
3056317	3,5	1,75	10	2,8	6	3,35	50	14,9	5,38	10,56	10,87	11,2	11,56	12,36	2	1
3056318	3,5	1,75	15	2,8	6	3,35	55	19,9	3,92	15,73	16,22	16,74	17,31	18,58	2	1
3056319	3,5	1,75	16	2,8	6	3,35	55	20,9	3,72	16,76	17,29	17,85	18,46	19,82	2	1
3056320	3,5	1,75	20	2,8	6	3,35	60	24,9	3,08	20,9	21,57	22,28	23,06	24,79	2	1
3056321	3,5	1,75	25	2,8	6	3,35	65	29,9	2,54	26,07	26,92	27,83	28,81	-	2	1
3056322	3,5	1,75	30	2,8	6	3,35	70	34,9	2,16	31,24	32,26	33,37	34,55	-	2	1
3056323	3,5	1,75	35	2,8	6	3,35	80	39,9	1,88	36,4	37,61	38,91	-	-	2	1
3056324	3,5	1,75	40	2,8	6	3,35	90	44,9	1,66	41,57	42,96	44,45	-	-	2	1
3056325	3,5	1,75	45	2,8	6	3,35	90	49,9	1,49	46,74	48,31	-	-	-	2	1
3056326	4	2	8	3,2	4	3,85	55	-	-	-	-	-	-	-	2	2
3056327	4	2	8	3,2	6	3,85	55	12	5,65	8,49	8,71	8,96	9,22	9,81	2	1
3056328	4	2	10	3,2	6	3,85	60	14	4,73	10,55	10,85	11,17	11,52	12,3	2	1

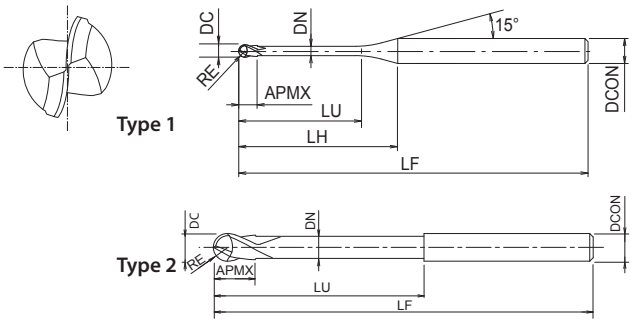
AE-LNBD-H

Milling | Solid carbide

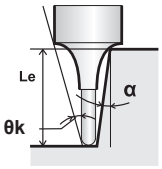
INDEX

NEW SIZE





- First choice in quality and performance
- Carbide end mill with DUROREY coating
- For hardened materials up to 70HRC
- 2 flutes, long neck, ball nose
- 262 sizes



P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | S | H ~60 HRC | H ~65 HRC | H ~70 HRC

A | CARBIDE | DUROREY | 30° | SHRINK FIT | SHANK h4 | R ± 0.003 ≤0,25 | R ± 0.005 0,25<R

C.917

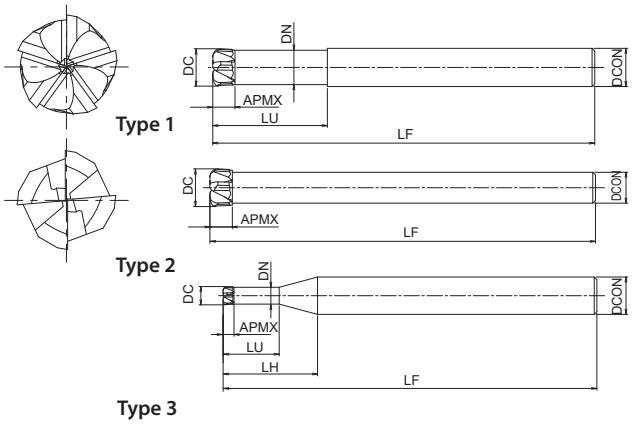
EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=3°)	ZEFP	Type
3056329	4	2	12	3,2	6	3,85	60	16	4,07	12,62	12,99	13,39	13,82	14,79	2	1
3056330	4	2	13	3,2	6	3,85	60	17	3,8	13,65	14,06	14,5	14,97	16,03	2	1
3056331	4	2	14	3,2	6	3,85	60	18	3,56	14,69	15,13	15,61	16,12	17,27	2	1
3056332	4	2	15	3,2	6	3,85	60	19	3,36	15,72	16,2	16,72	17,27	18,52	2	1
3056333	4	2	16	3,2	6	3,85	60	20	3,17	16,76	17,27	17,82	18,42	19,76	2	1
48363418 NEW	4	2	18	3,2	6	3,85	60	22	2,86	18,76	19,37	20	20,67	-	2	1
3056334	4	2	20	3,2	6	3,85	65	24	2,6	20,89	21,55	22,26	23,02	-	2	1
3056335	4	2	25	3,2	6	3,85	70	29	2,12	26,06	26,9	27,8	28,77	-	2	1
3056336	4	2	30	3,2	6	3,85	80	34	1,79	31,23	32,25	33,34	-	-	2	1
3056337	4	2	35	3,2	6	3,85	80	39	1,55	36,4	37,6	38,88	-	-	2	1
3056338	4	2	40	3,2	6	3,85	90	44	1,37	41,56	42,94	-	-	-	2	1
3056339	4	2	45	3,2	6	3,85	90	49	1,22	46,73	48,29	-	-	-	2	1
3056340	4	2	50	3,2	6	3,85	100	54	1,11	51,9	53,64	-	-	-	2	1
3056341	5	2,5	10	4	6	4,85	60	12,1	2,95	10,54	10,82	11,12	11,45	-	2	1
3056342	5	2,5	15	4	6	4,85	60	17,1	1,95	15,71	16,17	16,66	-	-	2	1
3056343	5	2,5	20	4	6	4,85	70	22,1	1,46	20,87	21,52	-	-	-	2	1
3056344	5	2,5	25	4	6	4,85	70	27,1	1,17	26,04	26,86	-	-	-	2	1
3056345	5	2,5	30	4	6	4,85	80	32,1	0,97	31,21	-	-	-	-	2	1
3056346	5	2,5	35	4	6	4,85	80	37,1	0,83	36,38	-	-	-	-	2	1
3056347	5	2,5	40	4	6	4,85	90	42,1	0,73	41,55	-	-	-	-	2	1
3056348	5	2,5	45	4	6	4,85	100	47,1	0,65	46,72	-	-	-	-	2	1
3056349	5	2,5	50	4	6	4,85	100	52,1	0,58	51,88	-	-	-	-	2	1
3056350	6	3	10	4,8	6	5,85	60	-	-	-	-	-	-	-	2	2
3056351	6	3	12	4,8	6	5,85	60	-	-	-	-	-	-	-	2	2
3056352	6	3	15	4,8	6	5,85	65	-	-	-	-	-	-	-	2	2
3056353	6	3	20	4,8	6	5,85	70	-	-	-	-	-	-	-	2	2
3056354	6	3	25	4,8	6	5,85	70	-	-	-	-	-	-	-	2	2
3056355	6	3	30	4,8	6	5,85	80	-	-	-	-	-	-	-	2	2
3056356	6	3	35	4,8	6	5,85	80	-	-	-	-	-	-	-	2	2
3056357	6	3	40	4,8	6	5,85	90	-	-	-	-	-	-	-	2	2
3056358	6	3	45	4,8	6	5,85	100	-	-	-	-	-	-	-	2	2
3056359	6	3	50	4,8	6	5,85	120	-	-	-	-	-	-	-	2	2
3056360	6	3	60	4,8	6	5,85	120	-	-	-	-	-	-	-	2	2

AE-CRE-H

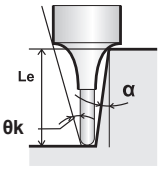
Milling | Solid carbide

INDEX





- First choice in quality and performance
- Carbide end mill with DUROREY coating
- For hardened materials up to 70HRC
- Multi flute with super radius



P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | S | H ~60 HRC | H ~65 HRC | H ~70 HRC

A | CARBIDE | DUROREY | R ± 0.005 | R ± 0.008 | SHRINK FIT | C.921

EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=3°)	ZEFP	Type
8550028	1	0,2	3	0,4	6	0,85	50	12,6	11,24	3,37	3,54	3,71	3,88	4,22	4	1
8550029	2	0,5	6	0,8	6	1,8	60	13,6	8,51	6,48	6,75	7	7,25	7,8	4	1
8550030	3	0,75	9	1,3	6	2,7	60	14,7	6,05	9,55	9,88	10,21	10,56	11,36	5	1
8550031	4	1	12	1,6	6	3,6	70	15,8	3,82	12,61	13,01	13,45	13,92	14,97	5	1
8550032	5	1,2	15	2	6	4,5	80	16,9	1,81	15,68	16,18	16,72	-	-	5	1
8550033	6	1,5	18	2,5	6	5,4	90	-	-	-	-	-	-	-	5	2
8550034	7	1,5	-	3	6	-	90	-	-	-	-	-	-	-	5	3
8550035	8	2	24	3,5	8	7,2	100	-	-	-	-	-	-	-	5	2
8550036	9	2	-	4	8	-	100	-	-	-	-	-	-	-	5	3
8550037	10	2	30	5	10	9	100	-	-	-	-	-	-	-	5	2
8550038	11	-	2	5	10	-	100	-	-	-	-	-	-	-	5	3
8550039	12	3	36	5	12	11	110	-	-	-	-	-	-	-	5	2
8550040	13	3	-	6	12	-	110	-	-	-	-	-	-	-	5	3



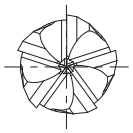
AE-HS-CRE-H

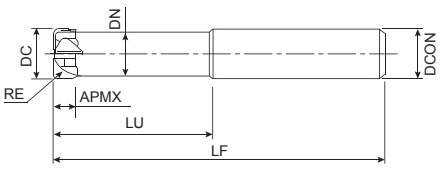
Milling | Solid carbide

INDEX

NEW

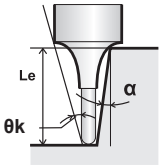






- First choice in quality and performance
- Carbide end mill with DUROREY coating
- For hardened steels up to 70HRC
- 5 flutes, shorter overall lenght









EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
48448267	6	1,5	12	2,4	6	5,4	50	5
48448367	6	1,5	18	2,4	6	5,4	50	5
48448467	6	1,5	24	2,4	6	5,4	50	5
48448289	8	2	16	3,2	8	7,2	60	5
48448389	8	2	24	3,2	8	7,2	60	5
48448489	8	2	32	3,2	8	7,2	60	5
48448209	10	2	20	4	10	9	70	5
48448309	10	2	30	4	10	9	70	5
48448509	10	2	40	4	10	9	70	5
48448233	12	3	24	4,8	12	11	80	5
48448333	12	3	36	4,8	12	11	80	5
48448533	12	3	48	4,8	12	11	80	5

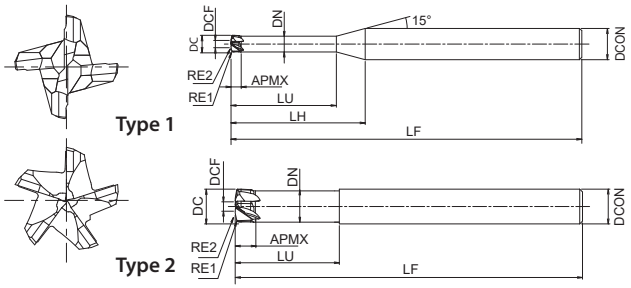


AE-HFE-H

Milling | Solid carbide

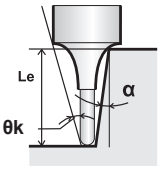
INDEX





- First choice in quality and performance
- Carbide end mill with DUROREY coating
- For hardened materials up to 70HRC
- For high feed milling









EDP	DC	RE	RE2	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=3°)	ZEFP	Type	DCF
8550019	1	0,1	0,49	3	0,4	6	0,85	60	12,6	11,33	3,16	3,33	3,5	3,66	4	4	1	0,36
8550020	2	0,15	0,98	6	0,8	6	1,8	60	13,6	8,46	6,29	6,56	6,82	7,07	7,63	4	1	0,73
8550021	3	0,2	1,46	9	1,3	6	2,7	60	14,7	5,95	9,36	9,7	10,04	10,4	11,22	5	1	1,10
8550022	4	0,2	1,95	12	1,6	6	3,6	70	15,8	3,71	12,42	12,85	13,3	13,78	14,87	5	1	1,50
8550023	5	0,2	2,44	15	2	6	4,5	80	16,9	1,74	15,5	16,02	16,59	-	-	5	1	1,87
8550024	6	0,2	2,93	18	2,5	6	5,4	90	-	-	-	-	-	-	-	5	2	2,24
8550025	8	0,3	3,9	24	3,5	8	7,2	100	-	-	-	-	-	-	-	5	2	2,99
8550026	10	0,3	4,88	30	4,5	10	9	110	-	-	-	-	-	-	-	5	2	3,83
8550027	12	0,3	5,85	36	5	12	11	135	-	-	-	-	-	-	-	5	2	4,59

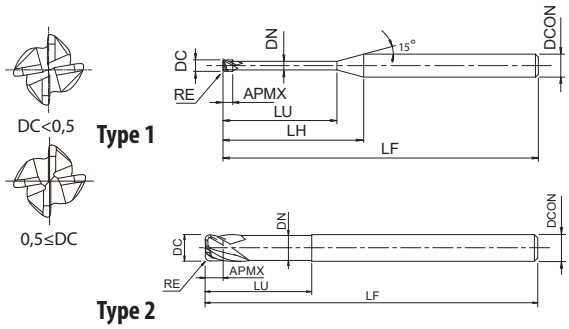


AE-CPR4-H

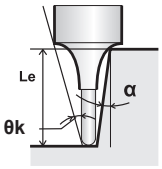
Milling | Solid carbide

INDEX





- First choice in quality and performance
- Carbide end mill with DUROREY coating
- For hardened materials up to 70HRC
- 4 flutes, unequal spacing. New spiral-shaped gash specification
- 312 sizes



P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | S | H ~60 HRC | H ~65 HRC | H ~70 HRC

A | CARBIDE | DUROREY | R ± 0.005 | SHANK h4 | SHRINK FIT | 30° | 0,5≤DC

C.924

EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=3°)	ZEFP	Type
8557470	0,2	0,02	0,5	0,15	4	0,18	45	7,7	13,88	0,53	0,57	0,61	0,65	0,73	4	1
8557471	0,2	0,02	1	0,15	4	0,18	45	8,2	13,07	1,06	1,13	1,2	1,26	1,38	4	1
8557472	0,2	0,02	1,5	0,15	4	0,18	45	8,7	12,34	1,6	1,69	1,77	1,85	2	4	1
8557473	0,2	0,02	2	0,15	4	0,18	45	9,2	11,69	2,12	2,24	2,33	2,43	2,62	4	1
8557474	0,2	0,05	0,5	0,15	4	0,18	45	7,7	13,93	0,53	0,56	0,6	0,64	0,72	4	1
8557475	0,2	0,05	1	0,15	4	0,18	45	8,2	13,11	1,06	1,13	1,19	1,25	1,37	4	1
8557476	0,2	0,05	1,5	0,15	4	0,18	45	8,7	12,37	1,59	1,68	1,77	1,84	1,99	4	1
8557477	0,2	0,05	2	0,15	4	0,18	45	9,2	11,72	2,12	2,23	2,33	2,42	2,61	4	1
8557478	0,3	0,02	1	0,25	4	0,28	45	8	13,02	1,06	1,13	1,2	1,26	1,38	4	1
8557479	0,3	0,02	1,5	0,25	4	0,28	45	8,5	12,28	1,6	1,69	1,77	1,85	2	4	1
8557480	0,3	0,02	2	0,25	4	0,28	45	9	11,62	2,12	2,24	2,33	2,43	2,62	4	1
8557481	0,3	0,02	2,5	0,25	4	0,28	45	9,5	11,02	2,65	2,78	2,89	3	3,24	4	1
8557482	0,3	0,02	3	0,25	4	0,28	45	10	10,48	3,18	3,32	3,45	3,58	3,87	4	1
8557483	0,3	0,05	1	0,25	4	0,28	45	8	13,06	1,06	1,13	1,19	1,25	1,37	4	1
8557484	0,3	0,05	1,5	0,25	4	0,28	45	8,5	12,32	1,59	1,68	1,77	1,84	1,99	4	1
8557485	0,3	0,05	2	0,25	4	0,28	45	9	11,65	2,12	2,23	2,33	2,42	2,61	4	1
8557486	0,3	0,05	2,5	0,25	4	0,28	45	9,5	11,05	2,65	2,78	2,89	3	3,24	4	1
8557487	0,3	0,05	3	0,25	4	0,28	45	10	10,51	3,18	3,32	3,44	3,57	3,86	4	1
8557488	0,4	0,02	1	0,3	4	0,37	45	8,2	12,41	1,08	1,17	1,28	1,38	1,62	4	1
8557489	0,4	0,02	1,5	0,3	4	0,37	45	8,7	11,71	1,62	1,76	1,89	2,03	2,32	4	1
8557490	0,4	0,02	2	0,3	4	0,37	45	9,2	11,09	2,16	2,33	2,5	2,67	3	4	1
8557491	0,4	0,02	2,5	0,3	4	0,37	45	9,7	10,53	2,7	2,9	3,1	3,29	3,66	4	1
8557492	0,4	0,02	3	0,3	4	0,37	45	10,2	10,03	3,24	3,47	3,69	3,9	4,31	4	1
8557493	0,4	0,02	4	0,3	4	0,37	45	11,2	9,15	4,31	4,59	4,85	5,1	5,57	4	1
8557494	0,4	0,05	1	0,3	4	0,37	45	8,2	12,45	1,08	1,17	1,27	1,37	1,6	4	1
8557495	0,4	0,05	1,5	0,3	4	0,37	45	8,7	11,75	1,62	1,75	1,89	2,03	2,31	4	1
8557496	0,4	0,05	2	0,3	4	0,37	45	9,2	11,12	2,16	2,33	2,49	2,66	2,99	4	1
8557497	0,4	0,05	2,5	0,3	4	0,37	45	9,7	10,56	2,7	2,9	3,09	3,28	3,65	4	1
8557498	0,4	0,05	3	0,3	4	0,37	45	10,2	10,05	3,24	3,46	3,68	3,89	4,3	4	1
8557499	0,4	0,05	4	0,3	4	0,37	45	11,2	9,17	4,31	4,59	4,85	5,1	5,56	4	1
8557500	0,4	0,1	1	0,3	4	0,37	45	8,2	12,51	1,07	1,16	1,26	1,36	1,58	4	1
8557501	0,4	0,1	2	0,3	4	0,37	45	9,2	11,18	2,16	2,32	2,48	2,65	2,98	4	1
8557502	0,4	0,1	3	0,3	4	0,37	45	10,2	10,1	3,23	3,46	3,67	3,88	4,29	4	1
8557503	0,4	0,1	4	0,3	4	0,37	45	11,2	9,21	4,3	4,58	4,84	5,09	5,55	4	1
8557504	0,5	0,02	1	0,4	4	0,46	45	8	12,39	1,08	1,17	1,26	1,37	1,59	4	1
8557505	0,5	0,02	2	0,4	4	0,46	45	9	11,04	2,16	2,32	2,48	2,64	2,97	4	1
8557506	0,5	0,02	3	0,4	4	0,46	45	10	9,96	3,23	3,45	3,67	3,87	4,27	4	1
8557507	0,5	0,02	4	0,4	4	0,46	45	11	9,07	4,3	4,57	4,83	5,07	5,53	4	1
8557508	0,5	0,02	5	0,4	4	0,46	45	12	8,32	5,36	5,68	5,98	6,25	6,77	4	1
8557509	0,5	0,02	6	0,4	4	0,46	45	13	7,69	6,42	6,79	7,11	7,41	8,02	4	1
8557510	0,5	0,05	1	0,4	4	0,46	45	8	12,43	1,08	1,16	1,26	1,36	1,58	4	1
8557511	0,5	0,05	2	0,4	4	0,46	45	9	11,08	2,15	2,31	2,47	2,64	2,96	4	1
8557512	0,5	0,05	3	0,4	4	0,46	45	10	9,99	3,23	3,45	3,66	3,87	4,27	4	1
8557513	0,5	0,05	4	0,4	4	0,46	45	11	9,09	4,3	4,57	4,82	5,07	5,52	4	1
8557514	0,5	0,05	5	0,4	4	0,46	45	12	8,34	5,36	5,68	5,97	6,25	6,77	4	1
8557515	0,5	0,05	6	0,4	4	0,46	45	13	7,71	6,42	6,79	7,11	7,41	8,01	4	1

* If there is no value in the actual effective length (Le column) for the work gradient angle α, it indicates no interference.

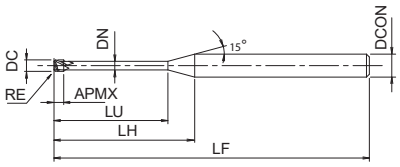
AE-CPR4-H

Milling | Solid carbide

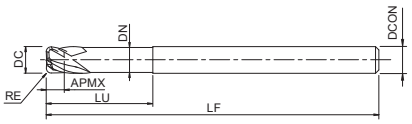




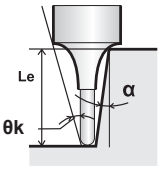
Type 1



Type 2



- First choice in quality and performance
- Carbide end mill with DUROREY coating
- For hardened materials up to 70HRC
- 4 flutes, unequal spacing. New spiral-shaped gash specification
- 312 sizes



P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | S | H ~60 HRC | H ~65 HRC | H ~70 HRC

A | CARBIDE | DUROREY | R ± 0.005 | SHANK h4 | SHRINK FIT | 30° | 0,5≤DC

C.924

EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=3°)	ZEFP	Type
8557516	0,5	0,1	1	0,4	4	0,46	45	8	12,5	1,07	1,15	1,24	1,34	1,55	4	1
8557517	0,5	0,1	2	0,4	4	0,46	45	9	11,13	2,15	2,31	2,46	2,62	2,95	4	1
8557518	0,5	0,1	3	0,4	4	0,46	45	10	10,03	3,22	3,44	3,65	3,86	4,25	4	1
8557519	0,5	0,1	4	0,4	4	0,46	45	11	9,13	4,29	4,56	4,82	5,06	5,51	4	1
8557520	0,5	0,1	5	0,4	4	0,46	45	12	8,37	5,36	5,68	5,97	6,24	6,76	4	1
8557521	0,5	0,1	6	0,4	4	0,46	45	13	7,73	6,42	6,78	7,1	7,4	8	4	1
8544821	0,6	0,1	1	0,48	4	0,55	45	7,8	12,48	1,07	1,15	1,23	1,33	1,53	4	1
8544824	0,6	0,05	1	0,48	4	0,55	45	7,8	12,41	1,07	1,16	1,25	1,34	1,55	4	1
8544825	0,6	0,05	2	0,48	4	0,55	45	8,8	11,02	2,15	2,3	2,46	2,62	2,93	4	1
8544826	0,6	0,05	4	0,48	4	0,55	45	10,8	9,01	4,28	4,55	4,8	5,04	5,49	4	1
8544827	0,6	0,05	6	0,48	4	0,55	45	12,8	7,61	6,41	6,76	7,08	7,38	7,98	4	1
8557522	0,6	0,1	2	0,48	4	0,55	45	8,8	11,08	2,14	2,29	2,45	2,6	2,92	4	1
8557523	0,6	0,1	4	0,48	4	0,55	45	10,8	9,05	4,28	4,55	4,79	5,03	5,48	4	1
8557524	0,6	0,1	6	0,48	4	0,55	45	12,8	7,64	6,41	6,76	7,08	7,37	7,97	4	1
8544828	0,7	0,02	1,5	0,55	4	0,65	45	8,1	11,56	1,61	1,74	1,86	1,99	2,27	4	1
8544829	0,7	0,05	1,5	0,55	4	0,65	45	8,1	11,6	1,61	1,73	1,86	1,99	2,26	4	1
8557525	0,7	0,02	2	0,55	4	0,65	45	8,6	10,9	2,15	2,31	2,46	2,62	2,94	4	1
8557526	0,7	0,02	4	0,55	4	0,65	45	10,6	8,88	4,29	4,55	4,81	5,05	5,5	4	1
8557527	0,7	0,02	6	0,55	4	0,65	45	12,6	7,48	6,41	6,77	7,09	7,38	7,98	4	1
8557528	0,7	0,05	2	0,55	4	0,65	45	8,6	10,94	2,15	2,3	2,46	2,62	2,93	4	1
8557529	0,7	0,05	4	0,55	4	0,65	45	10,6	8,9	4,28	4,55	4,8	5,04	5,49	4	1
8557530	0,7	0,05	6	0,55	4	0,65	45	12,6	7,5	6,41	6,76	7,08	7,38	7,98	4	1
8557531	0,7	0,1	2	0,55	4	0,65	45	8,6	10,99	2,14	2,29	2,45	2,6	2,92	4	1
8557532	0,7	0,1	4	0,55	4	0,65	45	10,6	8,94	4,28	4,55	4,79	5,03	5,48	4	1
8557533	0,7	0,1	6	0,55	4	0,65	45	12,6	7,53	6,41	6,76	7,08	7,37	7,97	4	1
8544822	0,8	0,1	2	0,65	4	0,75	45	8,4	10,9	2,14	2,29	2,45	2,6	2,92	4	1
8544823	0,8	0,2	2	0,65	4	0,75	45	8,4	11,02	2,14	2,28	2,43	2,58	2,88	4	1
8544830	0,8	0,05	2	0,65	4	0,75	45	8,4	10,84	2,15	2,3	2,46	2,62	2,93	4	1
8544832	0,8	0,05	4	0,65	4	0,75	45	10,4	8,79	4,28	4,55	4,8	5,04	5,49	4	1
8544833	0,8	0,05	6	0,65	4	0,75	45	12,4	7,38	6,41	6,76	7,08	7,38	7,98	4	1
8557534	0,8	0,1	4	0,65	4	0,75	45	10,4	8,83	4,28	4,55	4,79	5,03	5,48	4	1
8557535	0,8	0,1	6	0,65	4	0,75	45	12,4	7,41	6,41	6,76	7,08	7,37	7,97	4	1
8557536	0,8	0,2	4	0,65	4	0,75	45	10,4	8,9	4,28	4,53	4,78	5,01	5,46	4	1
8557537	0,8	0,2	6	0,65	4	0,75	45	12,4	7,47	6,4	6,75	7,06	7,36	7,94	4	1
8557538	0,8	0,2	8	0,65	4	0,75	45	14,4	6,43	8,52	8,94	9,31	9,66	10,43	4	1
8557539	0,9	0,1	4	0,7	4	0,85	45	10,2	8,71	4,28	4,55	4,79	5,03	5,48	4	1
8557540	0,9	0,1	8	0,7	4	0,85	45	14,2	6,27	8,52	8,95	9,32	9,67	10,45	4	1
8544831	1	0,05	2	0,8	4	0,94	45	8	10,68	2,14	2,29	2,44	2,6	2,91	4	1
8544834	1	0,1	2	0,8	4	0,94	45	8	10,74	2,14	2,28	2,43	2,58	2,89	4	1
8544835	1	0,02	2	0,8	4	0,94	45	8	10,64	2,14	2,3	2,45	2,6	2,92	4	1
8544836	1	0,02	3	0,8	4	0,94	45	9	9,48	3,21	3,42	3,63	3,83	4,21	4	1
8544837	1	0,2	2	0,8	4	0,94	45	8	10,86	2,13	2,27	2,41	2,56	2,86	4	1
8544838	1	0,02	4	0,8	4	0,94	45	10	8,55	4,28	4,54	4,79	5,02	5,47	4	1
8544839	1	0,02	6	0,8	4	0,94	45	12	7,14	6,4	6,75	7,06	7,36	7,95	4	1
8544840	1	0,3	2	0,8	4	0,94	45	8	10,98	2,12	2,26	2,39	2,54	2,83	4	1
8544841	1	0,02	8	0,8	4	0,94	45	14	6,13	8,51	8,93	9,31	9,66	10,44	4	1

* If there is no value in the actual effective length (Le column) for the work gradient angle α, it indicates no interference.

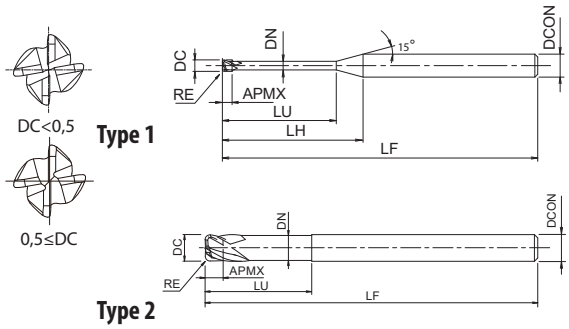


AE-CPR4-H

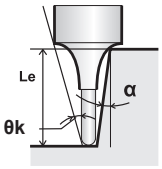
Milling | Solid carbide

INDEX





- First choice in quality and performance
- Carbide end mill with DURAREY coating
- For hardened materials up to 70HRC
- 4 flutes, unequal spacing. New spiral-shaped gash specification
- 312 sizes



P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | S | H ~60 HRC | H ~65 HRC | H ~70 HRC

A | CARBIDE | DURAREY | R ±0.005 | SHANK h4 | SHRINK FIT | 30° | 0,5≤DC

C.924

EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=3°)	ZEFP	Type
8544842	1	0,02	10	0,8	4	0,94	45	16	5,37	10,62	11,1	11,53	11,96	12,93	4	1
8544843	1	0,05	3	0,8	4	0,94	45	9	9,51	3,21	3,42	3,62	3,82	4,21	4	1
8544844	1	0,1	3	0,8	4	0,94	45	9	9,56	3,21	3,41	3,61	3,81	4,19	4	1
8544845	1	0,1	16	0,8	4	0,94	55	22	3,92	16,89	17,54	18,17	18,84	20,37	4	1
8544846	1	0,1	20	0,8	4	0,94	55	26	3,32	21,06	21,82	22,6	23,44	25,34	4	1
8544847	1	0,2	3	0,8	4	0,94	45	9	9,66	3,2	3,4	3,6	3,79	4,17	4	1
8544848	1	0,3	3	0,8	4	0,94	45	9	9,75	3,19	3,39	3,58	3,77	4,14	4	1
8544849	1	0,3	16	0,8	4	0,94	55	22	3,96	16,88	17,52	18,15	18,82	20,32	4	1
8544850	1	0,3	20	0,8	4	0,94	55	26	3,34	21,05	21,8	22,58	23,41	25,29	4	1
8557541	1	0,05	4	0,8	4	0,94	45	10	8,57	4,28	4,54	4,78	5,02	5,46	4	1
8557542	1	0,05	6	0,8	4	0,94	45	12	7,16	6,4	6,75	7,06	7,35	7,95	4	1
8557543	1	0,05	8	0,8	4	0,94	45	14	6,14	8,51	8,93	9,3	9,65	10,43	4	1
8557544	1	0,05	10	0,8	4	0,94	45	16	5,38	10,61	11,1	11,52	11,95	12,92	4	1
8557545	1	0,05	12	0,8	4	0,94	45	18	4,78	12,71	13,26	13,74	14,25	15,41	4	1
8557546	1	0,1	4	0,8	4	0,94	45	10	8,61	4,27	4,53	4,77	5,01	5,45	4	1
8557547	1	0,1	6	0,8	4	0,94	45	12	7,18	6,39	6,74	7,05	7,34	7,93	4	1
8557548	1	0,1	8	0,8	4	0,94	45	14	6,16	8,51	8,93	9,3	9,65	10,42	4	1
8557549	1	0,1	10	0,8	4	0,94	45	16	5,39	10,61	11,1	11,52	11,95	12,91	4	1
8557550	1	0,1	12	0,8	4	0,94	45	18	4,79	12,71	13,25	13,73	14,25	15,39	4	1
8557551	1	0,2	4	0,8	4	0,94	45	10	8,69	4,27	4,52	4,76	4,99	5,42	4	1
8557552	1	0,2	6	0,8	4	0,94	45	12	7,24	6,39	6,73	7,04	7,33	7,91	4	1
8557553	1	0,2	8	0,8	4	0,94	45	14	6,2	8,5	8,92	9,29	9,63	10,4	4	1
8557554	1	0,2	10	0,8	4	0,94	45	16	5,42	10,61	11,09	11,51	11,93	12,88	4	1
8557555	1	0,2	12	0,8	4	0,94	45	18	4,82	12,7	13,24	13,72	14,23	15,37	4	1
8557556	1	0,2	16	0,8	4	0,94	55	22	3,94	16,89	17,53	18,16	18,83	20,34	4	1
8557557	1	0,2	20	0,8	4	0,94	55	26	3,33	21,05	21,81	22,59	23,43	25,32	4	1
8557558	1	0,3	4	0,8	4	0,94	45	10	8,77	4,26	4,51	4,74	4,97	5,4	4	1
8557559	1	0,3	6	0,8	4	0,94	45	12	7,3	6,38	6,72	7,03	7,31	7,89	4	1
8557560	1	0,3	8	0,8	4	0,94	45	14	6,24	8,5	8,91	9,27	9,62	10,37	4	1
8557561	1	0,3	10	0,8	4	0,94	45	16	5,46	10,6	11,08	11,5	11,92	12,86	4	1
8557562	1	0,3	12	0,8	4	0,94	45	18	4,84	12,7	13,24	13,71	14,22	15,35	4	1
8557563	1,2	0,2	6	1	4	1,14	45	11,6	6,98	6,39	6,73	7,04	7,33	7,91	4	1
8557564	1,2	0,2	8	1	4	1,14	45	13,6	5,95	8,5	8,92	9,29	9,63	10,4	4	1
8557565	1,2	0,2	10	1	4	1,14	45	15,6	5,19	10,61	11,09	11,51	11,93	12,88	4	1
8557566	1,2	0,3	6	1	4	1,14	45	11,6	7,04	6,38	6,72	7,03	7,31	7,89	4	1
8557567	1,2	0,3	8	1	4	1,14	45	13,6	5,99	8,5	8,91	9,27	9,62	10,37	4	1
8557568	1,2	0,3	10	1	4	1,14	45	15,6	5,22	10,6	11,08	11,5	11,92	12,86	4	1
8544851	1,5	0,05	3	1,2	4	1,43	45	8	8,88	3,2	3,41	3,6	3,8	4,18	4	1
8544852	1,5	0,05	4	1,2	4	1,43	45	9	7,91	4,27	4,52	4,76	4,99	5,43	4	1
8544853	1,5	0,05	6	1,2	4	1,43	45	11	6,49	6,39	6,73	7,04	7,33	7,92	4	1
8544854	1,5	0,05	8	1,2	4	1,43	45	13	5,5	8,5	8,91	9,28	9,63	10,4	4	1
8544855	1,5	0,05	10	1,2	4	1,43	45	15	4,77	10,6	11,08	11,5	11,93	12,89	4	1
8544856	1,5	0,05	12	1,2	4	1,43	45	17	4,21	12,7	13,23	13,71	14,23	15,38	4	1
8544857	1,5	0,05	16	1,2	4	1,43	50	21	3,41	16,87	17,52	18,15	18,83	20,35	4	1
8544858	1,5	0,1	4	1,2	4	1,43	45	9	7,95	4,26	4,52	4,75	4,98	5,42	4	1
8544859	1,5	0,1	6	1,2	4	1,43	45	11	6,52	6,38	6,72	7,03	7,32	7,91	4	1

* If there is no value in the actual effective length (Le column) for the work gradient angle α, it indicates no interference.

AE-CPR4-H

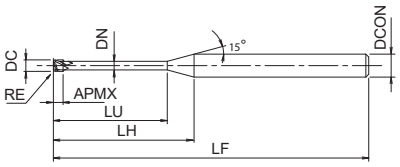
Milling | Solid carbide

INDEX

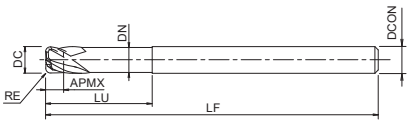




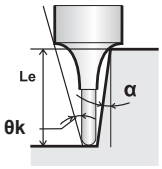
Type 1



Type 2



- First choice in quality and performance
- Carbide end mill with DUROREY coating
- For hardened materials up to 70HRC
- 4 flutes, unequal spacing. New spiral-shaped gash specification
- 312 sizes



P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | S | H ~60 HRC | H ~65 HRC | H ~70 HRC

A | CARBIDE | DUROREY | R ± 0.005 | SHANK h4 | SHRINK FIT | 30° | 0,5≤DC

C.924

EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=3°)	ZEFP	Type
8544860	1,5	0,1	8	1,2	4	1,43	45	13	5,52	8,49	8,91	9,27	9,62	10,39	4	1
8544861	1,5	0,1	10	1,2	4	1,43	45	15	4,78	10,6	11,07	11,49	11,92	12,88	4	1
8544862	1,5	0,1	12	1,2	4	1,43	45	17	4,22	12,69	13,23	13,71	14,22	15,36	4	1
8544863	1,5	0,1	16	1,2	4	1,43	50	21	3,42	16,87	17,51	18,14	18,82	20,34	4	1
8544864	1,5	0,1	3	1,2	4	1,43	45	8	8,93	3,2	3,4	3,6	3,79	4,16	4	1
8544865	1,5	0,2	4	1,2	4	1,43	45	9	8,03	4,26	4,5	4,74	4,97	5,4	4	1
8544866	1,5	0,2	3	1,2	4	1,43	45	8	9,04	3,19	3,39	3,58	3,77	4,14	4	1
8544867	1,5	0,3	4	1,2	4	1,43	45	9	8,12	4,25	4,49	4,72	4,95	5,37	4	1
8544868	1,5	0,3	3	1,2	4	1,43	45	8	9,14	3,19	3,38	3,56	3,75	4,11	4	1
8544869	1,5	0,5	3	1,2	4	1,43	45	8	9,36	3,17	3,35	3,53	3,71	4,06	4	1
8544870	1,5	0,5	4	1,2	4	1,43	45	9	8,29	4,24	4,47	4,69	4,91	5,32	4	1
8544871	1,5	0,5	6	1,2	4	1,43	45	11	6,74	6,36	6,68	6,98	7,26	7,81	4	1
8544872	1,5	0,5	8	1,2	4	1,43	45	13	5,68	8,47	8,87	9,23	9,56	10,3	4	1
8544873	1,5	0,5	10	1,2	4	1,43	45	15	4,91	10,58	11,04	11,45	11,86	12,78	4	1
8544874	1,5	0,5	12	1,2	4	1,43	45	17	4,32	12,67	13,2	13,67	14,16	15,27	4	1
8544875	1,5	0,5	16	1,2	4	1,43	50	21	3,48	16,85	17,48	18,1	18,76	20,24	4	1
8557569	1,5	0,2	6	1,2	4	1,43	45	11	6,57	6,38	6,71	7,02	7,3	7,88	4	1
8557570	1,5	0,2	8	1,2	4	1,43	45	13	5,56	8,49	8,9	9,26	9,6	10,37	4	1
8557571	1,5	0,2	10	1,2	4	1,43	45	15	4,81	10,59	11,07	11,48	11,9	12,85	4	1
8557572	1,5	0,2	12	1,2	4	1,43	45	17	4,25	12,69	13,22	13,7	14,2	15,34	4	1
8557573	1,5	0,2	16	1,2	4	1,43	50	21	3,44	16,87	17,51	18,13	18,8	20,31	4	1
8557574	1,5	0,3	6	1,2	4	1,43	45	11	6,63	6,37	6,7	7,01	7,29	7,86	4	1
8557575	1,5	0,3	8	1,2	4	1,43	45	13	5,6	8,48	8,89	9,25	9,59	10,34	4	1
8557576	1,5	0,3	10	1,2	4	1,43	45	15	4,85	10,59	11,06	11,47	11,89	12,83	4	1
8557577	1,5	0,3	12	1,2	4	1,43	45	17	4,27	12,68	13,21	13,69	14,19	15,32	4	1
8557578	1,5	0,3	16	1,2	4	1,43	50	21	3,45	16,86	17,5	18,12	18,79	20,29	4	1
8544876	2	0,05	4	1,6	4	1,92	50	8,1	7,09	4,26	4,51	4,74	4,97	5,4	4	1
8544877	2	0,05	6	1,6	4	1,92	50	10,1	5,69	6,38	6,71	7,02	7,3	7,89	4	1
8544878	2	0,05	8	1,6	4	1,92	50	12,1	4,75	8,48	8,89	9,25	9,6	10,38	4	1
8544879	2	0,05	10	1,6	4	1,92	50	14,1	4,08	10,58	11,06	11,47	11,9	12,86	4	1
8544880	2	0,05	12	1,6	4	1,92	50	16,1	3,57	12,68	13,21	13,69	14,2	15,35	4	1
8544881	2	0,05	16	1,6	4	1,92	50	20,1	2,86	16,86	17,49	18,12	18,8	-	4	1
8544882	2	0,05	20	1,6	4	1,92	60	24,1	2,39	21,02	21,77	22,56	23,4	-	4	1
8544883	2	0,1	6	1,6	4	1,92	50	10,1	5,72	6,37	6,71	7,01	7,29	7,88	4	1
8544884	2	0,2	6	1,6	4	1,92	50	10,1	5,77	6,37	6,7	7	7,28	7,86	4	1
8544885	2	0,3	6	1,6	4	1,92	50	10,1	5,83	6,36	6,69	6,98	7,26	7,83	4	1
8544886	2	0,5	6	1,6	4	1,92	50	10,1	5,94	6,35	6,67	6,96	7,23	7,78	4	1
8544889	2	0,1	4	1,6	4	1,92	50	8,1	7,13	4,26	4,5	4,74	4,96	5,39	4	1
8544891	2	0,2	4	1,6	4	1,92	50	8,1	7,21	4,25	4,49	4,72	4,94	5,37	4	1
8544893	2	0,3	4	1,6	4	1,92	50	8,1	7,3	4,24	4,48	4,71	4,93	5,35	4	1
8544895	2	0,5	4	1,6	4	1,92	50	8,1	7,48	4,23	4,46	4,68	4,89	5,3	4	1
8557579	2	0,1	8	1,6	4	1,92	50	12,1	4,77	8,48	8,89	9,25	9,59	10,37	4	1
8557580	2	0,1	10	1,6	4	1,92	50	14,1	4,09	10,58	11,05	11,47	11,89	12,85	4	1
8557581	2	0,1	12	1,6	4	1,92	50	16,1	3,58	12,68	13,21	13,68	14,19	15,34	4	1
8557582	2	0,1	16	1,6	4	1,92	50	20,1	2,87	16,85	17,49	18,12	18,79	-	4	1
8557583	2	0,1	20	1,6	4	1,92	60	24,1	2,39	21,02	21,77	22,55	23,39	-	4	1

* If there is no value in the actual effective length (Le column) for the work gradient angle α, it indicates no interference.

AE-CPR4-H

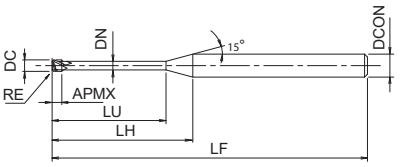
Milling | Solid carbide

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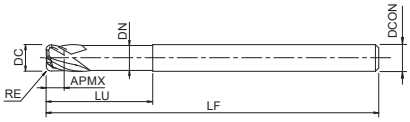




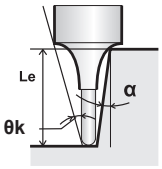
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A | CARBIDE | DUROREY | R ± 0.005 | SHANK h4 | SHRINK FIT | 30° | 0,5≤DC

C.924

EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=3°)	ZEFP	Type
8557584	2	0,1	25	1,6	4	1,92	60	29,1	1,98	26,2	27,12	28,09	-	-	4	1
8557585	2	0,2	8	1,6	4	1,92	50	12,1	4,81	8,48	8,88	9,24	9,58	10,34	4	1
8557586	2	0,2	10	1,6	4	1,92	50	14,1	4,12	10,58	11,05	11,46	11,88	12,83	4	1
8557587	2	0,2	12	1,6	4	1,92	50	16,1	3,6	12,67	13,2	13,67	14,18	15,31	4	1
8557588	2	0,2	16	1,6	4	1,92	50	20,1	2,88	16,85	17,48	18,11	18,78	-	4	1
8557589	2	0,2	20	1,6	4	1,92	60	24,1	2,4	21,01	21,76	22,54	23,38	-	4	1
8557590	2	0,2	25	1,6	4	1,92	60	29,1	1,99	26,2	27,11	28,08	-	-	4	1
8557591	2	0,3	8	1,6	4	1,92	50	12,1	4,85	8,47	8,87	9,23	9,56	10,32	4	1
8557592	2	0,3	10	1,6	4	1,92	50	14,1	4,15	10,57	11,04	11,45	11,86	12,8	4	1
8557593	2	0,3	12	1,6	4	1,92	50	16,1	3,63	12,67	13,19	13,66	14,16	15,29	4	1
8557594	2	0,3	16	1,6	4	1,92	50	20,1	2,9	16,85	17,48	18,1	18,76	-	4	1
8557595	2	0,3	20	1,6	4	1,92	60	24,1	2,41	21,01	21,75	22,53	23,36	-	4	1
8557596	2	0,5	8	1,6	4	1,92	50	12,1	4,93	8,46	8,85	9,2	9,54	10,27	4	1
8557597	2	0,5	10	1,6	4	1,92	50	14,1	4,21	10,56	11,02	11,42	11,83	12,76	4	1
8557598	2	0,5	12	1,6	4	1,92	50	16,1	3,67	12,66	13,18	13,64	14,13	15,24	4	1
8557599	2	0,5	16	1,6	4	1,92	50	20,1	2,92	16,84	17,46	18,07	18,73	-	4	1
8557600	2	0,5	20	1,6	4	1,92	60	24,1	2,43	21	21,74	22,51	23,33	-	4	1
8557601	2	0,5	25	1,6	4	1,92	60	29,1	2,01	26,19	27,09	28,05	29,08	-	4	1
8544887	2,5	0,1	10	2	4	2,4	55	13,1	3,3	10,56	11,02	11,42	11,85	12,8	4	1
8544888	2,5	0,1	20	2	4	2,4	55	23,1	1,87	20,98	21,73	22,51	-	-	4	1
8544890	2,5	0,1	30	2	4	2,4	70	33,1	1,31	31,33	32,42	-	-	-	4	1
8544892	2,5	0,2	30	2	4	2,4	70	33,1	1,31	31,33	32,42	-	-	-	4	1
8544894	2,5	0,3	10	2	4	2,4	55	13,1	3,35	10,55	11	11,4	11,82	12,75	4	1
8544896	2,5	0,3	20	2	4	2,4	55	23,1	1,89	20,97	21,71	22,48	-	-	4	1
8544897	2,5	0,3	30	2	4	2,4	70	33,1	1,31	31,33	32,41	-	-	-	4	1
8544898	2,5	0,5	30	2	4	2,4	70	33,1	1,32	31,32	32,39	-	-	-	4	1
8557602	2,5	0,2	10	2	4	2,4	55	13,1	3,33	10,55	11,01	11,41	11,83	12,78	4	1
8557603	2,5	0,2	20	2	4	2,4	55	23,1	1,88	20,98	21,72	22,5	-	-	4	1
8557604	2,5	0,5	10	2	4	2,4	55	13,1	3,4	10,54	10,98	11,38	11,79	12,71	4	1
8557605	2,5	0,5	20	2	4	2,4	55	23,1	1,9	20,97	21,7	22,46	-	-	4	1
8544899	3	0,1	4	2,5	6	2,85	55	9,8	8,76	4,22	4,43	4,64	4,84	5,24	4	1
8544900	3	0,1	6	2,5	6	2,85	55	11,8	7,28	6,32	6,61	6,89	7,15	7,73	4	1
8544901	3	0,1	8	2,5	6	2,85	55	13,8	6,23	8,41	8,78	9,12	9,45	10,21	4	1
8544902	3	0,1	10	2,5	6	2,85	55	15,8	5,45	10,5	10,94	11,33	11,75	12,7	4	1
8544903	3	0,1	12	2,5	6	2,85	55	17,8	4,84	12,59	13,08	13,55	14,05	15,19	4	1
8544904	3	0,1	16	2,5	6	2,85	55	21,8	3,95	16,75	17,36	17,98	18,65	20,16	4	1
8544905	3	0,1	20	2,5	6	2,85	55	25,8	3,34	20,91	21,64	22,42	23,25	25,13	4	1
8544906	3	0,1	25	2,5	6	2,85	70	30,8	2,8	26,08	26,99	27,96	29	-	4	1
8544907	3	0,2	4	2,5	6	2,85	55	9,8	8,84	4,21	4,42	4,62	4,82	5,22	4	1
8544908	3	0,2	10	2,5	6	2,85	55	15,8	5,48	10,5	10,93	11,32	11,74	12,68	4	1
8544909	3	0,3	4	2,5	6	2,85	55	9,8	8,92	4,2	4,41	4,61	4,81	5,19	4	1
8544910	3	0,3	8	2,5	6	2,85	55	13,8	6,32	8,4	8,77	9,09	9,42	10,17	4	1
8544911	3	0,3	10	2,5	6	2,85	55	15,8	5,51	10,5	10,92	11,31	11,72	12,65	4	1
8544912	3	0,5	4	2,5	6	2,85	55	9,8	9,09	4,19	4,39	4,58	4,77	5,15	4	1
8544913	3	0,5	8	2,5	6	2,85	55	13,8	6,41	8,39	8,75	9,07	9,4	10,12	4	1
8544914	3	0,5	10	2,5	6	2,85	55	15,8	5,58	10,49	10,91	11,29	11,69	12,61	4	1

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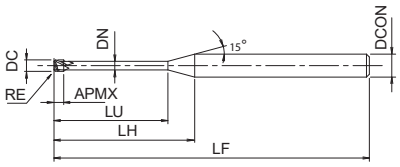
AE-CPR4-H

Milling | Solid carbide

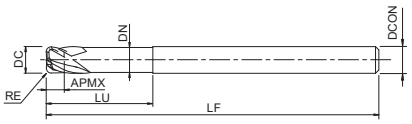




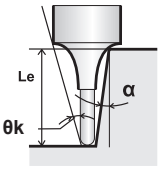
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EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=3°)	ZEFP	Type
8544921	3	0,2	6	2,5	6	2,85	55	11,8	7,34	6,31	6,6	6,88	7,14	7,7	4	1
8544924	3	0,3	6	2,5	6	2,85	55	11,8	6	6,31	6,6	6,87	7,12	7,68	4	1
8544928	3	0,5	6	2,5	6	2,85	55	11,8	6	6,3	6,58	6,84	7,1	7,63	4	1
8557606	3	0,2	8	2,5	6	2,85	55	13,8	6,28	8,41	8,77	9,11	9,44	10,19	4	1
8557607	3	0,2	12	2,5	6	2,85	55	17,8	4,86	12,59	13,07	13,54	14,04	15,16	4	1
8557608	3	0,2	16	2,5	6	2,85	55	21,8	3,97	16,75	17,35	17,97	18,64	20,14	4	1
8557609	3	0,2	20	2,5	6	2,85	55	25,8	3,35	20,9	21,63	22,4	23,24	25,11	4	1
8557610	3	0,2	25	2,5	6	2,85	70	30,8	2,81	26,08	26,98	27,95	28,99	-	4	1
8557611	3	0,2	30	2,5	6	2,85	70	35,8	2,41	31,25	32,33	33,49	34,74	-	4	1
8557612	3	0,2	35	2,5	6	2,85	70	40,8	2,12	36,41	37,68	39,03	40,49	-	4	1
8557613	3	0,3	12	2,5	6	2,85	55	17,8	4,89	12,58	13,07	13,53	14,02	15,14	4	1
8557614	3	0,3	16	2,5	6	2,85	55	21,8	3,99	16,75	17,34	17,96	18,62	20,11	4	1
8557615	3	0,3	20	2,5	6	2,85	55	25,8	3,37	20,9	21,62	22,39	23,22	25,08	4	1
8557616	3	0,3	25	2,5	6	2,85	70	30,8	2,82	26,07	26,97	27,94	28,97	-	4	1
8557617	3	0,3	30	2,5	6	2,85	70	35,8	2,42	31,24	32,32	33,48	34,72	-	4	1
8557618	3	0,3	35	2,5	6	2,85	70	40,8	2,12	36,41	37,67	39,02	40,47	-	4	1
8557619	3	0,5	12	2,5	6	2,85	55	17,8	4,94	12,57	13,05	13,51	13,99	15,09	4	1
8557620	3	0,5	16	2,5	6	2,85	55	21,8	4,02	16,74	17,33	17,94	18,59	20,06	4	1
8557621	3	0,5	20	2,5	6	2,85	55	25,8	3,39	20,89	21,61	22,37	23,19	25,04	4	1
8557622	3	0,5	25	2,5	6	2,85	70	30,8	2,83	26,07	26,96	27,91	28,94	-	4	1
8557623	3	0,5	30	2,5	6	2,85	70	35,8	2,43	31,24	32,31	33,46	34,69	-	4	1
8557624	3	0,5	35	2,5	6	2,85	70	40,8	2,13	36,4	37,66	39	40,44	-	4	1
8544915	4	0,1	8	3,2	6	3,84	60	12	4,82	8,41	8,77	9,1	9,44	10,2	4	1
8544916	4	0,1	12	3,2	6	3,84	60	16	3,61	12,58	13,07	13,53	14,04	15,17	4	1
8544917	4	0,1	16	3,2	6	3,84	60	20	2,89	16,74	17,34	17,97	18,64	-	4	1
8544918	4	0,1	20	3,2	6	3,84	60	24	2,41	20,89	21,62	22,4	23,24	-	4	1
8544919	4	0,1	25	3,2	6	3,84	60	29	1,99	26,07	26,97	27,94	-	-	4	1
8544920	4	0,1	30	3,2	6	3,84	75	34	1,7	31,23	32,32	33,48	-	-	4	1
8544943	4	0,2	8	3,2	6	3,84	60	12	8	8,4	8,76	9,09	9,42	10,17	4	1
8544944	4	0,2	12	3,2	6	3,84	60	16	12	12,58	13,06	13,52	14,02	15,15	4	1
8544945	4	0,3	8	3,2	6	3,84	60	12	8	8,4	8,75	9,08	9,41	10,15	4	1
8544946	4	0,3	12	3,2	6	3,84	60	16	12	12,57	13,05	13,51	14,01	15,12	4	1
8544947	4	0,5	8	3,2	6	3,84	60	12	8	8,39	8,74	9,06	9,38	10,1	4	1
8544948	4	0,5	12	3,2	6	3,84	60	16	12	12,56	13,04	13,49	13,98	15,07	4	1
8544949	4	1	8	3,2	6	3,84	60	12	8	8,36	8,7	9	9,31	9,98	4	1
8544950	4	1	12	3,2	6	3,84	60	16	12	12,54	13	13,44	13,9	14,96	4	1
8557625	4	0,2	16	3,2	6	3,84	60	20	2,9	16,74	17,34	17,96	18,62	-	4	1
8557626	4	0,2	20	3,2	6	3,84	60	24	2,41	20,89	21,62	22,39	23,22	-	4	1
8557627	4	0,2	25	3,2	6	3,84	60	29	2	26,06	26,96	27,93	-	-	4	1
8557628	4	0,2	30	3,2	6	3,84	75	34	1,7	31,23	32,31	33,47	-	-	4	1
8557629	4	0,2	40	3,2	6	3,84	75	44	1,31	41,57	43,01		-	-	4	1
8557630	4	0,3	16	3,2	6	3,84	60	20	2,92	16,74	17,33	17,95	18,61	-	4	1
8557631	4	0,3	20	3,2	6	3,84	60	24	2,42	20,89	21,61	22,38	23,21	-	4	1
8557632	4	0,3	25	3,2	6	3,84	60	29	2	26,06	26,96	27,92	-	-	4	1
8557633	4	0,3	30	3,2	6	3,84	75	34	1,71	31,23	32,31	33,46	-	-	4	1
8557634	4	0,3	40	3,2	6	3,84	75	44	1,32	41,56	43	-	-	-	4	1

* If there is no value in the actual effective length (Le column) for the work gradient angle α, it indicates no interference.

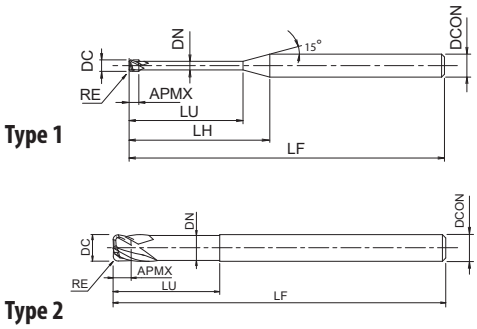
AE-CPR4-H

Milling | Solid carbide

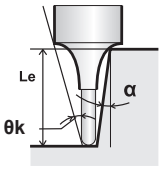
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- First choice in quality and performance
- Carbide end mill with DUROREY coating
- For hardened materials up to 70HRC
- 4 flutes, unequal spacing. New spiral-shaped gash specification
- 312 sizes



P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | S | H ~60 HRC | H ~65 HRC | H ~70 HRC

A | CARBIDE | DUROREY | R ± 0.005 | SHANK h4 | SHRINK FIT | 30° | 0,5≤DC

C.924

EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=3°)	ZEFP	Type
8557635	4	0,5	16	3,2	6	3,84	60	20	2,95	16,73	17,32	17,92	18,58	-	4	1
8557636	4	0,5	20	3,2	6	3,84	60	24	2,44	20,88	21,59	22,36	23,18	-	4	1
8557637	4	0,5	25	3,2	6	3,84	60	29	2,02	26,05	26,94	27,9	28,93		4	1
8557638	4	0,5	30	3,2	6	3,84	75	34	1,72	31,22	32,29	33,44	-	-	4	1
8557639	4	0,5	40	3,2	6	3,84	75	44	1,32	41,56	42,99	-	-	-	4	1
8557640	4	0,5	50	3,2	6	3,84	90	54	1,08	51,89	53,69	-	-	-	4	1
8557641	4	1	16	3,2	6	3,84	60	20	3,02	16,71	17,28	17,87	18,5	19,93	4	1
8557642	4	1	20	3,2	6	3,84	60	24	2,5	20,86	21,56	22,3	23,1	-	4	1
8557643	4	1	25	3,2	6	3,84	60	29	2,05	26,04	26,91	27,85	28,85	-	4	1
8557644	4	1	30	3,2	6	3,84	75	34	1,74	31,2	32,26	33,39	-	-	4	1
8557645	4	1	40	3,2	6	3,84	75	44	1,34	41,54	42,95	-	-	-	4	1
8544922	6	0,1	12	4,8	6	5,85	70	-	-	-	-	-	-	-	4	2
8544923	6	0,1	18	4,8	6	5,85	90	-	-	-	-	-	-	-	4	2
8544925	6	0,1	24	4,8	6	5,85	90	-	-	-	-	-	-	-	4	2
8544926	6	0,1	30	4,8	6	5,85	90	-	-	-	-	-	-	-	4	2
8544927	6	0,1	48	4,8	6	5,85	120	-	-	-	-	-	-	-	4	2
8544929	6	0,2	12	4,8	6	5,85	70	-	-	-	-	-	-	-	4	2
8544930	6	0,2	18	4,8	6	5,85	90	-	-	-	-	-	-	-	4	2
8544931	6	0,2	24	4,8	6	5,85	90	-	-	-	-	-	-	-	4	2
8544932	6	0,2	30	4,8	6	5,85	90	-	-	-	-	-	-	-	4	2
8544933	6	0,2	48	4,8	6	5,85	120	-	-	-	-	-	-	-	4	2
8544934	6	0,3	12	4,8	6	5,85	70	-	-	-	-	-	-	-	4	2
8544935	6	0,3	18	4,8	6	5,85	90	-	-	-	-	-	-	-	4	2
8544936	6	0,3	24	4,8	6	5,85	90	-	-	-	-	-	-	-	4	2
8544937	6	0,3	30	4,8	6	5,85	90	-	-	-	-	-	-	-	4	2
8544938	6	0,3	48	4,8	6	5,85	120	-	-	-	-	-	-	-	4	2
8544939	6	0,5	12	4,8	6	5,85	70	-	-	-	-	-	-	-	4	2
8544940	6	0,5	18	4,8	6	5,85	90	-	-	-	-	-	-	-	4	2
8544941	6	0,5	24	4,8	6	5,85	90	-	-	-	-	-	-	-	4	2
8544942	6	0,5	30	4,8	6	5,85	90	-	-	-	-	-	-	-	4	2
8544951	6	0,5	48	4,8	6	5,85	120	-	-	-	-	-	-	-	4	2
8544952	6	1	12	4,8	6	5,85	70	-	-	-	-	-	-	-	4	2
8544953	6	1	18	4,8	6	5,85	90	-	-	-	-	-	-	-	4	2
8544954	6	1	24	4,8	6	5,85	90	-	-	-	-	-	-	-	4	2
8544955	6	1	30	4,8	6	5,85	90	-	-	-	-	-	-	-	4	2
8544956	6	1	48	4,8	6	5,85	120	-	-	-	-	-	-	-	4	2

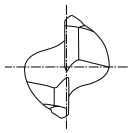
* If there is no value in the actual effective length (Le column) for the work gradient angle α, it indicates no interference.

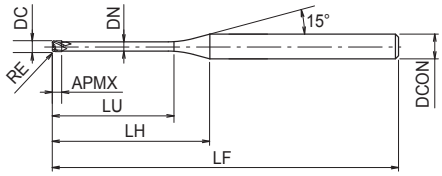
AE-CPR2-H

Milling | Solid carbide

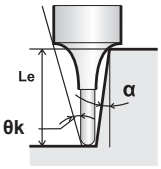
INDEX







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- For hardened materials up to 70HRC
- 2 flutes, long neck, corner radius
- 201 sizes



P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | S | H ~60 HRC | H ~65 HRC | H ~70 HRC

A | CARBIDE | DUROREY | R ± 0.005 | SHANK h4 | SHRINK FIT | 30°

C.934

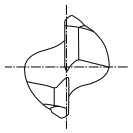
EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=3°)	ZEFP
8545245	0,2	0,02	0,5	0,15	4	0,18	45	7,7	13,88	0,53	0,57	0,61	0,65	0,73	2
8545246	0,2	0,02	1	0,15	4	0,18	45	8,2	13,07	1,06	1,13	1,2	1,26	1,38	2
8545247	0,2	0,02	1,5	0,15	4	0,18	45	8,7	12,34	1,6	1,69	1,77	1,85	2	2
8545248	0,2	0,02	2	0,15	4	0,18	45	9,2	11,69	2,12	2,24	2,33	2,43	2,62	2
8545249	0,2	0,05	0,5	0,15	4	0,18	45	7,7	13,93	0,53	0,56	0,6	0,64	0,72	2
8545250	0,2	0,05	1	0,15	4	0,18	45	8,2	13,11	1,06	1,13	1,19	1,25	1,37	2
8545251	0,2	0,05	1,5	0,15	4	0,18	45	8,7	12,37	1,59	1,68	1,77	1,84	1,99	2
8545252	0,2	0,05	2	0,15	4	0,18	45	9,2	11,72	2,12	2,23	2,33	2,42	2,61	2
8545253	0,3	0,02	1	0,25	4	0,28	45	8	13,02	1,06	1,13	1,2	1,26	1,38	2
8545254	0,3	0,02	1,5	0,25	4	0,28	45	8,5	12,28	1,6	1,69	1,77	1,85	2	2
8545255	0,3	0,02	2	0,25	4	0,28	45	9	11,62	2,12	2,24	2,33	2,43	2,62	2
8545256	0,3	0,02	2,5	0,25	4	0,28	45	9,5	11,02	2,65	2,78	2,89	3	3,24	2
8545257	0,3	0,02	3	0,25	4	0,28	45	10	10,48	3,18	3,32	3,45	3,58	3,87	2
8545258	0,3	0,05	1	0,25	4	0,28	45	8	13,06	1,06	1,13	1,19	1,25	1,37	2
8545259	0,3	0,05	1,5	0,25	4	0,28	45	8,5	12,32	1,59	1,68	1,77	1,84	1,99	2
8545260	0,3	0,05	2	0,25	4	0,28	45	9	11,65	2,12	2,23	2,33	2,42	2,61	2
8545261	0,3	0,05	2,5	0,25	4	0,28	45	9,5	11,05	2,65	2,78	2,89	3	3,24	2
8545262	0,3	0,05	3	0,25	4	0,28	45	10	10,51	3,18	3,32	3,44	3,57	3,86	2
8545263	0,4	0,02	1	0,3	4	0,37	45	8,2	12,41	1,08	1,17	1,28	1,38	1,62	2
8545264	0,4	0,02	1,5	0,3	4	0,37	45	8,7	11,71	1,62	1,76	1,89	2,03	2,32	2
8545265	0,4	0,02	2	0,3	4	0,37	45	9,2	11,09	2,16	2,33	2,5	2,67	3	2
8545266	0,4	0,02	2,5	0,3	4	0,37	45	9,7	10,53	2,7	2,9	3,1	3,29	3,66	2
8545267	0,4	0,02	3	0,3	4	0,37	45	10,2	10,03	3,24	3,47	3,69	3,9	4,31	2
8545268	0,4	0,02	4	0,3	4	0,37	45	11,2	9,15	4,31	4,59	4,85	5,1	5,57	2
8545269	0,4	0,05	1	0,3	4	0,37	45	8,2	12,45	1,08	1,17	1,27	1,37	1,6	2
8545270	0,4	0,05	1,5	0,3	4	0,37	45	8,7	11,75	1,62	1,75	1,89	2,03	2,31	2
8545271	0,4	0,05	2	0,3	4	0,37	45	9,2	11,12	2,16	2,33	2,49	2,66	2,99	2
8545272	0,4	0,05	3	0,3	4	0,37	45	10,2	10,05	3,24	3,46	3,68	3,89	4,3	2
8545273	0,4	0,05	4	0,3	4	0,37	45	11,2	9,17	4,31	4,59	4,85	5,1	5,56	2
8545274	0,4	0,1	1	0,3	4	0,37	45	8,2	12,51	1,07	1,16	1,26	1,36	1,58	2
8545275	0,4	0,1	2	0,3	4	0,37	45	9,2	11,18	2,16	2,32	2,48	2,65	2,98	2
8545276	0,4	0,1	3	0,3	4	0,37	45	10,2	10,1	3,23	3,46	3,67	3,88	4,29	2
8545277	0,4	0,1	4	0,3	4	0,37	45	11,2	9,21	4,3	4,58	4,84	5,09	5,55	2
8545278	0,5	0,02	1	0,4	4	0,46	45	8	12,39	1,08	1,17	1,26	1,37	1,59	2
8545279	0,5	0,02	2	0,4	4	0,46	45	9	11,04	2,16	2,32	2,48	2,64	2,97	2
8545280	0,5	0,02	3	0,4	4	0,46	45	10	9,96	3,23	3,45	3,67	3,87	4,27	2
8545281	0,5	0,02	4	0,4	4	0,46	45	11	9,07	4,3	4,57	4,83	5,07	5,53	2
8545282	0,5	0,02	5	0,4	4	0,46	45	12	8,32	5,36	5,68	5,98	6,25	6,77	2
8545283	0,5	0,02	6	0,4	4	0,46	45	13	7,69	6,42	6,79	7,11	7,41	8,02	2
8545284	0,5	0,05	1	0,4	4	0,46	45	8	12,43	1,08	1,16	1,26	1,36	1,58	2
8545285	0,5	0,05	2	0,4	4	0,46	45	9	11,08	2,15	2,31	2,47	2,64	2,96	2
8545286	0,5	0,05	3	0,4	4	0,46	45	10	9,99	3,23	3,45	3,66	3,87	4,27	2
8545287	0,5	0,05	4	0,4	4	0,46	45	11	9,09	4,3	4,57	4,82	5,07	5,52	2
8545288	0,5	0,05	5	0,4	4	0,46	45	12	8,34	5,36	5,68	5,97	6,25	6,77	2
8545289	0,5	0,05	6	0,4	4	0,46	45	13	7,71	6,42	6,79	7,11	7,41	8,01	2
8545290	0,5	0,1	1	0,4	4	0,46	45	8	12,5	1,07	1,15	1,24	1,34	1,55	2

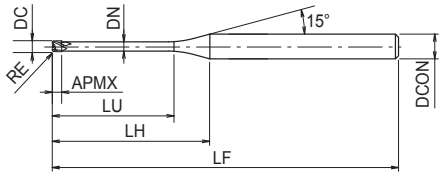
AE-CPR2-H

Milling | Solid carbide

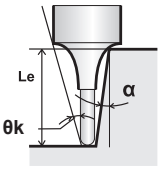
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P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | S | H ~60 HRC | H ~65 HRC | H ~70 HRC

A | CARBIDE | DUROREY | R ± 0.005 | SHANK h4 | SHRINK FIT | 30° | C.934

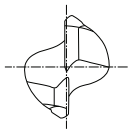
EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=3°)	ZEFP
8545291	0,5	0,1	2	0,4	4	0,46	45	9	11,13	2,15	2,31	2,46	2,62	2,95	2
8545292	0,5	0,1	3	0,4	4	0,46	45	10	10,03	3,22	3,44	3,65	3,86	4,25	2
8545293	0,5	0,1	4	0,4	4	0,46	45	11	9,13	4,29	4,56	4,82	5,06	5,51	2
8545294	0,5	0,1	5	0,4	4	0,46	45	12	8,37	5,36	5,68	5,97	6,24	6,76	2
8545295	0,5	0,1	6	0,4	4	0,46	45	13	7,73	6,42	6,78	7,1	7,4	8	2
8545296	0,6	0,05	2	0,48	4	0,55	45	8,8	11,02	2,15	2,3	2,46	2,62	2,93	2
8545297	0,6	0,05	4	0,48	4	0,55	45	10,8	9,01	4,28	4,55	4,8	5,04	5,49	2
8545298	0,6	0,05	6	0,48	4	0,55	45	12,8	7,61	6,41	6,76	7,08	7,38	7,98	2
8545299	0,6	0,1	1	0,48	4	0,55	45	7,8	12,48	1,07	1,15	1,23	1,33	1,53	2
8545300	0,6	0,1	2	0,48	4	0,55	45	8,8	11,08	2,14	2,29	2,45	2,6	2,92	2
8545301	0,6	0,1	4	0,48	4	0,55	45	10,8	9,05	4,28	4,55	4,79	5,03	5,48	2
8545302	0,6	0,1	6	0,48	4	0,55	45	12,8	7,64	6,41	6,76	7,08	7,37	7,97	2
8545303	0,8	0,05	2	0,65	4	0,75	45	8,4	10,84	2,15	2,3	2,46	2,62	2,93	2
8545304	0,8	0,05	4	0,65	4	0,75	45	10,4	8,79	4,28	4,55	4,8	5,04	5,49	2
8545305	0,8	0,05	6	0,65	4	0,75	45	12,4	7,38	6,41	6,76	7,08	7,38	7,98	2
8545306	0,8	0,1	2	0,65	4	0,75	45	8,4	10,9	2,14	2,29	2,45	2,6	2,92	2
8545307	0,8	0,1	4	0,65	4	0,75	45	10,4	8,83	4,28	4,55	4,79	5,03	5,48	2
8545308	0,8	0,1	6	0,65	4	0,75	45	12,4	7,41	6,41	6,76	7,08	7,37	7,97	2
8545309	0,8	0,2	2	0,65	4	0,75	45	8,4	11,02	2,14	2,28	2,43	2,58	2,88	2
8545310	0,8	0,2	4	0,65	4	0,75	45	10,4	8,9	4,28	4,53	4,78	5,01	5,46	2
8545311	0,8	0,2	6	0,65	4	0,75	45	12,4	7,47	6,4	6,75	7,06	7,36	7,94	2
8545312	0,8	0,2	8	0,65	4	0,75	45	14,4	6,43	8,52	8,94	9,31	9,66	10,43	2
8545313	1	0,05	2	0,8	4	0,94	45	8	10,68	2,14	2,29	2,44	2,6	2,91	2
8545314	1	0,05	3	0,8	4	0,94	45	9	9,51	3,21	3,42	3,62	3,82	4,21	2
8545315	1	0,05	4	0,8	4	0,94	45	10	8,57	4,28	4,54	4,78	5,02	5,46	2
8545316	1	0,05	6	0,8	4	0,94	45	12	7,16	6,4	6,75	7,06	7,35	7,95	2
8545317	1	0,05	8	0,8	4	0,94	45	14	6,14	8,51	8,93	9,3	9,65	10,43	2
8545318	1	0,05	10	0,8	4	0,94	45	16	5,38	10,61	11,1	11,52	11,95	12,92	2
8545319	1	0,05	12	0,8	4	0,94	45	18	4,78	12,71	13,26	13,74	14,25	15,41	2
8545320	1	0,1	2	0,8	4	0,94	45	8	10,74	2,14	2,28	2,43	2,58	2,89	2
8545321	1	0,1	3	0,8	4	0,94	45	9	9,56	3,21	3,41	3,61	3,81	4,19	2
8545322	1	0,1	4	0,8	4	0,94	45	10	8,61	4,27	4,53	4,77	5,01	5,45	2
8545323	1	0,1	6	0,8	4	0,94	45	12	7,18	6,39	6,74	7,05	7,34	7,93	2
8545324	1	0,1	8	0,8	4	0,94	45	14	6,16	8,51	8,93	9,3	9,65	10,42	2
8545325	1	0,1	10	0,8	4	0,94	45	16	5,39	10,61	11,1	11,52	11,95	12,91	2
8545326	1	0,1	12	0,8	4	0,94	45	18	4,79	12,71	13,25	13,73	14,25	15,39	2
8545327	1	0,2	2	0,8	4	0,94	45	8	10,86	2,13	2,27	2,41	2,56	2,86	2
8545328	1	0,2	3	0,8	4	0,94	45	9	9,66	3,2	3,4	3,6	3,79	4,17	2
8545329	1	0,2	4	0,8	4	0,94	45	10	8,69	4,27	4,52	4,76	4,99	5,42	2
8545330	1	0,2	6	0,8	4	0,94	45	12	7,24	6,39	6,73	7,04	7,33	7,91	2
8545331	1	0,2	8	0,8	4	0,94	45	14	6,2	8,5	8,92	9,29	9,63	10,4	2
8545332	1	0,2	10	0,8	4	0,94	45	16	5,42	10,61	11,09	11,51	11,93	12,88	2
8545333	1	0,2	12	0,8	4	0,94	45	18	4,82	12,7	13,24	13,72	14,23	15,37	2
8545334	1	0,2	16	0,8	4	0,94	55	22	3,94	16,89	17,53	18,16	18,83	20,34	2
8545335	1	0,2	20	0,8	4	0,94	55	26	3,33	21,05	21,81	22,59	23,43	25,32	2
8545336	1	0,3	2	0,8	4	0,94	45	8	10,98	2,12	2,26	2,39	2,54	2,83	2

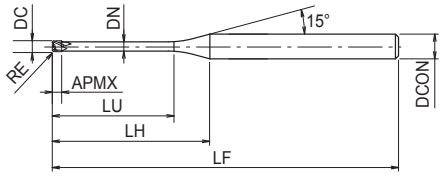
AE-CPR2-H

Milling | Solid carbide

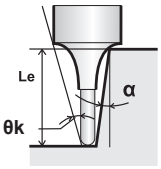
INDEX







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P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | S | H ~60 HRC | H ~65 HRC | H ~70 HRC

A | CARBIDE | DUROREY | R ± 0.005 | SHANK h4 | SHRINK FIT | 30°

C.934

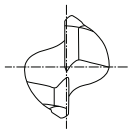
EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=3°)	ZEFP
8545337	1	0,3	3	0,8	4	0,94	45	9	9,75	3,19	3,39	3,58	3,77	4,14	2
8545338	1	0,3	4	0,8	4	0,94	45	10	8,77	4,26	4,51	4,74	4,97	5,4	2
8545339	1	0,3	6	0,8	4	0,94	45	12	7,3	6,38	6,72	7,03	7,31	7,89	2
8545340	1	0,3	8	0,8	4	0,94	45	14	6,24	8,5	8,91	9,27	9,62	10,37	2
8545341	1	0,3	10	0,8	4	0,94	45	16	5,46	10,6	11,08	11,5	11,92	12,86	2
8545342	1	0,3	12	0,8	4	0,94	45	18	4,84	12,7	13,24	13,71	14,22	15,35	2
8545343	1,2	0,2	6	1	4	1,14	45	11,6	6,98	6,39	6,73	7,04	7,33	7,91	2
8545344	1,2	0,2	8	1	4	1,14	45	13,6	5,95	8,5	8,92	9,29	9,63	10,4	2
8545345	1,2	0,2	10	1	4	1,14	45	15,6	5,19	10,61	11,09	11,51	11,93	12,88	2
8545346	1,2	0,3	6	1	4	1,14	45	11,6	7,04	6,38	6,72	7,03	7,31	7,89	2
8545347	1,2	0,3	8	1	4	1,14	45	13,6	5,99	8,5	8,91	9,27	9,62	10,37	2
8545348	1,2	0,3	10	1	4	1,14	45	15,6	5,22	10,6	11,08	11,5	11,92	12,86	2
8545349	1,5	0,05	3	1,2	4	1,43	45	8	8,88	3,2	3,41	3,6	3,8	4,18	2
8545350	1,5	0,05	4	1,2	4	1,43	45	9	7,91	4,27	4,52	4,76	4,99	5,43	2
8545351	1,5	0,05	6	1,2	4	1,43	45	11	6,49	6,39	6,73	7,04	7,33	7,92	2
8545352	1,5	0,05	8	1,2	4	1,43	45	13	5,5	8,5	8,91	9,28	9,63	10,4	2
8545353	1,5	0,05	10	1,2	4	1,43	45	15	4,77	10,6	11,08	11,5	11,93	12,89	2
8545354	1,5	0,05	12	1,2	4	1,43	45	17	4,21	12,7	13,23	13,71	14,23	15,38	2
8545355	1,5	0,1	3	1,2	4	1,43	45	8	8,93	3,2	3,4	3,6	3,79	4,16	2
8545356	1,5	0,1	4	1,2	4	1,43	45	9	7,95	4,26	4,52	4,75	4,98	5,42	2
8545357	1,5	0,1	6	1,2	4	1,43	45	11	6,52	6,38	6,72	7,03	7,32	7,91	2
8545358	1,5	0,1	8	1,2	4	1,43	45	13	5,52	8,49	8,91	9,27	9,62	10,39	2
8545359	1,5	0,1	10	1,2	4	1,43	45	15	4,78	10,6	11,07	11,49	11,92	12,88	2
8545360	1,5	0,1	12	1,2	4	1,43	45	17	4,22	12,69	13,23	13,71	14,22	15,36	2
8545361	1,5	0,2	3	1,2	4	1,43	45	8	9,04	3,19	3,39	3,58	3,77	4,14	2
8545362	1,5	0,2	4	1,2	4	1,43	45	9	8,03	4,26	4,5	4,74	4,97	5,4	2
8545363	1,5	0,2	6	1,2	4	1,43	45	11	6,57	6,38	6,71	7,02	7,3	7,88	2
8545364	1,5	0,2	8	1,2	4	1,43	45	13	5,56	8,49	8,9	9,26	9,6	10,37	2
8545365	1,5	0,2	10	1,2	4	1,43	45	15	4,81	10,59	11,07	11,48	11,9	12,85	2
8545366	1,5	0,2	12	1,2	4	1,43	45	17	4,25	12,69	13,22	13,7	14,2	15,34	2
8545367	1,5	0,2	16	1,2	4	1,43	50	21	3,44	16,87	17,51	18,13	18,8	20,31	2
8545368	1,5	0,3	3	1,2	4	1,43	45	8	9,14	3,19	3,38	3,56	3,75	4,11	2
8545369	1,5	0,3	4	1,2	4	1,43	45	9	8,12	4,25	4,49	4,72	4,95	5,37	2
8545370	1,5	0,3	6	1,2	4	1,43	45	11	6,63	6,37	6,7	7,01	7,29	7,86	2
8545371	1,5	0,3	8	1,2	4	1,43	45	13	5,6	8,48	8,89	9,25	9,59	10,34	2
8545372	1,5	0,3	10	1,2	4	1,43	45	15	4,85	10,59	11,06	11,47	11,89	12,83	2
8545373	1,5	0,3	12	1,2	4	1,43	45	17	4,27	12,68	13,21	13,69	14,19	15,32	2
8545374	1,5	0,3	16	1,2	4	1,43	50	21	3,45	16,86	17,5	18,12	18,79	20,29	2
8545375	1,5	0,5	3	1,2	4	1,43	45	8	9,36	3,17	3,35	3,53	3,71	4,06	2
8545376	1,5	0,5	4	1,2	4	1,43	45	9	8,29	4,24	4,47	4,69	4,91	5,32	2
8545377	1,5	0,5	6	1,2	4	1,43	45	11	6,74	6,36	6,68	6,98	7,26	7,81	2
8545378	1,5	0,5	8	1,2	4	1,43	45	13	5,68	8,47	8,87	9,23	9,56	10,3	2
8545379	1,5	0,5	10	1,2	4	1,43	45	15	4,91	10,58	11,04	11,45	11,86	12,78	2
8545380	1,5	0,5	12	1,2	4	1,43	45	17	4,32	12,67	13,2	13,67	14,16	15,27	2
8545381	1,5	0,5	16	1,2	4	1,43	50	21	3,48	16,85	17,48	18,1	18,76	20,24	2
8545382	2	0,05	4	1,6	4	1,92	50	8,1	7,09	4,26	4,51	4,74	4,97	5,4	2

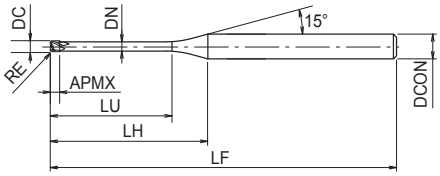
AE-CPR2-H

Milling | Solid carbide

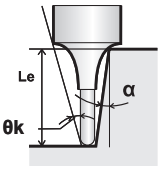
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A | CARBIDE | DUROREY | R ± 0.005 | SHANK h4 | SHRINK FIT | 30°

C.934

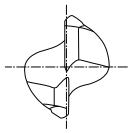
EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=3°)	ZEFP
8545383	2	0,05	6	1,6	4	1,92	50	10,1	5,69	6,38	6,71	7,02	7,3	7,89	2
8545384	2	0,05	8	1,6	4	1,92	50	12,1	4,75	8,48	8,89	9,25	9,6	10,38	2
8545385	2	0,05	10	1,6	4	1,92	50	14,1	4,08	10,58	11,06	11,47	11,9	12,86	2
8545386	2	0,05	12	1,6	4	1,92	50	16,1	3,57	12,68	13,21	13,69	14,2	15,35	2
8545387	2	0,05	16	1,6	4	1,92	50	20,1	2,86	16,86	17,49	18,12	18,8	-	2
8545388	2	0,05	20	1,6	4	1,92	60	24,1	2,39	21,02	21,77	22,56	23,4	-	2
8545389	2	0,1	4	1,6	4	1,92	50	8,1	7,13	4,26	4,5	4,74	4,96	5,39	2
8545390	2	0,1	6	1,6	4	1,92	50	10,1	5,72	6,37	6,71	7,01	7,29	7,88	2
8545391	2	0,1	8	1,6	4	1,92	50	12,1	4,77	8,48	8,89	9,25	9,59	10,37	2
8545392	2	0,1	10	1,6	4	1,92	50	14,1	4,09	10,58	11,05	11,47	11,89	12,85	2
8545393	2	0,1	12	1,6	4	1,92	50	16,1	3,58	12,68	13,21	13,68	14,19	15,34	2
8545394	2	0,1	16	1,6	4	1,92	50	20,1	2,87	16,85	17,49	18,12	18,79	-	2
8545395	2	0,1	20	1,6	4	1,92	60	24,1	2,39	21,02	21,77	22,55	23,39	-	2
8545396	2	0,1	25	1,6	4	1,92	60	29,1	1,98	26,2	27,12	28,09	-	-	2
8545397	2	0,2	4	1,6	4	1,92	50	8,1	7,21	4,25	4,49	4,72	4,94	5,37	2
8545398	2	0,2	6	1,6	4	1,92	50	10,1	5,77	6,37	6,7	7	7,28	7,86	2
8545399	2	0,2	8	1,6	4	1,92	50	12,1	4,81	8,48	8,88	9,24	9,58	10,34	2
8545400	2	0,2	10	1,6	4	1,92	50	14,1	4,12	10,58	11,05	11,46	11,88	12,83	2
8545401	2	0,2	12	1,6	4	1,92	50	16,1	3,6	12,67	13,2	13,67	14,18	15,31	2
8545402	2	0,2	16	1,6	4	1,92	50	20,1	2,88	16,85	17,48	18,11	18,78	-	2
8545403	2	0,2	20	1,6	4	1,92	60	24,1	2,4	21,01	21,76	22,54	23,38	-	2
8545404	2	0,2	25	1,6	4	1,92	60	29,1	1,99	26,2	27,11	28,08	-	-	2
8545405	2	0,3	4	1,6	4	1,92	50	8,1	7,3	4,24	4,48	4,71	4,93	5,35	2
8545406	2	0,3	6	1,6	4	1,92	50	10,1	5,83	6,36	6,69	6,98	7,26	7,83	2
8545407	2	0,3	8	1,6	4	1,92	50	12,1	4,85	8,47	8,87	9,23	9,56	10,32	2
8545408	2	0,3	10	1,6	4	1,92	50	14,1	4,15	10,57	11,04	11,45	11,86	12,8	2
8545409	2	0,3	12	1,6	4	1,92	50	16,1	3,63	12,67	13,19	13,66	14,16	15,29	2
8545410	2	0,3	16	1,6	4	1,92	50	20,1	2,9	16,85	17,48	18,1	18,76	-	2
8545411	2	0,3	20	1,6	4	1,92	60	24,1	2,41	21,01	21,75	22,53	23,36	-	2
8545412	2	0,3	25	1,6	4	1,92	60	29,1	1,99	26,2	27,1	28,07	-	-	2
8545413	2	0,5	4	1,6	4	1,92	50	8,1	7,48	4,23	4,46	4,68	4,89	5,3	2
8545414	2	0,5	6	1,6	4	1,92	50	10,1	5,94	6,35	6,67	6,96	7,23	7,78	2
8545415	2	0,5	8	1,6	4	1,92	50	12,1	4,93	8,46	8,85	9,2	9,54	10,27	2
8545416	2	0,5	10	1,6	4	1,92	50	14,1	4,21	10,56	11,02	11,42	11,83	12,76	2
8545417	2	0,5	12	1,6	4	1,92	50	16,1	3,67	12,66	13,18	13,64	14,13	15,24	2
8545418	2	0,5	16	1,6	4	1,92	50	20,1	2,92	16,84	17,46	18,07	18,73	-	2
8545419	2	0,5	20	1,6	4	1,92	60	24,1	2,43	21	21,74	22,51	23,33	-	2
8545420	2	0,5	25	1,6	4	1,92	60	29,1	2,01	26,19	27,09	28,05	29,08	-	2
8545421	2,5	0,2	10	2	4	2,4	55	13,1	3,33	10,55	11,01	11,41	11,83	12,78	2
8545422	2,5	0,2	20	2	4	2,4	55	23,1	1,88	20,98	21,72	22,5	-	-	2
8545423	2,5	0,2	30	2	4	2,4	70	33,1	1,31	31,33	32,42	-	-	-	2
8545424	2,5	0,5	10	2	4	2,4	55	13,1	3,4	10,54	10,98	11,38	11,79	12,71	2
8545425	2,5	0,5	20	2	4	2,4	55	23,1	1,9	20,97	21,7	22,46	-	-	2
8545426	2,5	0,5	30	2	4	2,4	70	33,1	1,32	31,32	32,39	-	-	-	2
8545427	3	0,2	8	2,5	6	2,85	55	13,8	6,28	8,41	8,77	9,11	9,44	10,19	2
8545429	3	0,2	16	2,5	6	2,85	55	21,8	3,97	16,75	17,35	17,97	18,64	20,14	2

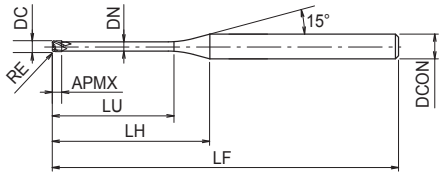
AE-CPR2-H

Milling | Solid carbide

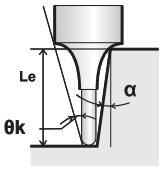
INDEX







- First choice in quality and performance
- Carbide end mill with DUROREY coating
- For hardened materials up to 70HRC
- 2 flutes, long neck, corner radius
- 201 sizes



P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | S | H ~60 HRC | H ~65 HRC | H ~70 HRC

A | CARBIDE | DUROREY | R ± 0.005 | SHANK h4 | SHRINK FIT | 30°

C.934

EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=3°)	ZEFP
8545428	3	0,2	12	2,5	6	2,85	55	17,8	4,86	12,59	13,07	13,54	14,04	15,16	2
8545430	3	0,2	20	2,5	6	2,85	55	25,8	3,35	20,9	21,63	22,4	23,24	25,11	2
8545431	3	0,2	25	2,5	6	2,85	70	30,8	2,81	26,08	26,98	27,95	28,99	-	2
8545432	3	0,2	30	2,5	6	2,85	70	35,8	2,41	31,25	32,33	33,49	34,74	-	2
8545433	3	0,2	35	2,5	6	2,85	70	40,8	2,12	36,41	37,68	39,03	40,49	-	2
8545434	3	0,3	12	2,5	6	2,85	55	17,8	4,89	12,58	13,07	13,53	14,02	15,14	2
8545435	3	0,3	16	2,5	6	2,85	55	21,8	3,99	16,75	17,34	17,96	18,62	20,11	2
8545436	3	0,3	20	2,5	6	2,85	55	25,8	3,37	20,9	21,62	22,39	23,22	25,08	2
8545437	3	0,3	25	2,5	6	2,85	70	30,8	2,82	26,07	26,97	27,94	28,97	-	2
8545438	3	0,3	30	2,5	6	2,85	70	35,8	2,42	31,24	32,32	33,48	34,72	-	2
8545439	3	0,3	35	2,5	6	2,85	70	40,8	2,12	36,41	37,67	39,02	40,47	-	2
8545440	3	0,5	12	2,5	6	2,85	55	17,8	4,94	12,57	13,05	13,51	13,99	15,09	2
8545441	3	0,5	16	2,5	6	2,85	55	21,8	4,02	16,74	17,33	17,94	18,59	20,06	2
8545442	3	0,5	20	2,5	6	2,85	55	25,8	3,39	20,89	21,61	22,37	23,19	25,04	2
8545443	3	0,5	25	2,5	6	2,85	70	30,8	2,83	26,07	26,96	27,91	28,94	-	2
8545444	3	0,5	30	2,5	6	2,85	70	35,8	2,43	31,24	32,31	33,46	34,69	-	2
8545445	3	0,5	35	2,5	6	2,85	70	40,8	2,13	36,4	37,66	39	40,44	-	2

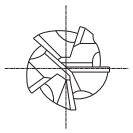


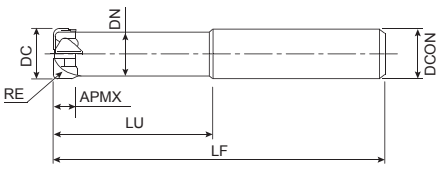
WXS-HS-CRE

Milling | Solid carbide

INDEX







- Carbide end mill with WXS coating
- For hardened steels up to 65 HRC
- 5 flutes, shorter overall length, super radius







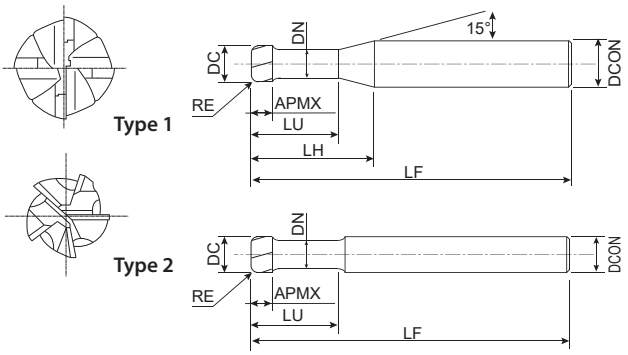
EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
48107267	6	1,5	12	2,4	6	5,4	50	5
48107367	6	1,5	18	2,4	6	5,4	50	5
48107467	6	1,5	24	2,4	6	5,4	50	5
48107289	8	2	16	3,2	8	7,2	60	5
48107389	8	2	24	3,2	8	7,2	60	5
48107489	8	2	32	3,2	8	7,2	60	5
48107209	10	2	20	4	10	9	70	5
48107309	10	2	30	4	10	9	70	5
48107509	10	2	40	4	10	9	70	5
48107233	12	3	24	4,8	12	11	80	5
48107333	12	3	36	4,8	12	11	80	5
48107533	12	3	48	4,8	12	11	80	5



WXS-CRE

Milling | Solid carbide





- Carbide end mill with WXS coating
- For hardened steels up to 65 HRC and stainless steels
- Multi flute with super radius

P ~45 HRC | P ~55 HRC | K ~350 HB | S | H ~60 HRC | H ~65 HRC

CARBIDE | WXS | SHRINK FIT | 0~-0.03

C.940

EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	ZEFP	Type
48106421	2	0,5	8	0,8	6	1,8	50	15,8	4	1
48106433	3	0,75	12	1,3	6	2,7	55	17,9	5	1
48106445	4	1	12	1,6	6	3,6	55	16	5	1
48106467	6	1,5	12	2,4	6	5,4	90	-	5	2
48106489	8	2	16	3,2	8	7,2	100	-	5	2
48106509	10	2	20	4	10	9	100	-	5	2
48106533	12	3	24	4,8	12	11	110	-	5	2

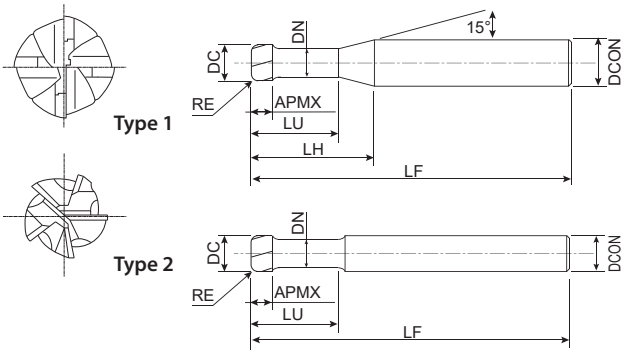
SX-CRE

Milling | Solid carbide

INDEX

NEW





- Carbide end mill with Egias coating
- For steels, stainless steel and Titanium alloys
- Multi flute with super radius

P ~30 HRC | P ~45 HRC | M | S

CARBIDE | EgiAs | SHRINK FIT | 0~-0.03

C.941

EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	ZEFP	Type
48451421	2	0,5	8	0,8	6	1,8	50	15,8	4	1
48451433	3	0,75	12	1,3	6	2,7	55	17,9	5	1
48451445	4	1	12	1,6	6	3,6	55	16	5	1
48451467	6	1,5	12	2,4	6	5,4	90	-	5	2
48451489	8	2	16	3,2	8	7,2	100	-	5	2
48451509	10	2	20	4	10	9	100	-	5	2
48451533	12	3	24	4,8	12	11	110	-	5	2

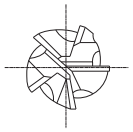
SX-HS-CRE

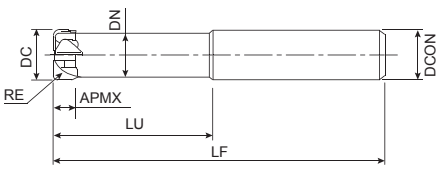
Milling | Solid carbide

INDEX

NEW







- Carbide end mill with Egias coating
- For steels, stainless steel and Titanium alloys
- Shorter overall length, super radius

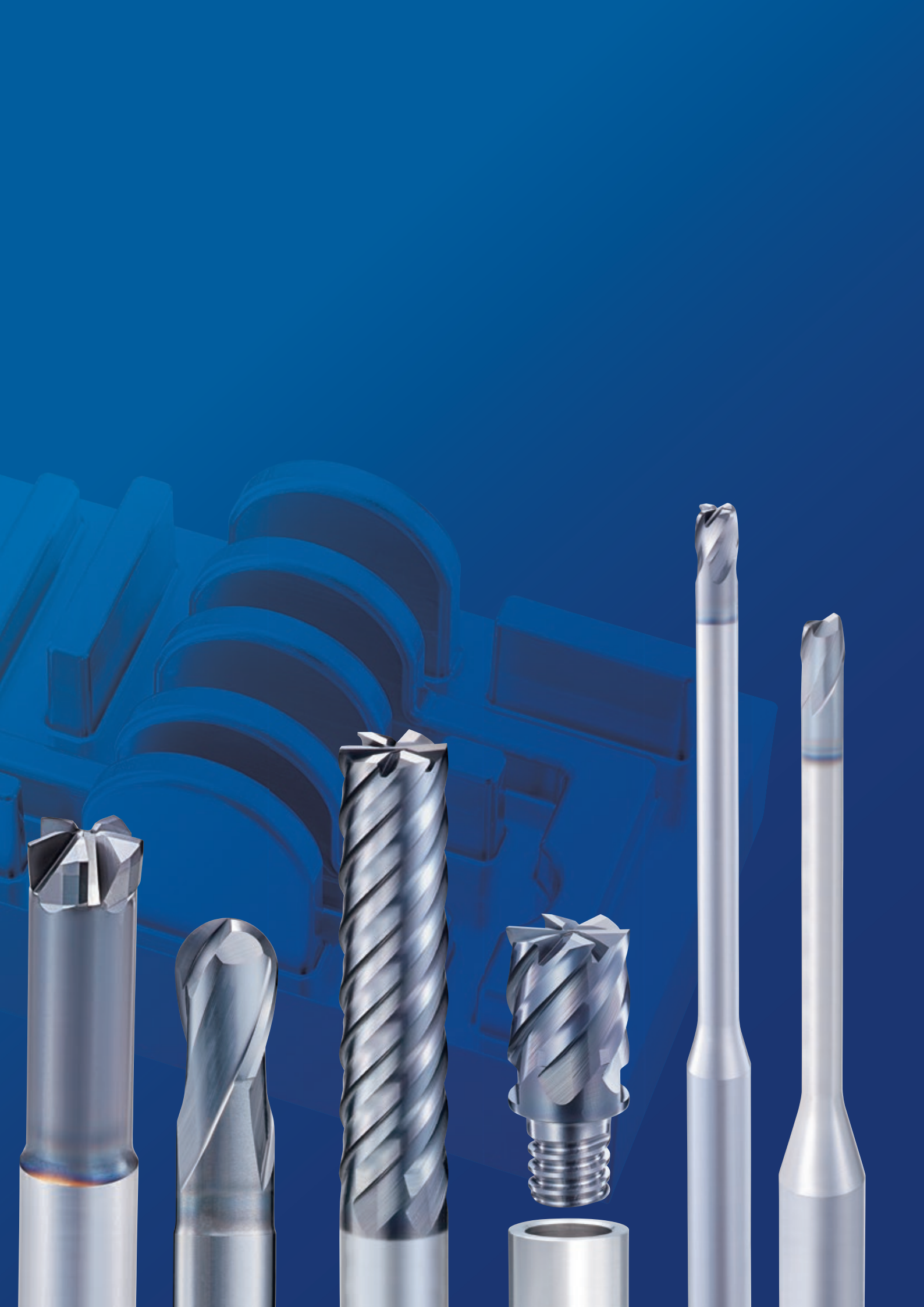
P ~30 HRC | P ~45 HRC | M | S

CARBIDE | EgiAs | SHRINK FIT | 0~-0.03

C.941

EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
48452467	6	1,5	24	2,4	6	5,4	50	5
48452489	8	2	32	3,2	8	7,2	60	5
48452509	10	2	40	4	10	9	70	5
48452533	12	3	48	4,8	12	11	80	5





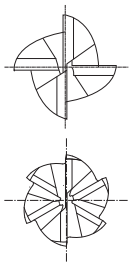


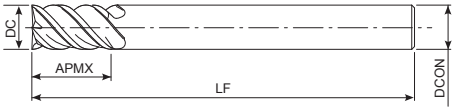
WXS-EMS

Milling | Solid carbide

INDEX







- Carbide end mill with WXS coating
- For hardened steels and stainless steels
- Multi flute, high speed machining





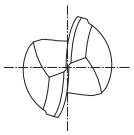


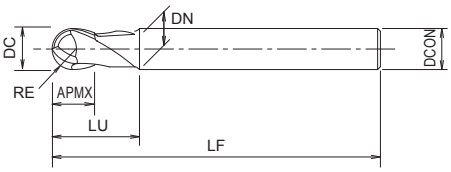
EDP	DC	APMX	DCON	LF	ZEFP
3041010	1	2,5	6	60	4
3041015	1,5	4	6	60	4
3041020	2	6	6	60	4
3041025	2,5	8	6	60	4
3041030	3	8	6	60	4
3041035	3,5	10	6	60	4
3041040	4	11	6	60	4
3041045	4,5	11	6	60	4
3041050	5	13	6	60	4
3041055	5,5	13	6	60	4
3041060	6	13	6	60	6
3041080	8	19	8	70	6
3041100	10	22	10	80	6
3041120	12	26	12	90	6
3041140	14	26	16	100	6
3041160	16	32	16	105	6
3041180	18	32	16	110	6
3041200	20	38	20	110	6

WXS-HS-EBD

Milling | Solid carbide







- Carbide end mill with WXS coating
- For hardened steels up to 65 HRC and stainless steels
- 2 flutes, shorter overall length, ball nose





C.944

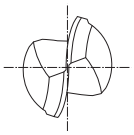
EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
3041710	1	0,5	2	1	4	0,95	40	2
3041720	2	1	4	2	6	1,95	40	2
3041730	3	1,5	6	3	6	2,85	50	2
3041740	4	2	8	4	6	3,85	50	2
3041750	5	2,5	10	5	6	4,85	50	2
3041760	6	3	-	9	6	-	50	2
3041780	8	4	-	12	8	-	60	2
3041800	10	5	-	15	10	-	70	2
3041820	12	6	-	18	12	-	80	2

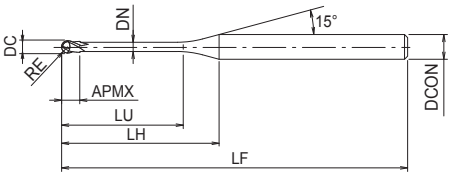


WXS-LN-EBD

Milling | Solid carbide

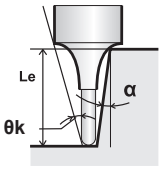






- Carbide end mill with WXS coating
- For hardened steels up to 65 HRC and stainless steels
- 2 flutes, long neck, ball nose
- 189 sizes









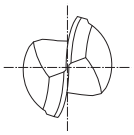
EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=2,5°)	Le(α=3°)	ZEFP
3050100	0,1	0,05	0,3	0,08	4	0,09	45	7,5	14,51	0,31	0,32	0,33	0,34	0,35	0,36	2
3050101	0,1	0,05	0,5	0,08	4	0,09	45	7,7	14,31	0,42	0,44	0,45	0,47	0,48	0,5	2
3050201	0,2	0,1	0,5	0,16	4	0,18	45	7,5	14,16	0,53	0,55	0,57	0,59	0,61	0,63	2
3049921	0,2	0,1	0,75	0,16	4	0,18	45	7,8	13,72	0,79	0,82	0,85	0,88	0,91	0,94	2
3050202	0,2	0,1	1	0,16	4	0,18	45	8	13,31	1,05	1,09	1,13	1,17	1,21	1,26	2
3049922	0,2	0,1	1,25	0,16	4	0,18	45	8,3	12,92	1,31	1,36	1,41	1,46	1,51	1,57	2
3050203	0,2	0,1	1,5	0,16	4	0,18	45	8,5	12,56	1,57	1,63	1,68	1,74	1,81	1,88	2
3049923	0,2	0,1	1,75	0,16	4	0,18	45	8,8	12,21	1,83	1,9	1,96	2,03	2,11	2,19	2
3050204	0,2	0,1	2	0,16	4	0,18	45	9	11,88	2,09	2,16	2,24	2,32	2,4	2,5	2
3050205	0,2	0,1	2,5	0,16	4	0,18	45	9,5	11,28	2,61	2,7	2,79	2,89	3	3,12	2
3050206	0,2	0,1	3	0,16	4	0,18	45	10	10,73	3,13	3,23	3,35	3,47	3,6	3,74	2
3050301	0,3	0,15	0,6	0,24	4	0,28	45	7,4	14,03	0,63	0,65	0,68	0,7	0,72	0,75	2
3050302	0,3	0,15	1	0,24	4	0,28	45	7,8	13,34	1,05	1,09	1,12	1,16	1,2	1,24	2
3049932	0,3	0,15	1,25	0,24	4	0,28	45	8,1	12,94	1,31	1,36	1,4	1,45	1,5	1,55	2
3050303	0,3	0,15	1,5	0,24	4	0,28	45	8,3	12,57	1,57	1,63	1,68	1,74	1,8	1,87	2
3049933	0,3	0,15	1,75	0,24	4	0,28	45	8,6	12,21	1,83	1,89	1,96	2,02	2,1	2,18	2
3050304	0,3	0,15	2	0,24	4	0,28	45	8,8	11,87	2,09	2,16	2,23	2,31	2,4	2,49	2
3049934	0,3	0,15	2,25	0,24	4	0,28	45	9,1	11,56	2,35	2,43	2,51	2,6	2,69	2,8	2
3050305	0,3	0,15	2,5	0,24	4	0,28	45	9,3	11,25	2,61	2,69	2,79	2,89	2,99	3,11	2
3050306	0,3	0,15	3	0,24	4	0,28	45	9,8	10,69	3,13	3,23	3,34	3,46	3,59	3,73	2
3050307	0,3	0,15	3,5	0,24	4	0,28	45	10,3	10,19	3,64	3,76	3,9	4,04	4,19	4,35	2
3050308	0,3	0,15	4	0,24	4	0,28	45	10,8	9,72	4,16	4,3	4,45	4,61	4,78	4,97	2
3050309	0,3	0,15	4,5	0,24	4	0,28	45	11,3	9,3	4,68	4,83	5	5,19	5,38	5,59	2
3050310	0,3	0,15	5	0,24	4	0,28	45	11,8	8,91	5,19	5,37	5,56	5,76	5,98	6,22	2
3050401	0,4	0,2	0,8	0,3	4	0,37	45	7,4	13,74	0,83	0,86	0,88	0,91	0,94	0,97	2
3050402	0,4	0,2	1	0,3	4	0,37	45	7,6	13,39	1,04	1,07	1,11	1,14	1,18	1,22	2
3050403	0,4	0,2	1,5	0,3	4	0,37	45	8,1	12,59	1,56	1,61	1,66	1,72	1,77	1,84	2
3050404	0,4	0,2	2	0,3	4	0,37	45	8,6	11,88	2,08	2,14	2,21	2,29	2,37	2,46	2
3050405	0,4	0,2	2,5	0,3	4	0,37	45	9,1	11,24	2,6	2,68	2,77	2,87	2,97	3,08	2
3050406	0,4	0,2	3	0,3	4	0,37	45	9,6	10,67	3,11	3,21	3,32	3,44	3,57	3,7	2
3050407	0,4	0,2	3,5	0,3	4	0,37	45	10,1	10,15	3,63	3,75	3,88	4,02	4,16	4,33	2
3050408	0,4	0,2	4	0,3	4	0,37	45	10,6	9,68	4,15	4,28	4,43	4,59	4,76	4,95	2
3050409	0,4	0,2	4,5	0,3	4	0,37	45	11,1	9,25	4,66	4,82	4,99	5,17	5,36	5,57	2
3050410	0,4	0,2	5	0,3	4	0,37	45	11,6	8,86	5,18	5,35	5,54	5,74	5,96	6,19	2
3050411	0,4	0,2	5,5	0,3	4	0,37	45	12,1	8,5	5,7	5,89	6,09	6,32	6,55	6,81	2
3050412	0,4	0,2	6	0,3	4	0,37	45	12,6	8,16	6,21	6,42	6,65	6,89	7,15	7,43	2
3050500	0,5	0,25	1	0,4	4	0,45	45	7,6	13,45	1,03	1,06	1,09	1,12	1,15	1,19	2
3050501	0,5	0,25	1,5	0,4	4	0,45	45	8,1	12,62	1,55	1,59	1,64	1,69	1,75	1,81	2
3050502	0,5	0,25	2	0,4	4	0,45	45	8,6	11,89	2,06	2,13	2,2	2,27	2,35	2,43	2
3049952	0,5	0,25	2,5	0,4	4	0,45	45	9,1	11,23	2,58	2,66	2,75	2,84	2,94	3,05	2
3050503	0,5	0,25	3	0,4	4	0,45	45	9,6	10,65	3,1	3,2	3,3	3,42	3,54	3,68	2
3049953	0,5	0,25	3,5	0,4	4	0,45	45	10,1	10,12	3,61	3,73	3,86	3,99	4,14	4,3	2
3050504	0,5	0,25	4	0,4	4	0,45	45	10,6	9,64	4,13	4,27	4,41	4,57	4,74	4,92	2
3049954	0,5	0,25	4,5	0,4	4	0,45	45	11,1	9,2	4,65	4,8	4,97	5,14	5,33	5,54	2
3050505	0,5	0,25	5	0,4	4	0,45	45	11,6	8,8	5,17	5,34	5,52	5,72	5,93	6,16	2
3049955	0,5	0,25	5,5	0,4	4	0,45	45	12,1	8,43	5,68	5,87	6,07	6,29	6,53	6,78	2

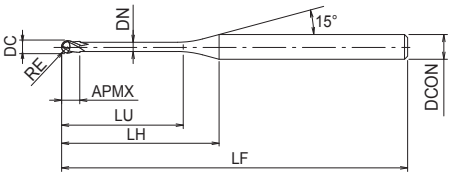


WXS-LN-EBD

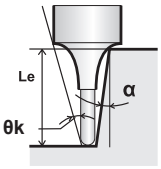
Milling | Solid carbide







- Carbide end mill with WXS coating
- For hardened steels up to 65 HRC and stainless steels
- 2 flutes, long neck, ball nose
- 189 sizes



P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S | H ~60 HRC | H ~65 HRC

CARBIDE | WXS | 30° | SHRINK FIT | R ± 0.005

C.945

EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=2,5°)	Le(α=3°)	ZEFP
3050506	0,5	0,25	6	0,4	4	0,45	45	12,6	8,1	6,2	6,41	6,63	6,87	7,13	7,41	2
3050507	0,5	0,25	7	0,4	4	0,45	45	13,6	7,49	7,23	7,48	7,74	8,02	8,32	8,65	2
3050508	0,5	0,25	8	0,4	4	0,45	45	14,6	6,98	8,27	8,55	8,85	9,17	9,52	9,89	2
3050509	0,5	0,25	9	0,4	4	0,45	45	15,6	6,52	9,3	9,62	9,95	10,32	10,71	11,14	2
3050510	0,5	0,25	10	0,4	4	0,45	45	16,6	6,13	10,33	10,68	11,06	11,47	11,9	12,38	2
3050601	0,6	0,3	1,2	0,5	4	0,55	45	7,6	13,14	1,24	1,27	1,3	1,34	1,38	1,43	2
3050602	0,6	0,3	2	0,5	4	0,55	45	8,4	11,88	2,06	2,12	2,19	2,26	2,34	2,42	2
3049962	0,6	0,3	2,5	0,5	4	0,55	45	8,9	11,21	2,58	2,66	2,74	2,84	2,94	3,04	2
3050603	0,6	0,3	3	0,5	4	0,55	45	9,4	10,61	3,1	3,19	3,3	3,41	3,53	3,66	2
3049963	0,6	0,3	3,5	0,5	4	0,55	45	9,9	10,07	3,61	3,73	3,85	3,99	4,13	4,29	2
3050604	0,6	0,3	4	0,5	4	0,55	45	10,4	9,58	4,13	4,26	4,41	4,56	4,73	4,91	2
3049964	0,6	0,3	4,5	0,5	4	0,55	45	10,9	9,13	4,65	4,8	4,96	5,14	5,32	5,53	2
3050605	0,6	0,3	5	0,5	4	0,55	45	11,4	8,73	5,16	5,33	5,51	5,71	5,92	6,15	2
3049965	0,6	0,3	5,5	0,5	4	0,55	45	11,9	8,36	5,68	5,87	6,07	6,29	6,52	6,77	2
3050606	0,6	0,3	6	0,5	4	0,55	45	12,4	8,02	6,2	6,4	6,62	6,86	7,12	7,39	2
3049966	0,6	0,3	6,5	0,5	4	0,55	45	12,9	7,7	6,71	6,94	7,18	7,44	7,71	8,02	2
3050607	0,6	0,3	7	0,5	4	0,55	45	13,4	7,41	7,23	7,47	7,73	8,01	8,31	8,64	2
3049967	0,6	0,3	7,5	0,5	4	0,55	45	13,9	7,14	7,75	8,01	8,29	8,59	8,91	9,26	2
3050608	0,6	0,3	8	0,5	4	0,55	45	14,4	6,89	8,26	8,54	8,84	9,16	9,51	9,88	2
3049968	0,6	0,3	8,5	0,5	4	0,55	45	14,9	6,66	8,78	9,08	9,39	9,74	10,1	10,5	2
3050609	0,6	0,3	9	0,5	4	0,55	45	15,4	6,44	9,3	9,61	9,95	10,31	10,7	11,12	2
3049969	0,6	0,3	9,5	0,5	4	0,55	45	15,9	6,23	9,81	10,15	10,5	10,89	11,3	11,75	2
3050610	0,6	0,3	10	0,5	4	0,55	45	16,4	6,04	10,33	10,68	11,06	11,46	11,9	12,37	2
3050611	0,6	0,3	11	0,5	4	0,55	50	17,4	5,69	11,37	11,75	12,16	12,61	13,09	13,61	2
3050612	0,6	0,3	12	0,5	4	0,55	50	18,4	5,38	12,4	12,82	13,27	13,76	14,28	14,85	2
3050802	0,8	0,4	2	0,6	4	0,75	45	8,1	11,86	2,06	2,12	2,18	2,25	2,32	2,4	2
3050803	0,8	0,4	3	0,6	4	0,75	45	9,1	10,52	3,09	3,19	3,29	3,4	3,51	3,64	2
3050804	0,8	0,4	4	0,6	4	0,75	45	10,1	9,45	4,13	4,26	4,4	4,55	4,71	4,88	2
3050805	0,8	0,4	5	0,6	4	0,75	45	11,1	8,58	5,16	5,33	5,5	5,7	5,9	6,13	2
3050806	0,8	0,4	6	0,6	4	0,75	45	12,1	7,85	6,19	6,4	6,61	6,85	7,1	7,37	2
3050807	0,8	0,4	7	0,6	4	0,75	45	13,1	7,24	7,23	7,47	7,72	8	8,29	8,61	2
3050808	0,8	0,4	8	0,6	4	0,75	45	14,1	6,71	8,26	8,54	8,83	9,15	9,49	9,86	2
3050810	0,8	0,4	10	0,6	4	0,75	45	16,1	5,86	10,33	10,67	11,05	11,45	11,88	12,34	2
3050812	0,8	0,4	12	0,6	4	0,75	50	18,1	5,2	12,4	12,81	13,26	13,75	14,27	14,83	2
3051002	1	0,5	2	0,8	4	0,95	45	7,7	11,84	2,06	2,11	2,17	2,23	2,3	2,37	2
3051003	1	0,5	3	0,8	4	0,95	45	8,7	10,43	3,09	3,18	3,28	3,38	3,49	3,62	2
3051004	1	0,5	4	0,8	4	0,95	45	9,7	9,32	4,12	4,25	4,39	4,53	4,69	4,86	2
3051005	1	0,5	5	0,8	4	0,95	45	10,7	8,41	5,16	5,32	5,49	5,68	5,88	6,1	2
3051006	1	0,5	6	0,8	4	0,95	45	11,7	7,67	6,19	6,39	6,6	6,83	7,08	7,35	2
3051007	1	0,5	7	0,8	4	0,95	45	12,7	7,05	7,22	7,46	7,71	7,98	8,27	8,59	2
3051008	1	0,5	8	0,8	4	0,95	45	13,7	6,52	8,26	8,53	8,82	9,13	9,47	9,83	2
3051009	1	0,5	9	0,8	4	0,95	45	14,7	6,06	9,29	9,6	9,93	10,28	10,66	11,08	2
3051010	1	0,5	10	0,8	4	0,95	45	15,7	5,66	10,33	10,67	11,04	11,43	11,86	12,32	2
3051012	1	0,5	12	0,8	4	0,95	45	17,7	5,01	12,39	12,81	13,25	13,73	14,25	14,81	2
3051014	1	0,5	14	0,8	4	0,95	50	19,7	4,49	14,46	14,95	15,47	16,03	16,64	17,29	2
3051016	1	0,5	16	0,8	4	0,95	50	21,7	4,06	16,53	17,09	17,69	18,33	19,03	19,78	2

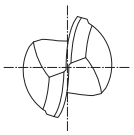


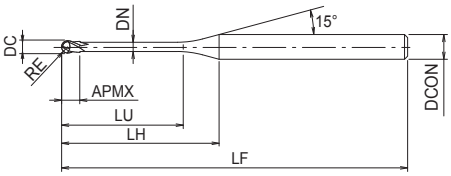
WXS-LN-EBD

INDEX

Milling | Solid carbide

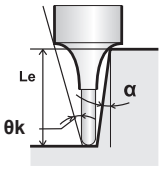






- Carbide end mill with WXS coating
- For hardened steels up to 65 HRC and stainless steels
- 2 flutes, long neck, ball nose
- 189 sizes









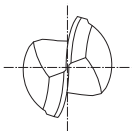
EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=2,5°)	Le(α=3°)	ZEFP
3051018	1	0,5	18	0,8	4	0,95	55	23,7	3,71	18,59	19,23	19,9	20,63	21,41	22,26	2
3051020	1	0,5	20	0,8	4	0,95	55	25,7	3,42	20,66	21,36	22,12	22,93	23,8	24,75	2
3051022	1	0,5	22	0,8	4	0,95	60	27,7	3,17	22,73	23,5	24,33	25,23	26,19	27,24	2
3051202	1,2	0,6	2,4	1	4	1,15	45	7,8	11,03	2,51	2,61	2,7	2,78	2,87	2,96	2
3051204	1,2	0,6	4	1	4	1,15	45	9,4	9,07	4,19	4,34	4,48	4,62	4,78	4,95	2
3051206	1,2	0,6	6	1	4	1,15	45	11,4	7,41	6,27	6,48	6,69	6,92	7,17	7,44	2
3051208	1,2	0,6	8	1	4	1,15	45	13,4	6,26	8,35	8,62	8,91	9,22	9,56	9,93	2
3051210	1,2	0,6	10	1	4	1,15	45	15,4	5,42	10,42	10,76	11,13	11,52	11,95	12,41	2
3051212	1,2	0,6	12	1	4	1,15	45	17,4	4,78	12,49	12,9	13,34	13,82	14,34	14,9	2
3051214	1,2	0,6	14	1	4	1,15	50	19,4	4,27	14,55	15,04	15,56	16,12	16,73	17,38	2
3051216	1,2	0,6	16	1	4	1,15	50	21,4	3,86	16,62	17,18	17,78	18,42	19,12	19,87	2
3051218	1,2	0,6	18	1	4	1,15	55	23,4	3,52	18,69	19,32	19,99	20,72	21,51	22,36	2
3051220	1,2	0,6	20	1	4	1,15	55	25,4	3,24	20,75	21,46	22,21	23,02	23,9	24,84	2
3051503	1,5	0,75	3	1,2	4	1,45	45	7,9	10,01	3,13	3,25	3,35	3,45	3,56	3,67	2
3051504	1,5	0,75	4	1,2	4	1,45	45	8,9	8,8	4,18	4,33	4,46	4,6	4,75	4,92	2
3051506	1,5	0,75	6	1,2	4	1,45	45	10,9	7,08	6,27	6,47	6,68	6,9	7,14	7,4	2
3051508	1,5	0,75	8	1,2	4	1,45	45	12,9	5,92	8,34	8,61	8,9	9,2	9,53	9,89	2
3051510	1,5	0,75	10	1,2	4	1,45	45	14,9	5,09	10,41	10,75	11,11	11,5	11,92	12,38	2
3051512	1,5	0,75	12	1,2	4	1,45	45	16,9	4,46	12,48	12,89	13,33	13,8	14,31	14,86	2
3051514	1,5	0,75	14	1,2	4	1,45	50	18,9	3,96	14,55	15,03	15,55	16,1	16,7	17,35	2
3051516	1,5	0,75	16	1,2	4	1,45	50	20,9	3,57	16,62	17,17	17,76	18,4	19,09	19,83	2
3051518	1,5	0,75	18	1,2	4	1,45	55	22,9	3,25	18,68	19,31	19,98	20,7	21,48	22,32	2
3051520	1,5	0,75	20	1,2	4	1,45	55	24,9	2,98	20,75	21,45	22,19	23	23,87	-	2
3051522	1,5	0,75	22	1,2	4	1,45	60	26,9	2,75	22,82	23,59	24,41	25,3	26,26	-	2
3051530	1,5	0,75	30	1,2	4	1,45	70	34,9	2,1	31,09	32,14	33,28	34,5	-	-	2
3051608	1,6	0,8	8	1,3	4	1,55	45	12,7	5,8	8,34	8,61	8,89	9,19	9,52	9,88	2
3051612	1,6	0,8	12	1,3	4	1,55	45	16,7	4,34	12,48	12,89	13,32	13,79	14,3	14,85	2
3051616	1,6	0,8	16	1,3	4	1,55	50	20,7	3,47	16,61	17,16	17,76	18,39	19,08	19,82	2
3051620	1,6	0,8	20	1,3	4	1,55	55	24,7	2,89	20,75	21,44	22,19	22,99	23,86	-	2
3052004	2	1	4	1,6	4	1,95	45	8,3	7,87	4,23	4,44	4,66	4,86	5,06	5,26	2
3052006	2	1	6	1,6	4	1,95	45	10,3	6,19	6,36	6,67	6,96	7,23	7,49	7,76	2
3052008	2	1	8	1,6	4	1,95	45	12,3	5,1	8,48	8,87	9,22	9,55	9,88	10,24	2
3052010	2	1	10	1,6	4	1,95	45	14,3	4,33	10,59	11,05	11,45	11,85	12,27	12,73	2
3052012	2	1	12	1,6	4	1,95	45	16,3	3,77	12,69	13,21	13,67	14,15	14,66	15,22	2
3052014	2	1	14	1,6	4	1,95	50	18,3	3,33	14,78	15,36	15,89	16,45	17,05	17,7	2
3052016	2	1	16	1,6	4	1,95	50	20,3	2,98	16,88	17,51	18,1	18,75	19,44	-	2
3052018	2	1	18	1,6	4	1,95	55	22,3	2,7	18,96	19,65	20,32	21,04	21,83	-	2
3052020	2	1	20	1,6	4	1,95	55	24,3	2,47	21,05	21,78	22,54	23,34	-	-	2
3052022	2	1	22	1,6	4	1,95	60	26,3	2,27	23,13	23,92	24,75	25,64	-	-	2
3052025	2	1	25	1,6	4	1,95	65	29,3	2,03	26,24	27,13	28,08	29,09	-	-	2
3052030	2	1	30	1,6	4	1,95	70	34,3	1,73	31,42	32,48	33,62	-	-	-	2
3052035	2	1	35	1,6	4	1,95	70	39,3	1,5	36,59	37,83	39,16	-	-	-	2
3052040	2	1	40	1,6	4	1,95	80	44,3	1,33	41,76	43,18	-	-	-	-	2
3052510	2,5	1,25	10	2	4	2,35	45	13,1	3,63	10,46	10,85	11,21	11,59	11,99	12,43	2
3052515	2,5	1,25	15	2	4	2,35	50	18,1	2,55	15,67	16,21	16,75	17,34	17,96	-	2
3052520	2,5	1,25	20	2	4	2,35	55	23,1	1,97	20,87	21,56	22,3	-	-	-	2

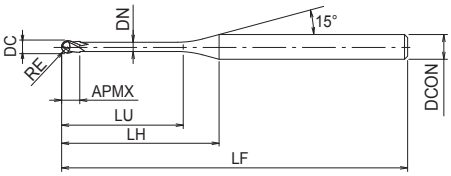


WXS-LN-EBD

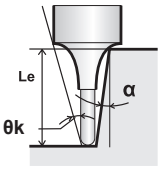
Milling | Solid carbide







- Carbide end mill with WXS coating
- For hardened steels up to 65 HRC and stainless steels
- 2 flutes, long neck, ball nose
- 189 sizes



P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S | H ~60 HRC | H ~65 HRC

CARBIDE | WXS | 30° | SHRINK FIT | R ± 0.005

C.945

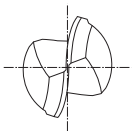
EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=2,5°)	Le(α=3°)	ZEFP
3052525	2,5	1,25	25	2	4	2,35	65	28,1	1,6	26,04	26,91	27,84	-	-	-	2
3052530	2,5	1,25	30	2	4	2,35	70	33,1	1,35	31,21	32,26	-	-	-	-	2
3052535	2,5	1,25	35	2	4	2,35	70	38,1	1,17	36,38	37,61	-	-	-	-	2
3053006	3	1,5	6	2,4	6	2,85	50	11,9	8,17	6,25	6,49	6,72	6,95	7,17	7,4	2
3053008	3	1,5	8	2,4	6	2,85	50	13,9	6,88	8,35	8,67	8,97	9,25	9,55	9,88	2
3053010	3	1,5	10	2,4	6	2,85	50	15,9	5,94	10,44	10,83	11,19	11,55	11,94	12,37	2
3053012	3	1,5	12	2,4	6	2,85	55	17,9	5,22	12,53	12,98	13,4	13,85	14,33	14,86	2
3053014	3	1,5	14	2,4	6	2,85	55	19,9	4,66	14,62	15,13	15,62	16,15	16,72	17,34	2
3053015	3	1,5	15	2,4	6	2,85	55	20,9	4,42	15,66	16,2	16,73	17,3	17,92	18,59	2
3053016	3	1,5	16	2,4	6	2,85	55	21,9	4,21	16,7	17,26	17,84	18,45	19,11	19,83	2
3053020	3	1,5	20	2,4	6	2,85	60	25,9	3,52	20,86	21,54	22,27	23,05	23,89	24,8	2
3053025	3	1,5	25	2,4	6	2,85	65	30,9	2,92	26,04	26,89	27,81	28,8	29,86	-	2
3053030	3	1,5	30	2,4	6	2,85	70	35,9	2,5	31,2	32,24	33,35	34,55	-	-	2
3053035	3	1,5	35	2,4	6	2,85	80	40,9	2,18	36,37	37,59	38,89	40,3	-	-	2
3053040	3	1,5	40	2,4	6	2,85	90	45,9	1,94	41,54	42,94	44,43	-	-	-	2
3053515	3,5	1,75	15	2,8	6	3,35	55	20	3,93	15,65	16,18	16,7	17,26	17,87	18,53	2
3053520	3,5	1,75	20	2,8	6	3,35	60	25	3,08	20,85	21,53	22,24	23,01	23,84	24,74	2
3053525	3,5	1,75	25	2,8	6	3,35	65	30	2,54	26,03	26,87	27,78	28,76	29,82	-	2
3053530	3,5	1,75	30	2,8	6	3,35	70	35	2,16	31,2	32,22	33,32	34,51	-	-	2
3053535	3,5	1,75	35	2,8	6	3,35	80	40	1,88	36,36	37,57	38,87	-	-	-	2
3053540	3,5	1,75	40	2,8	6	3,35	90	45	1,66	41,53	42,92	44,41	-	-	-	2
3053545	3,5	1,75	45	2,8	6	3,35	90	50	1,49	46,7	48,27	-	-	-	-	2
3054008	4	2	8	3,2	6	3,85	55	12,1	5,67	8,33	8,63	8,91	9,18	9,46	9,77	2
3054010	4	2	10	3,2	6	3,85	60	14,1	4,74	10,42	10,79	11,13	11,48	11,85	12,25	2
3054012	4	2	12	3,2	6	3,85	60	16,1	4,07	12,51	12,95	13,35	13,78	14,24	14,74	2
3054015	4	2	15	3,2	6	3,85	60	19,1	3,36	15,64	16,16	16,67	17,23	17,82	18,47	2
3054016	4	2	16	3,2	6	3,85	60	20,1	3,18	16,68	17,23	17,78	18,38	19,02	19,71	2
3054020	4	2	20	3,2	6	3,85	65	24,1	2,6	20,84	21,51	22,22	22,98	23,8	-	2
3054025	4	2	25	3,2	6	3,85	70	29,1	2,12	26,02	26,86	27,76	28,72	-	-	2
3054030	4	2	30	3,2	6	3,85	80	34,1	1,79	31,19	32,21	33,3	-	-	-	2
3054035	4	2	35	3,2	6	3,85	80	39,1	1,55	36,36	37,55	38,84	-	-	-	2
3054040	4	2	40	3,2	6	3,85	90	44,1	1,36	41,52	42,9	-	-	-	-	2
3054045	4	2	45	3,2	6	3,85	90	49,1	1,22	46,69	48,25	-	-	-	-	2
3054050	4	2	50	3,2	6	3,85	100	54,1	1,1	51,86	53,6	-	-	-	-	2
3055010	5	2,5	10	4	6	4,85	60	12,2	2,96	10,4	10,75	11,08	11,4	11,75	-	2
3055015	5	2,5	15	4	6	4,85	60	17,2	1,96	15,62	16,13	16,62	-	-	-	2
3055020	5	2,5	20	4	6	4,85	70	22,2	1,46	20,82	21,47	-	-	-	-	2
3055025	5	2,5	25	4	6	4,85	70	27,2	1,16	26	26,82	-	-	-	-	2
3055030	5	2,5	30	4	6	4,85	80	32,2	0,97	31,17	-	-	-	-	-	2
3055035	5	2,5	35	4	6	4,85	80	37,2	0,83	36,34	-	-	-	-	-	2
3055040	5	2,5	40	4	6	4,85	90	42,2	0,72	41,51	-	-	-	-	-	2
3055045	5	2,5	45	4	6	4,85	100	47,2	0,64	46,68	-	-	-	-	-	2
3055050	5	2,5	50	4	6	4,85	100	52,2	0,58	51,84	-	-	-	-	-	2
3056012	6	3	12	4,8	6	5,85	60	-	-	-	-	-	-	-	-	2
3056020	6	3	20	4,8	6	5,85	70	-	-	-	-	-	-	-	-	2
3056025	6	3	25	4,8	6	5,85	70	-	-	-	-	-	-	-	-	2

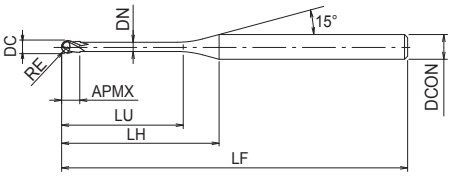


WXS-LN-EBD

Milling | Solid carbide

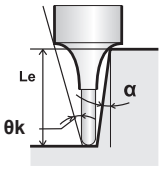






- Carbide end mill with WXS coating
- For hardened steels up to 65 HRC and stainless steels
- 2 flutes, long neck, ball nose
- 189 sizes









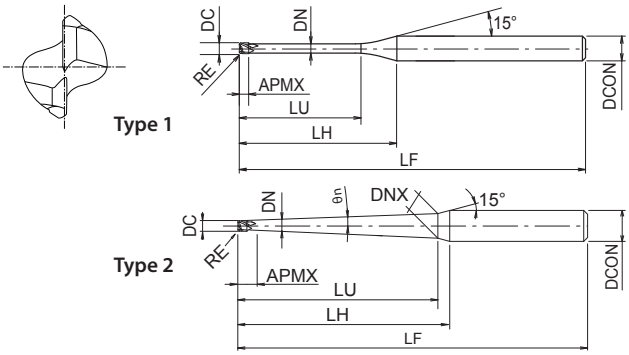
EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
3056030	6	3	30	4,8	6	5,85	80	2
3056035	6	3	35	4,8	6	5,85	80	2
3056040	6	3	40	4,8	6	5,85	90	2
3056045	6	3	45	4,8	6	5,85	100	2
3056050	6	3	50	4,8	6	5,85	120	2



WXS-CPR

Milling | Solid carbide





- Carbide end mill with WXS coating
- For hardened steels up to 65 HRC and stainless steels
- 2 flutes, long and pencil neck, corner radius, for mould & die
- 247 sizes

P ~45 HRC | P ~55 HRC | M ~35 HRC | H ~60 HRC | H ~65 HRC

CARBIDE | WXS | 30° | SHRINK FIT | R ± 0.005 | D<0.5 0~-0.01 | D≥0.5 0~-0.015

C.951

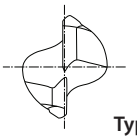
EDP	DC	RE	θn	LU	APMX	DCON	DN	DNX	LF	LH	ZEFP	Type
3100201	0,2	0,05	0	0,5	0,15	4	0,18	-	50	7,6	2	1
3100202	0,2	0,05	0	1	0,15	4	0,18	-	50	8,1	2	1
3100203	0,2	0,05	1	1	0,15	4	0,18	0,22	50	8,2	2	2
3100204	0,2	0,05	1	2	0,15	4	0,18	0,26	50	9,1	2	2
3100301	0,3	0,05	0	1	0,25	4	0,28	-	50	7,9	2	1
3100302	0,3	0,05	0	2	0,25	4	0,28	-	50	8,9	2	1
3100303	0,3	0,05	1	2	0,25	4	0,28	0,35	50	9	2	2
3100304	0,3	0,05	1	3	0,25	4	0,28	0,39	50	9,9	2	2
3100401	0,4	0,05	0	1	0,3	4	0,37	-	50	8,1	2	1
3100402	0,4	0,05	0	1,5	0,3	4	0,37	-	50	8,6	2	1
3100403	0,4	0,05	0	2	0,3	4	0,37	-	50	9,1	2	1
3100404	0,4	0,05	0	3	0,3	4	0,37	-	50	10,1	2	1
3100409	0,4	0,05	1	3	0,3	4	0,37	0,48	50	9,7	2	2
3100405	0,4	0,05	0	4	0,3	4	0,37	-	50	11,1	2	1
3100410	0,4	0,05	1	4	0,3	4	0,37	0,51	50	10,7	2	2
3100406	0,4	0,1	0	2	0,3	4	0,37	-	50	9,1	2	1
3100407	0,4	0,1	0	3	0,3	4	0,37	-	50	10,1	2	1
3100415	0,4	0,1	1	3	0,3	4	0,37	0,48	50	9,7	2	2
3100408	0,4	0,1	0	4	0,3	4	0,37	-	50	11,1	2	1
3100416	0,4	0,1	1	4	0,3	4	0,37	0,51	50	10,7	2	2
3100501	0,5	0,05	0	1	0,4	4	0,46	-	50	8,1	2	1
3100502	0,5	0,05	0	2	0,4	4	0,46	-	50	9,1	2	1
3100503	0,5	0,05	0	3	0,4	4	0,46	-	50	10,1	2	1
3100513	0,5	0,05	1	3	0,4	4	0,46	0,58	50	9,5	2	2
3100504	0,5	0,05	0	4	0,4	4	0,46	-	50	11,1	2	1
3100505	0,5	0,05	0	5	0,4	4	0,46	-	50	12,1	2	1
3100514	0,5	0,05	1	5	0,4	4	0,46	0,64	50	11,4	2	2
3100506	0,5	0,05	0	6	0,4	4	0,46	-	50	13,1	2	1
3100515	0,5	0,05	1	8	0,4	4	0,46	0,75	50	14,2	2	2
3100516	0,5	0,05	1	10	0,4	4	0,46	0,81	50	16,1	2	2
3100517	0,5	0,05	1	12	0,4	4	0,46	0,88	50	18	2	2
3100507	0,5	0,1	0	1	0,4	4	0,46	-	50	8,1	2	1
3100508	0,5	0,1	0	2	0,4	4	0,46	-	50	9,1	2	1
3100509	0,5	0,1	0	3	0,4	4	0,46	-	50	10,1	2	1
3100527	0,5	0,1	1	3	0,4	4	0,46	0,58	50	9,5	2	2
3100510	0,5	0,1	0	4	0,4	4	0,46	-	50	11,1	2	1
3100511	0,5	0,1	0	5	0,4	4	0,46	-	50	12,1	2	1
3100528	0,5	0,1	1	5	0,4	4	0,46	0,64	50	11,4	2	2
3100512	0,5	0,1	0	6	0,4	4	0,46	-	50	13,1	2	1
3100529	0,5	0,1	1	8	0,4	4	0,46	0,75	50	14,2	2	2
3100530	0,5	0,1	1	10	0,4	4	0,46	0,81	50	16,1	2	2
3100531	0,5	0,1	1	12	0,4	4	0,46	0,88	50	18	2	2
3100601	0,6	0,1	0	2	0,48	4	0,55	-	50	8,9	2	1
3100602	0,6	0,1	0	4	0,48	4	0,55	-	50	10,9	2	1
3100603	0,6	0,1	0	6	0,48	4	0,55	-	50	12,9	2	1
3100806	0,8	0,05	1	5	0,65	4	0,75	0,93	50	11,2	2	2

WXS-CPR

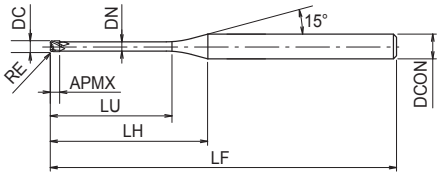
Milling | Solid carbide

INDEX

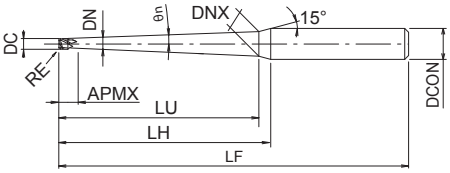




Type 1



Type 2



- Carbide end mill with WXS coating
- For hardened steels up to 65 HRC and stainless steels
- 2 flutes, long and pencil neck, corner radius, for mould & die
- 247 sizes

P ~45 HRC | P ~55 HRC | M ~35 HRC | H ~60 HRC | H ~65 HRC

CARBIDE | WXS | 30° | SHRINK FIT | R ± 0.005 | D<0.5 0~-0.01 | D≥0.5 0~-0.015

C.951

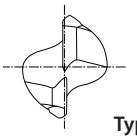
EDP	DC	RE	θn	LU	APMX	DCON	DN	DNX	LF	LH	ZEFP	Type
3100807	0,8	0,05	1	8	0,65	4	0,75	1,04	50	14	2	2
3100801	0,8	0,1	0	4	0,65	4	0,75	-	50	10,5	2	1
3100810	0,8	0,1	1	5	0,65	4	0,75	0,93	50	11,2	2	2
3100802	0,8	0,1	0	6	0,65	4	0,75	-	50	12,5	2	1
3100811	0,8	0,1	1	8	0,65	4	0,75	1,04	50	14	2	2
3100803	0,8	0,2	0	4	0,65	4	0,75	-	50	10,5	2	1
3100814	0,8	0,2	1	5	0,65	4	0,75	0,93	50	11,2	2	2
3100804	0,8	0,2	0	6	0,65	4	0,75	-	50	12,5	2	1
3100805	0,8	0,2	0	8	0,65	4	0,75	-	50	14,5	2	1
3100815	0,8	0,2	1	8	0,65	4	0,75	1,04	50	14	2	2
3101001	1	0,05	0	4	0,8	4	0,94	-	50	10,1	2	1
3101002	1	0,05	0	6	0,8	4	0,94	-	50	12,1	2	1
3101023	1	0,05	1	6	0,8	4	0,94	1,16	50	11,8	2	2
3101003	1	0,05	0	8	0,8	4	0,94	-	50	14,1	2	1
3101004	1	0,05	0	10	0,8	4	0,94	-	50	16,1	2	1
3101024	1	0,05	1	10	0,8	4	0,94	1,29	60	15,5	2	2
3101005	1	0,05	0	12	0,8	4	0,94	-	50	18,1	2	1
3101025	1	0,05	1	15	0,8	4	0,94	1,46	60	20,2	2	2
3101026	1	0,05	1	20	0,8	4	0,94	1,61	60	24,9	2	2
3101027	1	0,05	1	25	0,8	4	0,94	1,79	70	29,6	2	2
3101028	1	0,05	1	30	0,8	4	0,94	1,96	80	34,3	2	2
3101029	1	0,05	1	35	0,8	4	0,94	2,13	80	39	2	2
3101006	1	0,1	0	4	0,8	4	0,94	-	50	10,1	2	1
3101007	1	0,1	0	6	0,8	4	0,94	-	50	12,1	2	1
3101032	1	0,1	1	6	0,8	4	0,94	1,16	50	11,8	2	2
3101008	1	0,1	0	8	0,8	4	0,94	-	50	14,1	2	1
3101009	1	0,1	0	10	0,8	4	0,94	-	50	16,1	2	1
3101033	1	0,1	1	10	0,8	4	0,94	1,29	60	15,5	2	2
3101010	1	0,1	0	12	0,8	4	0,94	-	50	18,1	2	1
3101034	1	0,1	1	15	0,8	4	0,94	1,46	60	20,2	2	2
3101035	1	0,1	1	20	0,8	4	0,94	1,61	60	24,9	2	2
3101036	1	0,1	1	25	0,8	4	0,94	1,79	70	29,6	2	2
3101037	1	0,1	1	30	0,8	4	0,94	1,96	80	34,3	2	2
3101038	1	0,1	1	35	0,8	4	0,94	2,13	80	39	2	2
3101011	1	0,2	0	4	0,8	4	0,94	-	50	10,1	2	1
3101012	1	0,2	0	6	0,8	4	0,94	-	50	12,1	2	1
3101041	1	0,2	1	6	0,8	4	0,94	1,16	50	11,8	2	2
3101013	1	0,2	0	8	0,8	4	0,94	-	50	14,1	2	1
48253108	1	0,2	0	8	0,8	6	0,94	-	50	17,9	2	1
3101014	1	0,2	0	10	0,8	4	0,94	-	50	16,1	2	1
3101042	1	0,2	1	10	0,8	4	0,94	1,29	60	15,5	2	2
3101015	1	0,2	0	12	0,8	4	0,94	-	50	18,1	2	1
3101043	1	0,2	1	15	0,8	4	0,94	1,46	60	20,2	2	2
3101016	1	0,2	0	16	0,8	4	0,94	-	60	22,1	2	1
3101017	1	0,2	0	20	0,8	4	0,94	-	60	26,1	2	1
3101044	1	0,2	1	20	0,8	4	0,94	1,61	60	24,9	2	2



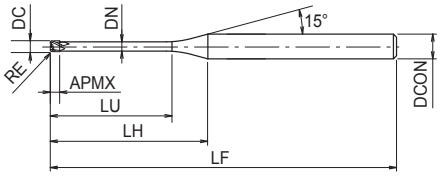
WXS-CPR

Milling | Solid carbide

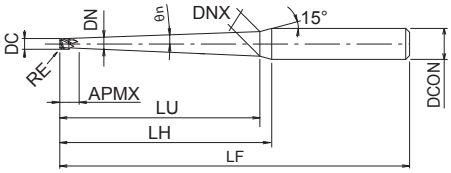




Type 1



Type 2



- Carbide end mill with WXS coating
- For hardened steels up to 65 HRC and stainless steels
- 2 flutes, long and pencil neck, corner radius, for mould & die
- 247 sizes

P ~45 HRC | P ~55 HRC | M ~35 HRC | H ~60 HRC | H ~65 HRC

CARBIDE | WXS | 30° | SHRINK FIT | R ± 0.005 | D<0.5 0~-0.01 | D≥0.5 0~-0.015

C.951

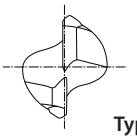
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3101045	1	0,2	1	25	0,8	4	0,94	1,79	70	29,6	2	2
3101046	1	0,2	1	30	0,8	4	0,94	1,96	80	34,3	2	2
3101047	1	0,2	1	35	0,8	4	0,94	2,13	80	39	2	2
3101018	1	0,3	0	4	0,8	4	0,94	-	50	10,1	2	1
3101019	1	0,3	0	6	0,8	4	0,94	-	50	12,1	2	1
3101050	1	0,3	1	6	0,8	4	0,94	1,16	50	11,8	2	2
3101020	1	0,3	0	8	0,8	4	0,94	-	50	14,1	2	1
3101021	1	0,3	0	10	0,8	4	0,94	-	50	16,1	2	1
3101051	1	0,3	1	10	0,8	4	0,94	1,29	60	15,5	2	2
3101022	1	0,3	0	12	0,8	4	0,94	-	50	18,1	2	1
3101052	1	0,3	1	15	0,8	4	0,94	1,46	60	20,2	2	2
3101053	1	0,3	1	20	0,8	4	0,94	1,61	60	24,9	2	2
3101054	1	0,3	1	25	0,8	4	0,94	1,79	70	29,6	2	2
3101055	1	0,3	1	30	0,8	4	0,94	1,96	80	34,3	2	2
3101056	1	0,3	1	35	0,8	4	0,94	2,13	80	39	2	2
3101201	1,2	0,2	0	6	1	4	1,14	-	50	11,7	2	1
3101202	1,2	0,2	0	8	1	4	1,14	-	50	13,7	2	1
3101203	1,2	0,2	0	10	1	4	1,14	-	50	15,7	2	1
3101204	1,2	0,3	0	6	1	4	1,14	-	50	11,7	2	1
3101205	1,2	0,3	0	8	1	4	1,14	-	50	13,7	2	1
3101206	1,2	0,3	0	10	1	4	1,14	-	50	15,7	2	1
3101511	1,5	0,1	1	10	1,2	4	1,43	1,78	60	14,6	2	2
3101512	1,5	0,1	1	15	1,2	4	1,43	1,94	60	19,3	2	2
3101513	1,5	0,1	1	20	1,2	4	1,43	2,1	60	24	2	2
3101514	1,5	0,1	1	25	1,2	4	1,43	2,27	70	28,7	2	2
3101515	1,5	0,1	1	30	1,2	4	1,43	2,45	80	33,4	2	2
3101501	1,5	0,2	0	6	1,2	4	1,43	-	50	11,1	2	1
3101502	1,5	0,2	0	8	1,2	4	1,43	-	50	13,1	2	1
3101503	1,5	0,2	0	10	1,2	4	1,43	-	50	15,1	2	1
3101518	1,5	0,2	1	10	1,2	4	1,43	1,78	60	14,6	2	2
3101504	1,5	0,2	0	12	1,2	4	1,43	-	50	17,1	2	1
3101519	1,5	0,2	1	15	1,2	4	1,43	1,94	60	19,3	2	2
3101505	1,5	0,2	0	16	1,2	4	1,43	-	50	21,1	2	1
3101520	1,5	0,2	1	20	1,2	4	1,43	2,1	60	24	2	2
3101521	1,5	0,2	1	25	1,2	4	1,43	2,27	70	28,7	2	2
3101522	1,5	0,2	1	30	1,2	4	1,43	2,45	80	33,4	2	2
3101506	1,5	0,3	0	6	1,2	4	1,43	-	50	11,1	2	1
3101507	1,5	0,3	0	8	1,2	4	1,43	-	50	13,1	2	1
3101508	1,5	0,3	0	10	1,2	4	1,43	-	50	15,1	2	1
3101525	1,5	0,3	1	10	1,2	4	1,43	1,78	60	14,6	2	2
3101509	1,5	0,3	0	12	1,2	4	1,43	-	50	17,1	2	1
3101526	1,5	0,3	1	15	1,2	4	1,43	1,94	60	19,3	2	2
3101510	1,5	0,3	0	16	1,2	4	1,43	-	50	21,1	2	1
3101527	1,5	0,3	1	20	1,2	4	1,43	2,1	60	24	2	2
3101528	1,5	0,3	1	25	1,2	4	1,43	2,27	70	28,7	2	2
3101529	1,5	0,3	1	30	1,2	4	1,43	2,45	80	33,4	2	2

WXS-CPR

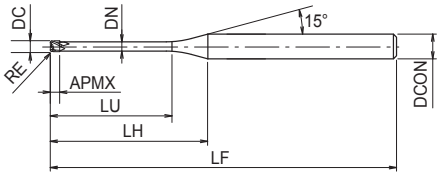
Milling | Solid carbide

INDEX

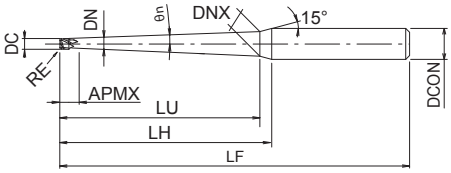




Type 1



Type 2



- Carbide end mill with WXS coating
- For hardened steels up to 65 HRC and stainless steels
- 2 flutes, long and pencil neck, corner radius, for mould & die
- 247 sizes

P ~45 HRC | P ~55 HRC | M ~35 HRC | H ~60 HRC | H ~65 HRC

CARBIDE | WXS | 30° | SHRINK FIT | R ± 0.005 | D<0.5 0~-0.01 | D≥0.5 0~-0.015

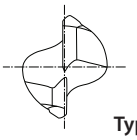
C.951

EDP	DC	RE	θn	LU	APMX	DCON	DN	DNX	LF	LH	ZEFP	Type
3102001	2	0,1	0	8	1,6	4	1,92	-	50	12,22	2	1
3102002	2	0,1	0	10	1,6	4	1,92	-	50	14,2	2	1
3102003	2	0,1	0	12	1,6	4	1,92	-	50	16,2	2	1
3102025	2	0,1	1	15	1,6	4	1,92	2,43	60	18,4	2	2
3102004	2	0,1	0	16	1,6	4	1,92	-	60	20,2	2	1
3102005	2	0,1	0	20	1,6	4	1,92	-	60	24,2	2	1
3102026	2	0,1	1	20	1,6	4	1,92	2,58	60	23,1	2	2
3102006	2	0,1	0	25	1,6	4	1,92	-	70	29,2	2	1
3102027	2	0,1	1	25	1,6	4	1,92	2,76	70	27,8	2	2
3102028	2	0,1	1	30	1,6	4	1,92	2,93	80	32,5	2	2
3102029	2	0,1	1	40	1,6	4	1,92	3,27	80	41,8	2	2
3102030	2	0,1	1	50	1,6	4	1,92	3,62	100	51,1	2	2
3102007	2	0,2	0	8	1,6	4	1,92	-	50	12,2	2	1
3102008	2	0,2	0	10	1,6	4	1,92	-	50	14,2	2	1
3102009	2	0,2	0	12	1,6	4	1,92	-	50	16,2	2	1
3102033	2	0,2	1	15	1,6	4	1,92	2,43	60	18,4	2	2
3102010	2	0,2	0	16	1,6	4	1,92	-	60	20,2	2	1
3102011	2	0,2	0	20	1,6	4	1,92	-	60	24,2	2	1
3102034	2	0,2	1	20	1,6	4	1,92	2,58	60	23,1	2	2
3102012	2	0,2	0	25	1,6	4	1,92	-	70	29,2	2	1
3102035	2	0,2	1	25	1,6	4	1,92	2,76	70	27,8	2	2
3102036	2	0,2	1	30	1,6	4	1,92	2,93	80	32,5	2	2
3102037	2	0,2	1	40	1,6	4	1,92	3,27	80	41,8	2	2
3102038	2	0,2	1	50	1,6	4	1,92	3,62	100	51,1	2	2
3102013	2	0,3	0	8	1,6	4	1,92	-	50	12,2	2	1
3102014	2	0,3	0	10	1,6	4	1,92	-	50	14,2	2	1
3102015	2	0,3	0	12	1,6	4	1,92	-	50	16,2	2	1
3102041	2	0,3	1	15	1,6	4	1,92	2,43	60	18,4	2	2
3102016	2	0,3	0	16	1,6	4	1,92	-	60	20,2	2	1
3102017	2	0,3	0	20	1,6	4	1,92	-	60	24,2	2	1
3102042	2	0,3	1	20	1,6	4	1,92	2,58	60	23,1	2	2
3102018	2	0,3	0	25	1,6	4	1,92	-	70	29,2	2	1
3102043	2	0,3	1	25	1,6	4	1,92	2,76	70	27,8	2	2
3102044	2	0,3	1	30	1,6	4	1,92	2,93	80	32,5	2	2
3102045	2	0,3	1	40	1,6	4	1,92	3,27	80	41,8	2	2
3102046	2	0,3	1	50	1,6	4	1,92	3,62	100	51,1	2	2
3102019	2	0,5	0	8	1,6	4	1,92	-	50	12,2	2	1
3102020	2	0,5	0	10	1,6	4	1,92	-	50	14,2	2	1
3102021	2	0,5	0	12	1,6	4	1,92	-	50	16,2	2	1
3102049	2	0,5	1	15	1,6	4	1,92	2,43	60	18,4	2	2
3102022	2	0,5	0	16	1,6	4	1,92	-	60	20,2	2	1
3102023	2	0,5	0	20	1,6	4	1,92	-	60	24,2	2	1
3102050	2	0,5	1	20	1,6	4	1,92	2,58	60	23,1	2	2
3102024	2	0,5	0	25	1,6	4	1,92	-	70	29,2	2	1
3102051	2	0,5	1	25	1,6	4	1,92	2,76	70	27,8	2	2
3102052	2	0,5	1	30	1,6	4	1,92	2,93	80	32,5	2	2

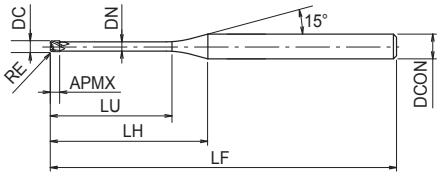
WXS-CPR

Milling | Solid carbide

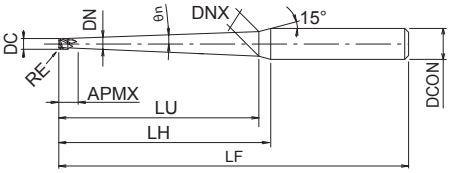




Type 1



Type 2



- Carbide end mill with WXS coating
- For hardened steels up to 65 HRC and stainless steels
- 2 flutes, long and pencil neck, corner radius, for mould & die
- 247 sizes

P ~45 HRC | P ~55 HRC | M ~35 HRC | H ~60 HRC | H ~65 HRC

CARBIDE | WXS | 30° | SHRINK FIT | R ± 0.005 | D<0.5 0~-0.01 | D≥0.5 0~-0.015

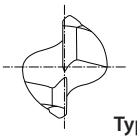
C.951

EDP	DC	RE	θn	LU	APMX	DCON	DN	DNX	LF	LH	ZEFP	Type
3102053	2	0,5	1	40	1,6	4	1,92	3,27	80	41,8	2	2
3102054	2	0,5	1	50	1,6	4	1,92	3,62	100	51,1	2	2
3102501	2,5	0,2	0	10	2,2	4	2,4	-	50	13,2	2	1
3102502	2,5	0,2	0	20	2,2	4	2,4	-	60	23,2	2	1
3102503	2,5	0,2	0	30	2,2	4	2,4	-	70	33,2	2	1
3102504	2,5	0,5	0	10	2,2	4	2,4	-	50	13,2	2	1
3102505	2,5	0,5	0	20	2,2	4	2,4	-	60	23,2	2	1
3102506	2,5	0,5	0	30	2,2	4	2,4	-	70	33,2	2	1
3103001	3	0,2	0	8	2,5	6	2,85	-	60	13,9	2	1
3103002	3	0,2	0	12	2,5	6	2,85	-	60	17,9	2	1
3103020	3	0,2	1	15	2,5	6	2,85	3,4	60	20,3	2	2
3103003	3	0,2	0	16	2,5	6	2,85	-	60	21,9	2	1
3103004	3	0,2	0	20	2,5	6	2,85	-	70	25,9	2	1
3103021	3	0,2	1	20	2,5	6	2,85	3,55	60	25	2	2
3103005	3	0,2	0	25	2,5	6	2,85	-	70	30,9	2	1
3103006	3	0,2	0	30	2,5	6	2,85	-	70	35,9	2	1
3103022	3	0,2	1	30	2,5	6	2,85	3,9	80	34,4	2	2
3103007	3	0,2	0	35	2,5	6	2,85	-	80	40,9	2	1
3103023	3	0,2	1	40	2,5	6	2,85	4,24	80	43,8	2	2
3103024	3	0,2	1	50	2,5	6	2,85	4,59	100	53,1	2	2
3103025	3	0,2	1	60	2,5	6	2,85	4,94	110	62,5	2	2
3103008	3	0,3	0	12	2,5	6	2,85	-	60	17,9	2	1
3103009	3	0,3	0	16	2,5	6	2,85	-	60	21,9	2	1
3103010	3	0,3	0	20	2,5	6	2,85	-	70	25,9	2	1
3103011	3	0,3	0	25	2,5	6	2,85	-	70	30,9	2	1
3103012	3	0,3	0	30	2,5	6	2,85	-	70	35,9	2	1
3103013	3	0,3	0	35	2,5	6	2,85	-	80	40,9	2	1
3103014	3	0,5	0	12	2,5	6	2,85	-	60	17,9	2	1
3103026	3	0,5	1	15	2,5	6	2,85	3,4	60	20,3	2	2
3103015	3	0,5	0	16	2,5	6	2,85	-	60	21,9	2	1
3103016	3	0,5	0	20	2,5	6	2,85	-	70	25,9	2	1
3103027	3	0,5	1	20	2,5	6	2,85	3,55	60	25	2	2
3103017	3	0,5	0	25	2,5	6	2,85	-	70	30,9	2	1
3103018	3	0,5	0	30	2,5	6	2,85	-	70	35,9	2	1
3103028	3	0,5	1	30	2,5	6	2,85	3,9	80	34,4	2	2
3103019	3	0,5	0	35	2,5	6	2,85	-	80	40,9	2	1
3103029	3	0,5	1	40	2,5	6	2,85	4,24	80	43,8	2	2
3103030	3	0,5	1	50	2,5	6	2,85	4,59	100	53,1	2	2
3103031	3	0,5	1	60	2,5	6	2,85	4,94	110	62,5	2	2
3104001	4	0,2	0	16	4	6	3,84	-	60	20,1	4	1
3104002	4	0,2	0	20	4	6	3,84	-	60	24,1	4	1
3104003	4	0,2	0	25	4	6	3,84	-	70	29,1	4	1
3104004	4	0,2	0	30	4	6	3,84	-	70	34,1	4	1
3104005	4	0,2	0	40	4	6	3,84	-	90	44,1	4	1
3104006	4	0,2	0	50	4	6	3,84	-	100	54,1	4	1
3104007	4	0,3	0	16	4	6	3,84	-	60	20,1	4	1

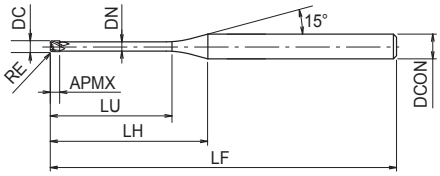
WXS-CPR

Milling | Solid carbide

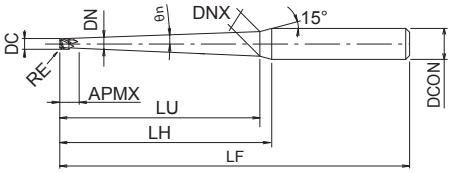




Type 1



Type 2



- Carbide end mill with WXS coating
- For hardened steels up to 65 HRC and stainless steels
- 2 flutes, long and pencil neck, for mould & die
- 247 sizes

P ~45 HRC | P ~55 HRC | M ~35 HRC | H ~60 HRC | H ~65 HRC

CARBIDE | WXS | 30° | SHRINK FIT | R ± 0.005 | D<0.5 0~-0.01 | D≥0.5 0~-0.015

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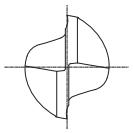
EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	ZEFP	Type
3104008	4	0,3	20	4	6	3,84	60	24,1	4	1
3104009	4	0,3	25	4	6	3,84	70	29,1	4	1
3104010	4	0,3	30	4	6	3,84	70	34,1	4	1
3104011	4	0,3	40	4	6	3,84	90	44,1	4	1
3104012	4	0,3	50	4	6	3,84	100	54,1	4	1
3104013	4	0,5	16	4	6	3,84	60	20,1	4	1
3104014	4	0,5	20	4	6	3,84	60	24,1	4	1
3104015	4	0,5	25	4	6	3,84	70	29,1	4	1
3104016	4	0,5	30	4	6	3,84	70	34,1	4	1
3104017	4	0,5	40	4	6	3,84	90	44,1	4	1
3104018	4	0,5	50	4	6	3,84	100	54,1	4	1
3104019	4	1	16	4	6	3,84	60	20,1	4	1
3104020	4	1	20	4	6	3,84	60	24,1	4	1
3104021	4	1	25	4	6	3,84	70	29,1	4	1
3104022	4	1	30	4	6	3,84	70	34,1	4	1
3104023	4	1	40	4	6	3,84	90	44,1	4	1
3104024	4	1	50	4	6	3,84	100	54,1	4	1

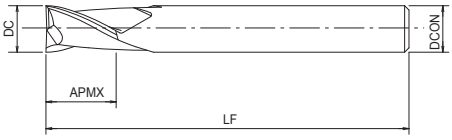
WXL-1,5D-DE

Milling | Solid carbide

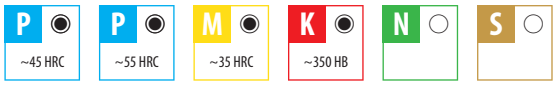
INDEX







- Carbide end mill with WXL coating
- For steels, stainless, copper
- 2 flutes, 1.5xD applications, square







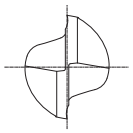
EDP	DC	APMX	DCON	LF	ZEFP
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3181802	0,2	0,3	4	45	2
3181803	0,3	0,45	4	45	2
3181804	0,4	0,6	4	45	2
3181805	0,5	0,75	4	45	2
3181806	0,6	0,9	4	45	2
3181807	0,7	1,1	4	45	2
3181808	0,8	1,2	4	45	2
3181809	0,9	1,4	4	45	2
3181810	1	1,5	4	45	2
3181811	1,1	1,7	4	45	2
3181812	1,2	1,8	4	45	2
3181813	1,3	2	4	45	2
3181814	1,4	2,1	4	45	2
3181815	1,5	2,3	4	45	2
3181816	1,6	2,4	4	45	2
3181817	1,7	2,6	4	45	2
3181818	1,8	2,7	4	45	2
3181819	1,9	2,9	4	45	2
3181820	2	3	4	45	2
3181821	2,1	3,2	4	45	2
3181822	2,2	3,3	4	45	2
3181823	2,3	3,5	4	45	2
3181824	2,4	3,6	4	45	2
3181825	2,5	3,8	4	45	2
3181826	2,6	3,9	4	45	2
3181827	2,7	4,1	4	45	2
3181828	2,8	4,2	4	45	2
3181829	2,9	4,4	4	45	2
3181830	3	4,5	6	45	2
3181831	3,1	4,7	6	45	2
3181832	3,2	4,8	6	45	2
3181833	3,3	5	6	45	2
3181834	3,4	5,1	6	45	2
3181835	3,5	5,3	6	45	2
3181836	3,6	5,4	6	45	2
3181837	3,7	5,6	6	45	2
3181838	3,8	5,7	6	45	2
3181839	3,9	5,9	6	45	2
3181840	4	6	6	45	2
3181841	4,1	6,2	6	50	2
3181842	4,2	6,3	6	50	2
3181843	4,3	6,5	6	50	2
3181844	4,4	6,6	6	50	2
3181845	4,5	6,8	6	50	2
3181846	4,6	6,9	6	50	2

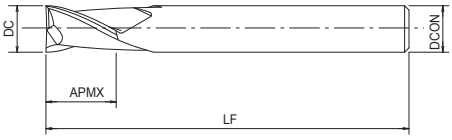


WXL-1,5D-DE

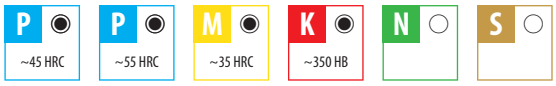
Milling | Solid carbide







- Carbide end mill with WXL coating
- For steels, stainless, copper
- 2 flutes, 1.5xD applications, square







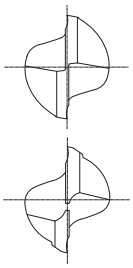
EDP	DC	APMX	DCON	LF	ZEFP
3181847	4,7	7,1	6	50	2
3181848	4,8	7,2	6	50	2
3181849	4,9	7,4	6	50	2
3181850	5	7,5	6	50	2
3181851	5,1	7,7	6	50	2
3181852	5,2	7,8	6	50	2
3181853	5,3	8	6	50	2
3181854	5,4	8,1	6	50	2
3181855	5,5	8,3	6	50	2
3181856	5,6	8,4	6	50	2
3181857	5,7	8,6	6	50	2
3181858	5,8	8,7	6	50	2
3181859	5,9	8,9	6	50	2
3181860	6	9	6	50	2
3181880	8	12	8	60	2
3181900	10	15	10	70	2
3181920	12	18	12	75	2

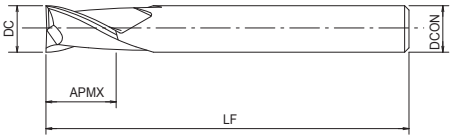
WXL-2D-DE

Milling | Solid carbide

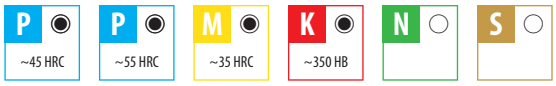
INDEX







- Carbide end mill with WXL coating
- For steels, stainless, copper
- 2 flutes, 2xD applications, square







EDP	DC	APMX	DCON	LF	ZEFP
3182001	0,1	0,2	4	45	2
3182002	0,2	0,4	4	45	2
3182003	0,3	0,6	4	45	2
3182004	0,4	0,8	4	45	2
3182005	0,5	1	4	45	2
3182006	0,6	1,2	4	45	2
3182007	0,7	1,4	4	45	2
3182008	0,8	1,6	4	45	2
3182009	0,9	1,8	4	45	2
3182010	1	2	4	45	2
3182011	1,1	2,2	4	45	2
3182012	1,2	2,4	4	45	2
3182013	1,3	2,6	4	45	2
3182014	1,4	2,8	4	45	2
3182015	1,5	3	4	45	2
3182016	1,6	3,2	4	45	2
3182017	1,7	3,4	4	45	2
3182018	1,8	3,6	4	45	2
3182019	1,9	3,8	4	45	2
3182020	2	4	4	45	2
3182021	2,1	4,2	4	45	2
3182022	2,2	4,4	4	45	2
3182023	2,3	4,6	4	45	2
3182024	2,4	4,8	4	45	2
3182025	2,5	5	4	45	2
3182026	2,6	5,2	4	45	2
3182027	2,7	5,4	4	45	2
3182028	2,8	5,6	4	45	2
3182029	2,9	5,8	4	45	2
3182030	3	6	6	45	2
3182031	3,1	6,2	6	45	2
3182032	3,2	6,4	6	45	2
3182033	3,3	6,6	6	45	2
3182034	3,4	6,8	6	45	2
3182035	3,5	7	6	45	2
3182036	3,6	7,2	6	45	2
3182037	3,7	7,4	6	45	2
3182038	3,8	7,6	6	45	2
3182039	3,9	7,8	6	45	2
3182040	4	8	6	45	2
3182041	4,1	8,2	6	50	2
3182042	4,2	8,4	6	50	2
3182043	4,3	8,6	6	50	2
3182044	4,4	8,8	6	50	2
3182045	4,5	9	6	50	2
3182046	4,6	9,2	6	50	2

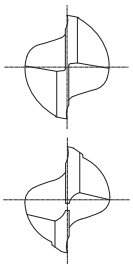


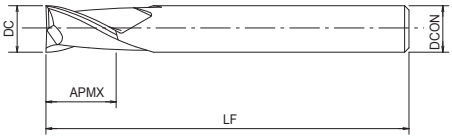
WXL-2D-DE

INDEX

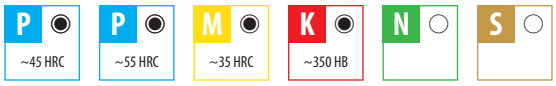
Milling | Solid carbide







- Carbide end mill with WXL coating
- For steels, stainless, copper
- 2 flutes, 2xD applications, square







EDP	DC	APMX	DCON	LF	ZEFP
3182047	4,7	9,4	6	50	2
3182048	4,8	9,6	6	50	2
3182049	4,9	9,8	6	50	2
3182050	5	10	6	50	2
3182051	5,1	10,2	6	50	2
3182052	5,2	10,4	6	50	2
3182053	5,3	10,6	6	50	2
3182054	5,4	10,8	6	50	2
3182055	5,5	11	6	50	2
3182056	5,6	11,2	6	50	2
3182057	5,7	11,4	6	50	2
3182058	5,8	11,6	6	50	2
3182059	5,9	11,8	6	50	2
3182060	6	12	6	50	2
3182061	6,1	12,2	8	60	2
3182062	6,2	12,4	8	60	2
3182063	6,3	12,6	8	60	2
3182064	6,4	12,8	8	60	2
3182065	6,5	13	8	60	2
3182066	6,6	13,2	8	60	2
3182067	6,7	13,4	8	60	2
3182068	6,8	13,6	8	60	2
3182069	6,9	13,8	8	60	2
3182070	7	14	8	60	2
3182071	7,1	14,2	8	60	2
3182072	7,2	14,4	8	60	2
3182073	7,3	14,6	8	60	2
3182074	7,4	14,8	8	60	2
3182075	7,5	15	8	60	2
3182076	7,6	15,2	8	60	2
3182077	7,7	15,4	8	60	2
3182078	7,8	15,6	8	60	2
3182079	7,9	15,8	8	60	2
3182080	8	16	8	60	2
3182081	8,1	16,2	10	70	2
3182082	8,2	16,4	10	70	2
3182083	8,3	16,6	10	70	2
3182084	8,4	16,8	10	70	2
3182085	8,5	17	10	70	2
3182086	8,6	17,2	10	70	2
3182087	8,7	17,4	10	70	2
3182088	8,8	17,6	10	70	2
3182089	8,9	17,8	10	70	2
3182090	9	18	10	70	2
3182091	9,1	18,2	10	70	2
3182092	9,2	18,4	10	70	2

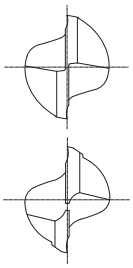


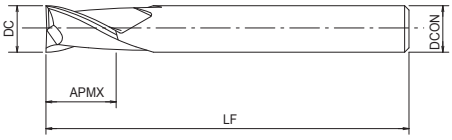
WXL-2D-DE

Milling | Solid carbide

INDEX







- Carbide end mill with WXL coating
- For steels, stainless, copper
- 2 flutes, 2xD applications, square

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S

CARBIDE | WXL | 30° | SHRINK FIT | D>12 0~-0.03 | D≤12 0~-0.02

C.956

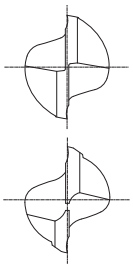
EDP	DC	APMX	DCON	LF	ZEFP
3182093	9,3	18,6	10	70	2
3182094	9,4	18,8	10	70	2
3182095	9,5	19	10	70	2
3182096	9,6	19,2	10	70	2
3182097	9,7	19,4	10	70	2
3182098	9,8	19,6	10	70	2
3182099	9,9	19,8	10	70	2
3182100	10	20	10	70	2
3182101	10,1	20,2	12	75	2
3182102	10,2	20,4	12	75	2
3182103	10,3	20,6	12	75	2
3182104	10,4	20,8	12	75	2
3182105	10,5	21	12	75	2
3182106	10,6	21,2	12	75	2
3182107	10,7	21,4	12	75	2
3182108	10,8	21,6	12	75	2
3182109	10,9	21,8	12	75	2
3182110	11	22	12	75	2
3182111	11,1	22,2	12	75	2
3182112	11,2	22,4	12	75	2
3182113	11,3	22,6	12	75	2
3182114	11,4	22,8	12	75	2
3182115	11,5	23	12	75	2
3182116	11,6	23,2	12	75	2
3182117	11,7	23,4	12	75	2
3182118	11,8	23,6	12	75	2
3182119	11,9	23,8	12	75	2
3182120	12	24	12	75	2
3182121	12,1	24,2	12	85	2
3182122	12,2	24,4	12	85	2
3182123	12,3	24,6	12	85	2
3182124	12,4	24,8	12	85	2
3182125	12,5	25	12	85	2
3182126	12,6	25,2	12	85	2
3182127	12,7	25,4	12	85	2
3182128	12,8	25,6	12	85	2
3182129	12,9	25,8	12	85	2
3182130	13	26	12	85	2
3182131	13,1	26,2	12	85	2
3182132	13,2	26,4	12	85	2
3182133	13,3	26,6	12	85	2
3182134	13,4	26,8	12	85	2
3182135	13,5	27	12	85	2
3182136	13,6	27,2	12	85	2
3182137	13,7	27,4	12	85	2
3182138	13,8	27,6	12	85	2

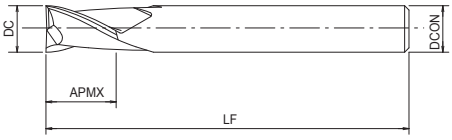
WXL-2D-DE

Milling | Solid carbide

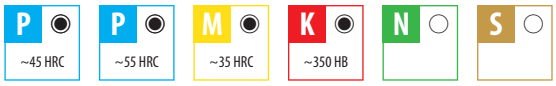
INDEX







- Carbide end mill with WXL coating
- For steels, stainless, copper
- 2 flutes, 2xD applications, square







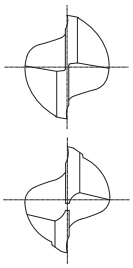
EDP	DC	APMX	DCON	LF	ZEFP
3182139	13,9	27,8	12	85	2
3182140	14	28	12	85	2
3182145	14,5	29	16	90	2
3182150	15	30	16	90	2
3182155	15,5	31	16	90	2
3182160	16	32	16	90	2
3182165	16,5	33	16	90	2
3182170	17	34	16	90	2
3182175	17,5	35	16	90	2
3182180	18	36	16	90	2
3182185	18,5	37	20	100	2
3182190	19	38	20	100	2
3182195	19,5	39	20	100	2
3182200	20	40	20	100	2
3182210	21	42	20	105	2
3182220	22	44	20	105	2
3182230	23	46	25	120	2
3182240	24	48	25	120	2
3182250	25	50	25	125	2
3182300	30	60	32	140	2

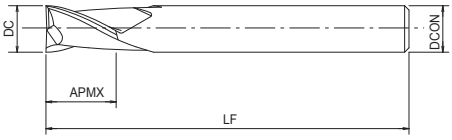
WXL-3D-DE

Milling | Solid carbide

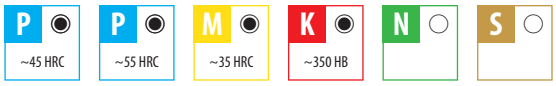
INDEX







- Carbide end mill with WXL coating
- For steels, stainless, copper
- 2 flutes, 3xD applications, square







EDP	DC	APMX	DCON	LF	ZEFP
3182401	0,1	0,3	4	45	2
3182402	0,2	0,6	4	45	2
3182403	0,3	0,9	4	45	2
3182404	0,4	1,2	4	45	2
3182405	0,5	1,5	4	45	2
3182406	0,6	1,8	4	45	2
3182407	0,7	2,1	4	45	2
3182408	0,8	2,4	4	45	2
3182409	0,9	2,7	4	45	2
3182410	1	3	4	45	2
3182411	1,1	3,3	4	45	2
3182412	1,2	3,6	4	45	2
3182413	1,3	3,9	4	45	2
3182414	1,4	4,2	4	45	2
3182415	1,5	4,5	4	45	2
3182416	1,6	4,8	4	45	2
3182417	1,7	5,1	4	45	2
3182418	1,8	5,4	4	45	2
3182419	1,9	5,7	4	45	2
3182420	2	6	4	45	2
3182421	2,1	6,3	4	45	2
3182422	2,2	6,6	4	45	2
3182423	2,3	6,9	4	45	2
3182424	2,4	7,2	4	45	2
3182425	2,5	7,5	4	45	2
3182426	2,6	7,8	4	45	2
3182427	2,7	8,1	4	45	2
3182428	2,8	8,4	4	45	2
3182429	2,9	8,7	4	45	2
3182430	3	9	6	45	2
3182431	3,1	9,3	6	45	2
3182432	3,2	9,6	6	45	2
3182433	3,3	9,9	6	45	2
3182434	3,4	10,2	6	45	2
3182435	3,5	10,5	6	45	2
3182436	3,6	10,8	6	45	2
3182437	3,7	11,1	6	45	2
3182438	3,8	11,4	6	45	2
3182439	3,9	11,7	6	45	2
3182440	4	12	6	50	2
3182441	4,1	12,3	6	50	2
3182442	4,2	12,6	6	50	2
3182443	4,3	12,9	6	50	2
3182444	4,4	13,2	6	50	2
3182445	4,5	13,5	6	50	2
3182446	4,6	13,8	6	55	2

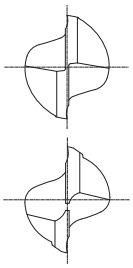


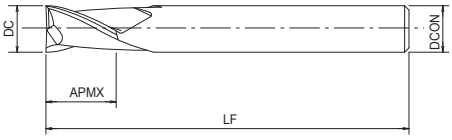
WXL-3D-DE

INDEX

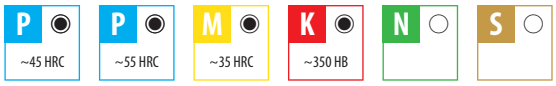
Milling | Solid carbide







- Carbide end mill with WXL coating
- For steels, stainless, copper
- 2 flutes, 3xD applications, square







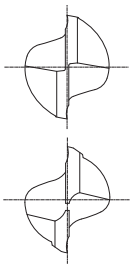
EDP	DC	APMX	DCON	LF	ZEFP
3182447	4,7	14,1	6	55	2
3182448	4,8	14,4	6	55	2
3182449	4,9	14,7	6	55	2
3182450	5	15	6	55	2
3182451	5,1	15,3	6	55	2
3182452	5,2	15,6	6	55	2
3182453	5,3	15,9	6	55	2
3182454	5,4	16,2	6	55	2
3182455	5,5	16,5	6	60	2
3182456	5,6	16,8	6	60	2
3182457	5,7	17,1	6	60	2
3182458	5,8	17,4	6	60	2
3182459	5,9	17,7	6	60	2
3182460	6	18	6	60	2
3182465	6,5	19,5	8	65	2
3182470	7	21	8	65	2
3182475	7,5	22,5	8	70	2
3182480	8	24	8	70	2
3182485	8,5	25,5	10	70	2
3182490	9	27	10	75	2
3182495	9,5	28,5	10	75	2
3182500	10	30	10	80	2
3182510	11	33	12	80	2
3182520	12	36	12	90	2
3182560	16	48	16	110	2
3182580	18	54	16	130	2
3182600	20	60	20	130	2

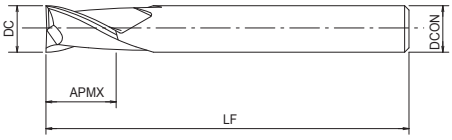
WXL-4D-DE

INDEX

Milling | Solid carbide







- Carbide end mill with WXL coating
- For steels, stainless, copper
- 2 flutes, 4xD applications, square

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S

CARBIDE | WXL | 40° | SHRINK FIT | D>12 0~-0.03 | D≤12 0~-0.02

C.958

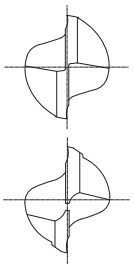
EDP	DC	APMX	DCON	LF	ZEFP
3182602	0,2	0,8	4	45	2
3182603	0,3	1,2	4	45	2
3182604	0,4	1,6	4	45	2
3182605	0,5	2	4	45	2
3182606	0,6	2,4	4	45	2
3182607	0,7	2,8	4	45	2
3182608	0,8	3,2	4	45	2
3182609	0,9	3,6	4	45	2
3182610	1	4	4	45	2
3182611	1,1	4,4	4	45	2
3182612	1,2	4,8	4	45	2
3182613	1,3	5,2	4	45	2
3182614	1,4	5,6	4	45	2
3182615	1,5	6	4	45	2
3182616	1,6	6,4	4	45	2
3182617	1,7	6,8	4	45	2
3182618	1,8	7,2	4	45	2
3182619	1,9	7,6	4	45	2
3182620	2	8	4	45	2
3182621	2,1	8,4	4	45	2
3182622	2,2	8,8	4	45	2
3182623	2,3	9,2	4	45	2
3182624	2,4	9,6	4	45	2
3182625	2,5	10	4	45	2
3182626	2,6	10,4	4	50	2
3182627	2,7	10,8	4	50	2
3182628	2,8	11,2	4	50	2
3182629	2,9	11,6	4	50	2
3182630	3	12	6	50	2
3182631	3,1	12,4	6	50	2
3182632	3,2	12,8	6	50	2
3182633	3,3	13,2	6	50	2
3182634	3,4	13,6	6	50	2
3182635	3,5	14	6	50	2
3182636	3,6	14,4	6	50	2
3182637	3,7	14,8	6	50	2
3182638	3,8	15,2	6	50	2
3182639	3,9	15,6	6	50	2
3182640	4	16	6	55	2
3182641	4,1	16,4	6	55	2
3182642	4,2	16,8	6	55	2
3182643	4,3	17,2	6	55	2
3182644	4,4	17,6	6	55	2
3182645	4,5	18	6	55	2
3182646	4,6	18,4	6	55	2
3182647	4,7	18,8	6	55	2

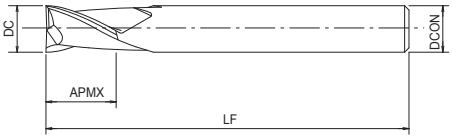
WXL-4D-DE

INDEX

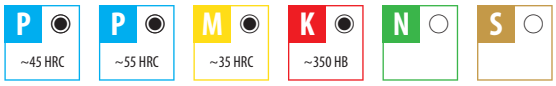
Milling | Solid carbide







- Carbide end mill with WXL coating
- For steels, stainless, copper
- 2 flutes, 4xD applications, square





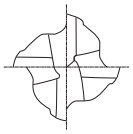


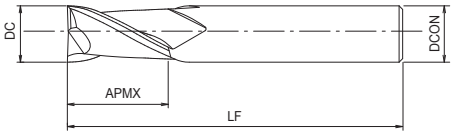
EDP	DC	APMX	DCON	LF	ZEFP
3182648	4,8	19,2	6	55	2
3182649	4,9	19,6	6	55	2
3182650	5	20	6	60	2
3182651	5,1	20,4	6	60	2
3182652	5,2	20,8	6	60	2
3182653	5,3	21,2	6	60	2
3182654	5,4	21,6	6	60	2
3182655	5,5	22	6	65	2
3182656	5,6	22,4	6	65	2
3182657	5,7	22,8	6	65	2
3182658	5,8	23,2	6	65	2
3182659	5,9	23,6	6	65	2
3182660	6	24	6	65	2
3182680	8	32	8	80	2
3182700	10	40	10	90	2
3182720	12	48	12	100	2

WXL-EMS

Milling | Solid carbide







- Carbide end mill with WXL coating
- For high speed milling in steels, stainless and cast iron
- 4 flutes, square

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S | H ~60 HRC

CARBIDE | WXL | 30° | SHRINK FIT | D≤12 | D>12 0~-0.03 | D≤12 0~-0.02

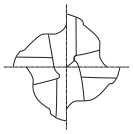
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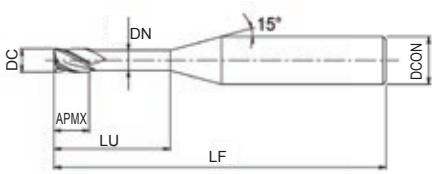
EDP	DC	APMX	DCON	LF	ZEFP
3130510	1	2,5	4	40	4
3130515	1,5	4	4	40	4
3130520	2	6	4	40	4
3130525	2,5	8	4	40	4
3130530	3	8	6	45	4
3130535	3,5	10	6	45	4
3130540	4	11	6	45	4
3130545	4,5	11	6	45	4
3130550	5	13	6	50	4
3130555	5,5	13	6	50	4
3130560	6	13	6	50	4
3130565	6,5	16	8	60	4
3130570	7	16	8	60	4
3130575	7,5	16	8	60	4
3130580	8	19	8	60	4
3130585	8,5	19	10	70	4
3130590	9	19	10	70	4
3130595	9,5	19	10	70	4
3130600	10	22	10	70	4
3130605	10,5	22	12	75	4
3130610	11	22	12	75	4
3130615	11,5	22	12	75	4
3130620	12	26	12	75	4
3130625	12,5	26	12	85	4
3130630	13	26	12	85	4
3130640	14	26	12	85	4
3130650	15	26	16	90	4
3130660	16	32	16	100	4
3130670	17	32	16	100	4
3130680	18	32	16	100	4
3130690	19	32	20	100	4
3130700	20	38	20	105	4
3130710	21	38	20	105	4
3130720	22	38	20	105	4
3130730	23	45	25	120	4
3130740	24	45	25	120	4
3130750	25	45	25	120	4
3130800	30	45	32	125	4

WXL-LN-EMS-6

Milling | Solid carbide

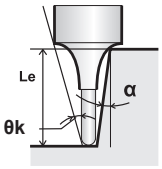






- Carbide end mill with WXL coating
- For hardened steels up to 52 HRC
- 4 flutes, long neck
- Shank diameter 6









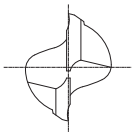
EDP	DC	LU	APMX	DCON	DN	LF	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=2,5°)	Le(α=3°)	ZEFP
48142010	1	5	1,5	6	0,95	60	5,16	5,34	5,54	5,74	5,97	6,21	4
48142015	1,5	7,5	2,3	6	1,45	60	7,75	8,02	8,31	8,62	8,96	9,32	4
48142020	2	10	3	6	1,95	60	10,34	10,7	11,08	11,5	11,95	12,43	4
48142025	2,5	12,5	3,7	6	2,4	60	12,92	13,37	13,85	14,37	14,93	15,54	4
48142030	3	15	4,5	6	2,85	70	15,5	16,05	16,62	17,25	17,92	18,65	4
48142035	3,5	17,5	5,3	6	3,35	70	18,09	18,72	19,4	20,12	20,91	21,76	4
48142040	4	20	6	6	3,85	70	20,67	21,39	22,17	23	-	-	4
48142050	5	25	7,5	6	4,85	80	25,84	26,74	-	-	-	-	4
48142060	6	30	9	6	5,85	90	-	-	-	-	-	-	4

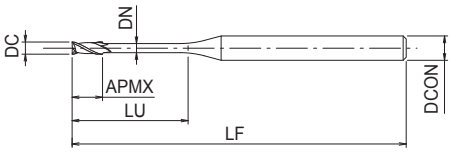


WXL-LN-EDS

Milling | Solid carbide

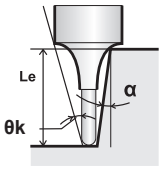






- Carbide end mill with WXL coating
- For hardened steels up to 52 HRC
- 2 flutes, long neck, square
- 199 sizes









EDP	DC	LU	APMX	DCON	DN	LF	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=2,5°)	Le(α=3°)	ZEFP
3131100	0,1	0,3	0,15	4	0,09	45	14,61	0,31	0,32	0,33	0,34	0,37	-	2
3131101	0,1	0,5	0,15	4	0,09	45	14,04	0,53	0,56	0,58	0,61	0,66	-	2
3131102	0,1	1	0,15	4	0,09	45	13,22	1,05	1,1	1,14	1,18	1,28	-	2
3131201	0,2	0,5	0,3	4	0,18	45	14,02	0,52	0,55	0,57	0,6	0,62	0,64	2
3131202	0,2	1	0,3	4	0,18	45	13,19	1,05	1,09	1,13	1,17	1,22	1,27	2
3131203	0,2	1,5	0,3	4	0,18	45	12,45	1,57	1,62	1,68	1,75	1,81	1,89	2
3131204	0,2	2	0,3	4	0,18	45	11,78	2,09	2,16	2,24	2,32	2,41	2,51	2
3131205	0,2	2,5	0,3	4	0,18	45	11,18	2,6	2,69	2,79	2,9	3,01	3,13	2
3131206	0,2	3	0,3	4	0,18	45	10,64	3,12	3,23	3,35	3,47	3,61	3,75	2
3131207	0,2	3,5	0,3	4	0,18	45	10,15	3,64	3,76	3,9	4,05	4,2	4,37	2
3131208	0,2	4	0,3	4	0,18	45	9,71	4,15	4,3	4,45	4,62	4,8	5	2
3131302	0,3	1	0,45	4	0,28	45	13,16	1,03	1,08	1,12	1,16	1,21	1,25	2
3131303	0,3	1,5	0,45	4	0,28	45	12,4	1,56	1,61	1,67	1,74	1,8	1,88	2
3131304	0,3	2	0,45	4	0,28	45	11,73	2,08	2,15	2,23	2,31	2,4	2,5	2
3131305	0,3	2,5	0,45	4	0,28	45	11,12	2,59	2,68	2,78	2,88	3	3,12	2
3131306	0,3	3	0,45	4	0,28	45	10,57	3,11	3,22	3,33	3,46	3,59	3,74	2
3131308	0,3	4	0,45	4	0,28	45	9,62	4,14	4,29	4,44	4,61	4,79	4,98	2
3131310	0,3	5	0,45	4	0,28	45	8,83	5,18	5,36	5,55	5,76	5,98	6,23	2
3131312	0,3	6	0,45	4	0,28	45	8,15	6,21	6,43	6,66	6,91	7,18	7,47	2
3131318	0,3	9	0,45	4	0,28	45	6,63	9,31	9,64	9,98	10,36	10,76	11,2	2
3131403	0,4	1,5	0,6	4	0,37	45	12,4	1,52	1,57	1,63	1,69	1,75	1,82	2
3131404	0,4	2	0,6	4	0,37	45	11,71	2,03	2,1	2,18	2,26	2,35	2,45	2
3131406	0,4	3	0,6	4	0,37	45	10,53	3,07	3,17	3,29	3,41	3,55	3,69	2
3131408	0,4	4	0,6	4	0,37	45	9,56	4,1	4,24	4,4	4,56	4,74	4,93	2
3131410	0,4	5	0,6	4	0,37	45	8,76	5,13	5,31	5,51	5,71	5,93	6,18	2
3131412	0,4	6	0,6	4	0,37	45	8,08	6,17	6,38	6,61	6,86	7,13	7,42	2
3131414	0,4	7	0,6	4	0,37	45	7,49	7,2	7,45	7,72	8,01	8,32	8,66	2
3131416	0,4	8	0,6	4	0,37	45	6,99	8,24	8,52	8,83	9,16	9,52	9,9	2
3131418	0,4	9	0,6	4	0,37	45	6,55	9,27	9,59	9,94	10,31	10,71	11,15	2
3131420	0,4	10	0,6	4	0,37	45	6,16	10,3	10,66	11,05	11,46	11,91	12,39	2
3131424	0,4	12	0,6	4	0,37	45	5,5	12,37	12,8	13,26	13,76	14,3	14,88	2
3131501	0,5	1,5	0,7	4	0,45	45	12,29	1,56	1,61	1,67	1,73	1,8	1,87	2
3131502	0,5	2	0,7	4	0,45	45	11,59	2,07	2,14	2,22	2,31	2,4	2,49	2
3131503	0,5	3	0,7	4	0,45	45	10,4	3,11	3,21	3,33	3,46	3,59	3,74	2
3131504	0,5	4	0,7	4	0,45	45	9,43	4,14	4,28	4,44	4,61	4,78	4,98	2
3131505	0,5	5	0,7	4	0,45	45	8,63	5,17	5,35	5,55	5,75	5,98	6,22	2
3131506	0,5	6	0,7	4	0,45	45	7,95	6,21	6,42	6,66	6,9	7,17	7,47	2
3131507	0,5	7	0,7	4	0,45	45	7,37	7,24	7,49	7,76	8,05	8,37	8,71	2
3131508	0,5	8	0,7	4	0,45	45	6,86	8,27	8,56	8,87	9,2	9,56	9,95	2
3131509	0,5	9	0,7	4	0,45	45	6,43	9,31	9,63	9,98	10,35	10,76	11,19	2
3131510	0,5	10	0,7	4	0,45	45	6,04	10,34	10,7	11,09	11,5	11,95	12,44	2
3131512	0,5	12	0,7	4	0,45	45	5,39	12,41	12,84	13,31	13,8	14,34	14,92	2
3131515	0,5	15	0,7	4	0,45	50	4,65	15,51	16,05	16,63	17,25	17,93	18,65	2
3131602	0,6	2	0,9	4	0,55	45	11,51	2,07	2,14	2,22	2,31	2,4	2,49	2
3131603	0,6	3	0,9	4	0,55	45	10,31	3,11	3,21	3,33	3,46	3,59	3,74	2
3131604	0,6	4	0,9	4	0,55	45	9,33	4,14	4,28	4,44	4,61	4,78	4,98	2

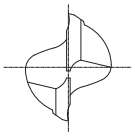


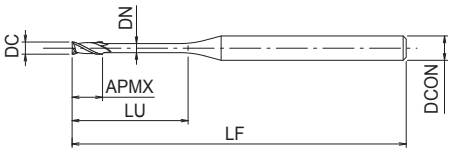
WXL-LN-EDS

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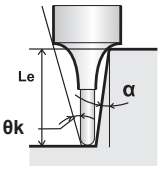
Milling | Solid carbide







- Carbide end mill with WXL coating
- For hardened steels up to 52 HRC
- 2 flutes, long neck, square
- 199 sizes



P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S | H ~60 HRC

CARBIDE | WXL | 30° | SHRINK FIT | 0~-0.015 | Ø2<D

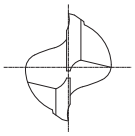
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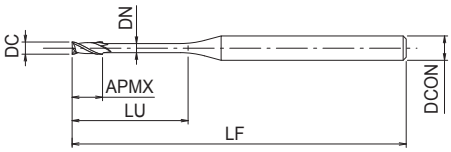
EDP	DC	LU	APMX	DCON	DN	LF	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=2,5°)	Le(α=3°)	ZEFP
3131605	0,6	5	0,9	4	0,55	45	8,52	5,17	5,35	5,55	5,75	5,98	6,22	2
3131606	0,6	6	0,9	4	0,55	45	7,84	6,21	6,42	6,66	6,9	7,17	7,47	2
3131607	0,6	7	0,9	4	0,55	45	7,26	7,24	7,49	7,76	8,05	8,37	8,71	2
3131608	0,6	8	0,9	4	0,55	45	6,76	8,27	8,56	8,87	9,2	9,56	9,95	2
3131610	0,6	10	0,9	4	0,55	45	5,94	10,34	10,7	11,09	11,5	11,95	12,44	2
3131612	0,6	12	0,9	4	0,55	45	5,29	12,41	12,84	13,31	13,8	14,34	14,92	2
3131615	0,6	15	0,9	4	0,55	50	4,55	15,51	16,05	16,63	17,25	17,93	18,65	2
3131618	0,6	18	0,9	4	0,55	50	3,99	18,61	19,26	19,96	20,7	21,51	22,38	2
3131702	0,7	2	1	4	0,65	45	11,43	2,07	2,14	2,22	2,31	2,4	2,49	2
3131704	0,7	4	1	4	0,65	45	9,22	4,14	4,28	4,44	4,61	4,78	4,98	2
3131706	0,7	6	1	4	0,65	45	7,73	6,21	6,42	6,66	6,9	7,17	7,47	2
3131708	0,7	8	1	4	0,65	45	6,65	8,27	8,56	8,87	9,2	9,56	9,95	2
3131710	0,7	10	1	4	0,65	45	5,83	10,34	10,7	11,09	11,5	11,95	12,44	2
3131804	0,8	4	1,2	4	0,75	45	9,11	4,14	4,28	4,44	4,61	4,78	4,98	2
3131806	0,8	6	1,2	4	0,75	45	7,61	6,21	6,42	6,66	6,9	7,17	7,47	2
3131808	0,8	8	1,2	4	0,75	45	6,53	8,27	8,56	8,87	9,2	9,56	9,95	2
3131810	0,8	10	1,2	4	0,75	45	5,72	10,34	10,7	11,09	11,5	11,95	12,44	2
3131812	0,8	12	1,2	4	0,75	45	5,09	12,41	12,84	13,31	13,8	14,34	14,92	2
3131814	0,8	14	1,2	4	0,75	50	4,58	14,48	14,98	15,52	16,1	16,73	17,41	2
3131816	0,8	16	1,2	4	0,75	50	4,16	16,54	17,12	17,74	18,4	19,12	19,9	2
3131820	0,8	20	1,2	4	0,75	55	3,52	20,68	21,4	22,17	23	23,9	24,87	2
3131824	0,8	24	1,2	4	0,75	60	3,06	24,81	25,68	26,6	27,6	28,68	29,84	2
3131904	0,9	4	1,35	4	0,85	45	9	4,14	4,28	4,44	4,61	4,78	4,98	2
3131906	0,9	6	1,35	4	0,85	45	7,49	6,21	6,42	6,66	6,9	7,17	7,47	2
3131908	0,9	8	1,35	4	0,85	45	6,41	8,27	8,56	8,87	9,2	9,56	9,95	2
3131910	0,9	10	1,35	4	0,85	45	5,61	10,34	10,7	11,09	11,5	11,95	12,44	2
3131915	0,9	15	1,35	4	0,85	50	4,26	15,51	16,05	16,63	17,25	17,93	18,65	2
3132003	1	3	1,5	4	0,95	45	9,89	3,11	3,21	3,33	3,46	3,59	3,74	2
3132004	1	4	1,5	4	0,95	45	8,88	4,14	4,28	4,44	4,61	4,78	4,98	2
3132005	1	5	1,5	4	0,95	45	8,05	5,17	5,35	5,55	5,75	5,98	6,22	2
3132006	1	6	1,5	4	0,95	45	7,37	6,21	6,42	6,66	6,9	7,17	7,47	2
3132007	1	7	1,5	4	0,95	45	6,79	7,24	7,49	7,76	8,05	8,37	8,71	2
3132008	1	8	1,5	4	0,95	45	6,29	8,27	8,56	8,87	9,2	9,56	9,95	2
3132009	1	9	1,5	4	0,95	45	5,86	9,31	9,63	9,98	10,35	10,76	11,19	2
3132010	1	10	1,5	4	0,95	45	5,49	10,34	10,7	11,09	11,5	11,95	12,44	2
3132012	1	12	1,5	4	0,95	45	4,87	12,41	12,84	13,31	13,8	14,34	14,92	2
3132014	1	14	1,5	4	0,95	50	4,38	14,48	14,98	15,52	16,1	16,73	17,41	2
3132016	1	16	1,5	4	0,95	50	3,97	16,54	17,12	17,74	18,4	19,12	19,9	2
3132018	1	18	1,5	4	0,95	55	3,64	18,61	19,26	19,96	20,7	21,51	22,38	2
3132020	1	20	1,5	4	0,95	55	3,35	20,68	21,4	22,17	23	23,9	24,87	2
3132022	1	22	1,5	4	0,95	60	3,11	22,75	23,54	24,39	25,3	26,29	27,36	2
3132025	1	25	1,5	4	0,95	60	2,81	25,85	26,75	27,71	28,75	29,87	-	2
3132030	1	30	1,5	4	0,95	70	2,41	31,02	32,1	33,25	34,5	-	-	2
3132204	1,2	4	1,8	4	1,15	45	8,54	4,22	4,38	4,54	4,71	4,9	5,09	2
3132206	1,2	6	1,8	4	1,15	45	7,05	6,3	6,52	6,76	7,01	7,29	7,58	2
3132208	1,2	8	1,8	4	1,15	45	6	8,37	8,66	8,98	9,31	9,67	10,07	2

WXL-LN-EDS

Milling | Solid carbide

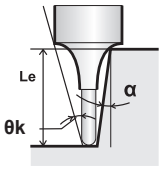






- Carbide end mill with WXL coating
- For hardened steels up to 52 HRC
- 2 flutes, long neck, square
- 199 sizes









EDP	DC	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=2,5°)	Le(α=3°)	ZEFP
3132210	1,2	10	1,8	4	1,15	45	-	5,22	10,44	10,8	11,19	11,61	12,06	12,55	2
3132212	1,2	12	1,8	4	1,15	45	-	4,62	12,51	12,94	13,41	13,91	14,45	15,04	2
3132214	1,2	14	1,8	4	1,15	50	-	4,14	14,57	15,08	15,63	16,21	16,84	17,53	2
3132216	1,2	16	1,8	4	1,15	50	-	3,76	16,64	17,22	17,84	18,51	19,23	20,01	2
3132220	1,2	20	1,8	4	1,15	55	-	3,16	20,77	21,5	22,28	23,11	24,01	24,99	2
3132406	1,4	6	2,1	4	1,35	45	-	6,77	6,3	6,52	6,76	7,01	7,29	7,58	2
3132408	1,4	8	2,1	4	1,35	45	-	5,73	8,37	8,66	8,98	9,31	9,67	10,07	2
3132410	1,4	10	2,1	4	1,35	45	-	4,97	10,44	10,8	11,19	11,61	12,06	12,55	2
3132412	1,4	12	2,1	4	1,35	45	-	4,39	12,51	12,94	13,41	13,91	14,45	15,04	2
3132414	1,4	14	2,1	4	1,35	50	-	3,92	14,57	15,08	15,63	16,21	16,84	17,53	2
3132416	1,4	16	2,1	4	1,35	50	-	3,55	16,64	17,22	17,84	18,51	19,23	20,01	2
3132422	1,4	22	2,1	4	1,35	60	-	2,76	22,84	23,64	24,49	25,41	26,4	-	2
3132504	1,5	4	2,3	4	1,45	45	-	8,12	4,22	4,38	4,54	4,71	4,9	5,09	2
3132506	1,5	6	2,3	4	1,45	45	-	6,62	6,3	6,52	6,76	7,01	7,29	7,58	2
3132508	1,5	8	2,3	4	1,45	45	-	5,59	8,37	8,66	8,98	9,31	9,67	10,07	2
3132510	1,5	10	2,3	4	1,45	45	-	4,84	10,44	10,8	11,19	11,61	12,06	12,55	2
3132512	1,5	12	2,3	4	1,45	45	-	4,26	12,51	12,94	13,41	13,91	14,45	15,04	2
3132514	1,5	14	2,3	4	1,45	50	-	3,81	14,57	15,08	15,63	16,21	16,84	17,53	2
3132516	1,5	16	2,3	4	1,45	50	-	3,45	16,64	17,22	17,84	18,51	19,23	20,01	2
3132518	1,5	18	2,3	4	1,45	55	-	3,14	18,71	19,36	20,06	20,81	21,62	22,5	2
3132520	1,5	20	2,3	4	1,45	55	25	2,89	20,77	21,5	22,28	23,11	24,01	-	2
3132525	1,5	25	2,3	4	1,45	60	-	2,4	25,94	26,85	27,82	28,86	-	-	2
3132530	1,5	30	2,3	4	1,45	70	-	2,06	31,11	32,2	33,36	34,61	-	-	2
3132538	1,5	38	2,3	4	1,45	80	-	1,67	39,38	40,75	42,22	-	-	-	2
3132540	1,5	40	2,3	4	1,45	80	-	1,6	41,45	42,89	44,44	-	-	-	2
3132545	1,5	45	2,3	4	1,45	80	-	1,44	46,62	48,24	-	-	-	-	2
3132606	1,6	6	2,4	4	1,55	45	-	6,47	6,3	6,52	6,76	7,01	7,29	7,58	2
3132608	1,6	8	2,4	4	1,55	45	-	5,45	8,37	8,66	8,98	9,31	9,67	10,07	2
3132610	1,6	10	2,4	4	1,55	45	-	4,71	10,44	10,8	11,19	11,61	12,06	12,55	2
3132612	1,6	12	2,4	4	1,55	45	-	4,14	12,51	12,94	13,41	13,91	14,45	15,04	2
3132614	1,6	14	2,4	4	1,55	50	-	3,7	14,57	15,08	15,63	16,21	16,84	17,53	2
3132616	1,6	16	2,4	4	1,55	50	-	3,34	16,64	17,22	17,84	18,51	19,23	20,01	2
3132618	1,6	18	2,4	4	1,55	55	-	3,04	18,71	19,36	20,06	20,81	21,62	22,5	2
3132620	1,6	20	2,4	4	1,55	55	-	2,8	20,77	21,5	22,28	23,11	24,01	-	2
3132806	1,8	6	2,7	4	1,75	45	-	5,96	6,42	6,77	7,1	7,39	7,68	7,99	2
3132808	1,8	8	2,7	4	1,75	45	-	5,01	8,53	8,96	9,34	9,69	10,07	10,48	2
3132810	1,8	10	2,7	4	1,75	45	-	4,33	10,64	11,13	11,56	11,99	12,46	12,97	2
3132812	1,8	12	2,7	4	1,75	45	-	3,81	12,74	13,29	13,78	14,29	14,85	15,45	2
3132814	1,8	14	2,7	4	1,75	50	-	3,4	14,83	15,44	15,99	16,59	17,24	17,94	2
3132816	1,8	16	2,7	4	1,75	50	-	3,07	16,92	17,58	18,21	18,89	19,63	20,43	2
3132818	1,8	18	2,7	4	1,75	55	-	2,79	19,01	19,71	20,43	21,19	22,02	-	2
3132820	1,8	20	2,7	4	1,75	55	-	2,57	21,09	21,85	22,64	23,49	24,41	-	2
3132825	1,8	25	2,7	4	1,75	60	-	2,13	26,28	27,2	28,18	29,24	-	-	2
3133006	2	6	3	4	1,95	45	-	5,62	6,42	6,77	7,1	7,39	7,68	7,99	2
3133008	2	8	3	4	1,95	45	-	4,7	8,53	8,96	9,34	9,69	10,07	10,48	2
3133010	2	10	3	4	1,95	45	-	4,04	10,64	11,13	11,56	11,99	12,46	12,97	2

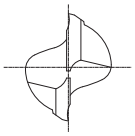


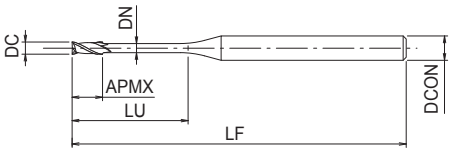
WXL-LN-EDS

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Milling | Solid carbide

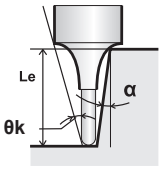






- Carbide end mill with WXL coating
- For hardened steels up to 52 HRC
- 2 flutes, long neck, square
- 199 sizes









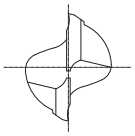
EDP	DC	LU	APMX	DCON	DN	LF	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=2,5°)	Le(α=3°)	ZEFP
3133012	2	12	3	4	1,95	45	3,54	12,74	13,29	13,78	14,29	14,85	15,45	2
3133014	2	14	3	4	1,95	50	3,15	14,83	15,44	15,99	16,59	17,24	17,94	2
3133016	2	16	3	4	1,95	50	2,84	16,92	17,58	18,21	18,89	19,63	-	2
3133018	2	18	3	4	1,95	55	2,58	19,01	19,71	20,43	21,19	22,02	-	2
3133020	2	20	3	4	1,95	55	2,37	21,09	21,85	22,64	23,49	-	-	2
3133025	2	25	3	4	1,95	60	1,96	26,28	27,2	28,18	-	-	-	2
3133030	2	30	3	4	1,95	70	1,68	31,45	32,55	33,73	-	-	-	2
3133035	2	35	3	4	1,95	80	1,46	36,62	37,9	-	-	-	-	2
3133040	2	40	3	4	1,95	90	1,3	41,79	43,25	-	-	-	-	2
3133050	2	50	3	4	1,95	100	1,06	52,13	53,94	-	-	-	-	2
3133060	2	60	3	4	1,95	110	0,89	62,46	-	-	-	-	-	2
3133508	2,5	8	3,7	4	2,4	45	3,86	8,47	8,87	9,22	9,57	9,94	10,35	2
3133510	2,5	10	3,7	4	2,4	45	3,27	10,57	11,03	11,44	11,87	12,33	12,83	2
3133512	2,5	12	3,7	4	2,4	45	2,84	12,66	13,18	13,66	14,17	14,72	-	2
3133514	2,5	14	3,7	4	2,4	50	2,51	14,75	15,32	15,88	16,47	17,11	-	2
3133516	2,5	16	3,7	4	2,4	55	2,25	16,83	17,46	18,09	18,77	-	-	2
3133518	2,5	18	3,7	4	2,4	55	2,03	18,91	19,6	20,31	21,07	-	-	2
3133520	2,5	20	3,7	4	2,4	60	1,86	20,99	21,74	22,52	-	-	-	2
3133525	2,5	25	3,7	4	2,4	70	1,53	26,17	27,09	28,07	-	-	-	2
3133530	2,5	30	3,7	4	2,4	80	1,3	31,34	32,44	-	-	-	-	2
3133540	2,5	40	3,7	4	2,4	90	1	41,68	-	-	-	-	-	2
3133550	2,5	50	3,7	4	2,4	100	0,81	52,02	-	-	-	-	-	2
3134008	3	8	4,5	6	2,85	45	6,19	8,42	8,79	9,13	9,47	9,84	10,24	2
3134010	3	10	4,5	6	2,85	45	5,41	10,51	10,95	11,35	11,77	12,23	12,73	2
3134012	3	12	4,5	6	2,85	45	4,81	12,6	13,09	13,56	14,07	14,62	15,21	2
3134014	3	14	4,5	6	2,85	50	4,32	14,68	15,23	15,78	16,37	17,01	17,7	2
3134016	3	16	4,5	6	2,85	55	3,93	16,76	17,37	18	18,67	19,4	20,18	2
3134018	3	18	4,5	6	2,85	55	3,6	18,84	19,51	20,21	20,97	21,79	22,67	2
3134020	3	20	4,5	6	2,85	60	3,32	20,91	21,65	22,43	23,27	24,18	25,16	2
3134025	3	25	4,5	6	2,85	65	2,79	26,09	27	27,97	29,02	30,15	-	2
3134030	3	30	4,5	6	2,85	80	2,4	31,25	32,34	33,51	34,77	-	-	2
3134035	3	35	4,5	6	2,85	90	2,1	36,42	37,69	39,05	40,52	-	-	2
3134040	3	40	4,5	6	2,85	90	1,87	41,59	43,04	44,6	-	-	-	2
3134050	3	50	4,5	6	2,85	100	1,54	51,93	53,74	55,68	-	-	-	2
3135012	4	12	6	6	3,85	50	3,58	12,6	13,09	13,56	14,07	14,62	15,21	2
3135016	4	16	6	6	3,85	60	2,87	16,76	17,37	18	18,67	19,4	-	2
3135020	4	20	6	6	3,85	60	2,39	20,91	21,65	22,43	23,27	-	-	2
3135025	4	25	6	6	3,85	70	1,98	26,09	27	27,97	-	-	-	2
3135030	4	30	6	6	3,85	80	1,69	31,25	32,34	33,51	-	-	-	2
3135035	4	35	6	6	3,85	90	1,47	36,42	37,69	-	-	-	-	2
3135040	4	40	6	6	3,85	90	1,3	41,59	43,04	-	-	-	-	2
3135045	4	45	6	6	3,85	100	1,17	46,76	48,39	-	-	-	-	2
3135050	4	50	6	6	3,85	100	1,06	51,93	53,74	-	-	-	-	2
3135060	4	60	6	6	3,85	110	0,9	62,26	-	-	-	-	-	2
3136016	5	16	7,5	6	4,85	60	1,58	16,76	17,37	18	-	-	-	2
3136020	5	20	7,5	6	4,85	70	1,3	20,91	21,65	-	-	-	-	2

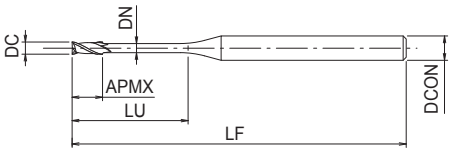


WXL-LN-EDS

Milling | Solid carbide

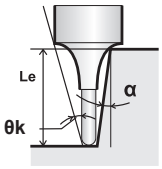






- Carbide end mill with WXL coating
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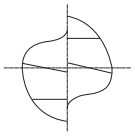
EDP	DC	LU	APMX	DCON	DN	LF	θk	Le(α=0,5°)	Le(α=1°)	ZEFP
3136025	5	25	7,5	6	4,85	70	1,06	26,09	27	2
3136030	5	30	7,5	6	4,85	90	0,89	31,25	-	2
3136035	5	35	7,5	6	4,85	90	0,77	36,42	-	2
3136040	5	40	7,5	6	4,85	100	0,68	41,59	-	2
3136050	5	50	7,5	6	4,85	110	0,55	51,93	-	2
3136060	5	60	7,5	6	4,85	120	0,46	-	-	2
3137020	6	20	9	6	5,85	80	-	-	-	2
3137030	6	30	9	6	5,85	90	-	-	-	2
3137040	6	40	9	6	5,85	100	-	-	-	2
3137050	6	50	9	6	5,85	110	-	-	-	2
3137060	6	60	9	6	5,85	120	-	-	-	2
3138040	8	40	12	8	7,85	110	-	-	-	2
3139050	10	50	15	10	9,85	125	-	-	-	2
3140060	12	60	18	12	11,9	140	-	-	-	2

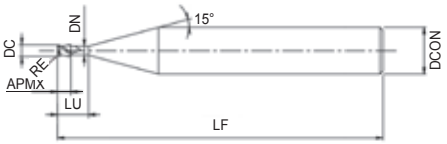


WXL-CR-EDS-6

Milling | Solid carbide

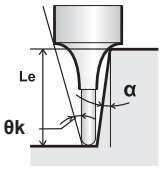






- Carbide end mill with WXL coating
- For general applications
- 2 flutes, corner radius
- Shank diameter 6

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S | H ~60 HRC



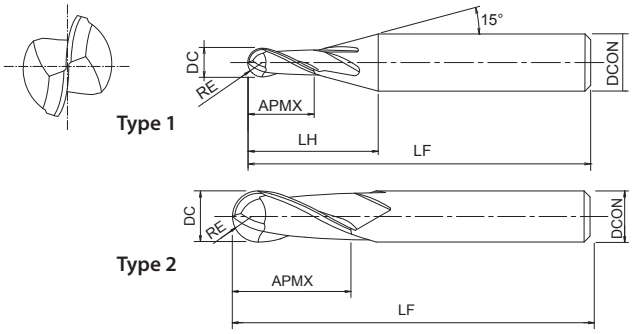
CARBIDE | WXL | 30° | SHRINK FIT | 0~-0.015 | C.963

EDP	DC	RE	LU	APMX	DCON	DN	LF	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=2,5°)	Le(α=3°)	ZEFP
48144060	0,6	0,1	1,8	0,9	6	0,55	50	1,86	1,92	1,99	2,07	2,15	2,23	2
48144080	0,8	0,1	2,4	1,2	6	0,75	50	2,48	2,56	2,66	2,76	2,86	2,98	2
48144100	1	0,1	2,5	1,5	6	0,95	50	2,58	2,67	2,77	2,85	2,98	3,1	2
48144120	1,2	0,1	3	1,8	6	1,15	50	3,1	3,2	3,32	3,45	3,58	3,72	2
48144150	1,5	0,1	3,8	2,3	6	1,45	50	3,92	4,06	4,21	4,36	4,54	4,72	2
48144180	1,8	0,1	4,5	2,7	6	1,75	50	4,62	4,81	4,98	5,17	5,37	5,59	2
48144200	2	0,1	5	3	6	1,95	50	5,16	5,34	5,54	5,74	5,97	6,21	2
48144250	2,5	0,1	5	3,7	6	2,4	50	5,16	5,34	5,54	5,74	5,97	6,21	2

WXL-HS-EBD

Milling | Solid carbide





- Carbide end mill with WXL coating
- For high speed milling in steels, stainless and cast iron
- 2 flutes, shorter overall length, ball nose

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S | H ~60 HRC

CARBIDE | WXL | 30° | SHRINK FIT | R 0.003~-0.007 3≤R≤6 | R ± 0.005 R<3

C.964

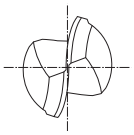
EDP	DC	RE	APMX	DCON	LF	LH	ZEFP	Type
3107020	0,2	0,1	0,4	4	35	6,5	2	1
3107040	0,4	0,2	0,8	4	35	6,9	2	1
3107060	0,6	0,3	1,1	4	35	6,9	2	1
3107080	0,8	0,4	2	4	35	7,4	2	1
3107100	1	0,5	1,5	4	40	6,7	2	1
3107120	1,2	0,6	3	4	40	7,9	2	1
3107150	1,5	0,75	2	4	40	6,4	2	1
3107200	2	1	3	4	40	7,1	2	1
3107300	3	1,5	4,5	4	40	7,9	2	1
3107400	4	2	6	6	40	11,2	2	1
3108500	5	2,5	8	6	40	11,6	2	1
3108600	6	3	10	6	45	-	2	2
3108620	8	4	12	8	55	-	2	2
3108640	10	5	15	10	65	-	2	2
3108660	12	6	18	12	70	-	2	2

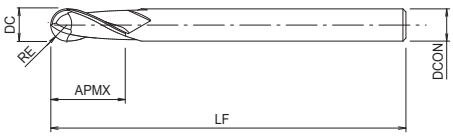
WXL-EBD

INDEX

Milling | Solid carbide







- Carbide end mill with WXL coating
- For high speed milling in steels, stainless and cast iron
- 2 flutes, ball nose







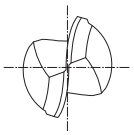
EDP	DC	RE	APMX	DCON	LF	ZEFP
3105010	0,1	0,05	0,2	4	40	2
3105020	0,2	0,1	0,4	4	40	2
3105030	0,3	0,15	0,6	4	40	2
3106030	0,3	0,15	0,6	6	50	2
3105040	0,4	0,2	0,8	4	40	2
3106040	0,4	0,2	0,8	6	50	2
3105050	0,5	0,25	1,1	4	40	2
3106050	0,5	0,25	1,1	6	50	2
3105060	0,6	0,3	1,1	4	40	2
3106060	0,6	0,3	1,1	6	50	2
3106710	0,7	0,35	1,5	4	40	2
3105080	0,8	0,4	2	4	40	2
3106080	0,8	0,4	2	6	50	2
3106720	0,9	0,45	2,2	4	50	2
3105100	1	0,5	1,5	4	50	2
3105101	1	0,5	2,5	4	50	2
3106100	1	0,5	2,5	6	60	2
3106730	1,1	0,55	2,7	4	50	2
3105120	1,2	0,6	3	4	50	2
3106740	1,3	0,65	3,2	4	50	2
3105140	1,4	0,7	3,5	4	50	2
3105150	1,5	0,75	2	4	50	2
3105151	1,5	0,75	4	4	50	2
3106150	1,5	0,75	4	6	50	2
3105160	1,6	0,8	4	4	50	2
3106750	1,7	0,85	4,2	4	50	2
3106760	1,8	0,9	4,5	4	50	2
3106770	1,9	0,95	4,7	4	50	2
3105200	2	1	3	4	50	2
3105201	2	1	6	4	50	2
3106200	2	1	5	6	50	2
3106780	2,1	1,05	4,8	6	50	2
3106790	2,2	1,1	4,9	6	50	2
3106800	2,3	1,15	5	6	50	2
3106810	2,4	1,2	5,1	6	50	2
3105250	2,5	1,25	3	4	50	2
3105251	2,5	1,25	6	4	50	2
3106250	2,5	1,25	6	6	60	2
3106820	2,6	1,3	5,2	6	50	2
3106830	2,7	1,35	5,4	6	50	2
3106840	2,8	1,4	5,6	6	60	2
3106850	2,9	1,45	5,8	6	60	2
3105300	3	1,5	4,5	4	60	2
3106300	3	1,5	4,5	6	60	2
3106301	3	1,5	8	6	60	2
3106350	3,5	1,75	8	6	70	2

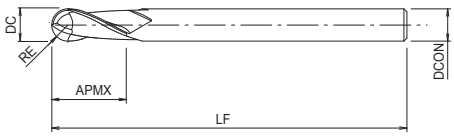
WXL-EBD

INDEX

Milling | Solid carbide







- Carbide end mill with WXL coating
- For high speed milling in steels, stainless and cast iron
- 2 flutes, ball nose







EDP	DC	RE	APMX	DCON	LF	ZEFP
3105400	4	2	8	4	60	2
3106400	4	2	6	6	70	2
3106401	4	2	8	6	70	2
3106860	4,5	2,25	8	6	80	2
3106500	5	2,5	8	6	80	2
3106501	5	2,5	10	6	80	2
3106502	5	2,5	12	6	80	2
3106870	5,5	2,75	10	6	80	2
3106600	6	3	10	6	90	2
3106601	6	3	12	6	90	2
3106880	6,5	3,25	13	6	90	2
3106610	7	3,5	14	6	90	2
3106890	7,5	3,75	14	6	90	2
3106620	8	4	12	8	100	2
3106621	8	4	14	8	100	2
3106900	8,5	4,25	16	8	100	2
3106630	9	4,5	18	8	100	2
3106910	9,5	4,75	18	8	100	2
3106640	10	5	15	10	100	2
3106641	10	5	18	10	100	2
3106650	11	5,5	22	10	100	2
3106660	12	6	18	12	110	2
3106661	12	6	22	12	110	2
3106920	13	6,5	24	12	110	2
3106670	14	7	26	12	110	2
3106930	15	7,5	28	12	110	2
3106680	16	8	30	16	140	2
3106690	18	9	34	16	140	2
3106700	20	10	38	20	160	2

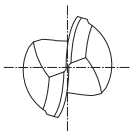


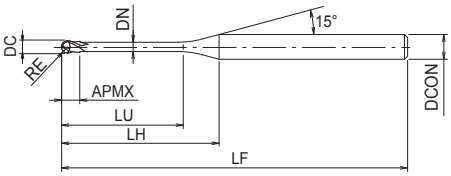
WXL-LN-EBD

Milling | Solid carbide

INDEX

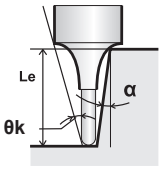






- Carbide end mill with WXL coating
- For hardened steels up to 65 HRC and stainless steels
- 2 flutes, long neck, ball nose
- 284 sizes







C.966

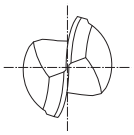
EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=2,5°)	Le(α=3°)	ZEFP
3110103	0,1	0,05	0,3	0,08	4	0,09	45	7,5	14,46	0,34	0,35	0,36	0,37	0,38	0,4	2
3110105	0,1	0,05	0,5	0,08	4	0,09	45	7,7	14,1	0,54	0,56	0,58	0,6	0,62	0,64	2
3110203	0,2	0,1	0,3	0,16	4	0,18	45	7,3	14,59	0,3	0,31	0,32	0,33	0,34	0,35	2
3110205	0,2	0,1	0,5	0,16	4	0,18	45	7,5	14,44	0,53	0,55	0,57	0,59	0,61	0,63	2
3120205	0,2	0,1	0,5	0,16	6	0,18	50	11,3	14,16	0,53	0,55	0,57	0,59	0,61	0,63	2
3110207	0,2	0,1	0,75	0,16	4	0,18	45	7,8	13,72	0,79	0,82	0,85	0,88	0,91	0,94	2
3110210	0,2	0,1	1	0,16	4	0,18	45	8	13,31	1,05	1,09	1,13	1,17	1,21	1,26	2
3120210	0,2	0,1	1	0,16	6	0,18	50	11,8	13,85	1,05	1,09	1,13	1,17	1,21	1,26	2
3110212	0,2	0,1	1,25	0,16	4	0,18	45	8,3	12,92	1,31	1,36	1,41	1,46	1,51	1,57	2
3110215	0,2	0,1	1,5	0,16	4	0,18	45	8,5	12,56	1,57	1,63	1,68	1,74	1,81	1,88	2
3120215	0,2	0,1	1,5	0,16	6	0,18	50	12,3	13,3	1,57	1,63	1,68	1,74	1,81	1,88	2
3110217	0,2	0,1	1,75	0,16	4	0,18	45	8,8	12,21	1,83	1,9	1,96	2,03	2,11	2,19	2
3110220	0,2	0,1	2	0,16	4	0,18	45	9	11,88	2,09	2,16	2,24	2,32	2,4	2,5	2
3120220	0,2	0,1	2	0,16	6	0,18	50	12,8	12,8	2,09	2,16	2,24	2,32	2,4	2,5	2
3110225	0,2	0,1	2,5	0,16	4	0,18	45	9,5	11,28	2,61	2,7	2,79	2,89	3	3,12	2
3110230	0,2	0,1	3	0,16	4	0,18	45	10	10,73	3,13	3,23	3,35	3,47	3,6	3,74	2
3110305	0,3	0,15	0,5	0,24	4	0,28	45	7,3	14,22	0,52	0,54	0,56	0,58	0,6	0,62	2
3110306	0,3	0,15	0,6	0,24	4	0,28	45	7,4	14,03	0,63	0,65	0,68	0,7	0,72	0,75	2
3110307	0,3	0,15	0,75	0,24	4	0,28	45	7,6	13,77	0,79	0,82	0,85	0,87	0,9	0,93	2
3110310	0,3	0,15	1	0,24	4	0,28	45	7,8	13,34	1,05	1,09	1,12	1,16	1,2	1,24	2
3120310	0,3	0,15	1	0,24	6	0,28	50	11,6	13,88	1,05	1,09	1,12	1,16	1,2	1,24	2
3110312	0,3	0,15	1,25	0,24	4	0,28	45	8,1	12,94	1,31	1,36	1,4	1,45	1,5	1,55	2
3110315	0,3	0,15	1,5	0,24	4	0,28	45	8,3	12,57	1,57	1,63	1,68	1,74	1,8	1,87	2
3120315	0,3	0,15	1,5	0,24	6	0,28	50	12,1	13,33	1,57	1,63	1,68	1,74	1,8	1,87	2
3110317	0,3	0,15	1,75	0,24	4	0,28	45	8,6	12,21	1,83	1,89	1,96	2,02	2,1	2,18	2
3110320	0,3	0,15	2	0,24	4	0,28	45	8,8	11,87	2,09	2,16	2,23	2,31	2,4	2,49	2
3120320	0,3	0,15	2	0,24	6	0,28	50	12,6	12,81	2,09	2,16	2,23	2,31	2,4	2,49	2
3110322	0,3	0,15	2,25	0,24	4	0,28	45	9,1	11,56	2,35	2,43	2,51	2,6	2,69	2,8	2
3110325	0,3	0,15	2,5	0,24	4	0,28	45	9,3	11,25	2,61	2,69	2,79	2,89	2,99	3,11	2
3120325	0,3	0,15	2,5	0,24	6	0,28	50	13,1	12,34	2,61	2,69	2,79	2,89	2,99	3,11	2
3110327	0,3	0,15	2,75	0,24	4	0,28	45	9,6	10,97	2,87	2,96	3,06	3,17	3,29	3,42	2
3110330	0,3	0,15	3	0,24	4	0,28	45	9,8	10,69	3,13	3,23	3,34	3,46	3,59	3,73	2
3120330	0,3	0,15	3	0,24	6	0,28	50	13,6	11,89	3,13	3,23	3,34	3,46	3,59	3,73	2
3110335	0,3	0,15	3,5	0,24	4	0,28	45	10,3	10,19	3,64	3,76	3,9	4,04	4,19	4,35	2
3110340	0,3	0,15	4	0,24	4	0,28	45	10,8	9,72	4,16	4,3	4,45	4,61	4,78	4,97	2
3110345	0,3	0,15	4,5	0,24	4	0,28	45	11,3	9,3	4,68	4,83	5	5,19	5,38	5,59	2
3110350	0,3	0,15	5	0,24	4	0,28	45	11,8	8,91	5,19	5,37	5,56	5,76	5,98	6,22	2
3110405	0,4	0,2	0,5	0,3	4	0,37	45	7,1	14,3	0,52	0,53	0,55	0,56	0,58	0,6	2
3110407	0,4	0,2	0,75	0,3	4	0,37	45	7,4	13,83	0,78	0,8	0,83	0,85	0,88	0,91	2
3110410	0,4	0,2	1	0,3	4	0,37	45	7,6	13,39	1,04	1,07	1,11	1,14	1,18	1,22	2
3120410	0,4	0,2	1	0,3	6	0,37	50	11,4	13,93	1,04	1,07	1,11	1,14	1,18	1,22	2
3110415	0,4	0,2	1,5	0,3	4	0,37	45	8,1	12,59	1,56	1,61	1,66	1,72	1,77	1,84	2
3120415	0,4	0,2	1,5	0,3	6	0,37	50	11,9	13,36	1,56	1,61	1,66	1,72	1,77	1,84	2
3110420	0,4	0,2	2	0,3	4	0,37	45	8,6	11,88	2,08	2,14	2,21	2,29	2,37	2,46	2
3120420	0,4	0,2	2	0,3	6	0,37	50	12,4	12,83	2,08	2,14	2,21	2,29	2,37	2,46	2
3110425	0,4	0,2	2,5	0,3	4	0,37	45	9,1	11,24	2,6	2,68	2,77	2,87	2,97	3,08	2

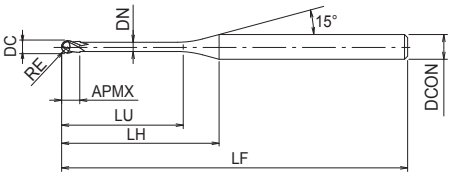
WXL-LN-EBD

Milling | Solid carbide

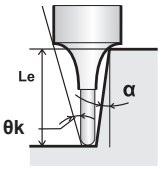
INDEX







- Carbide end mill with WXL coating
- For hardened steels up to 65 HRC and stainless steels
- 2 flutes, long neck, ball nose
- 284 sizes



P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S | H ~60 HRC

CARBIDE | WXL | 30° | SHRINK FIT | R ± 0.005

C.966

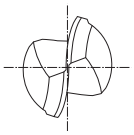
EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=2,5°)	Le(α=3°)	ZEFP
3120425	0,4	0,2	2,5	0,3	6	0,37	50	12,9	12,35	2,6	2,68	2,77	2,87	2,97	3,08	2
3110430	0,4	0,2	3	0,3	4	0,37	45	9,6	10,67	3,11	3,21	3,32	3,44	3,57	3,7	2
3120430	0,4	0,2	3	0,3	6	0,37	50	13,4	11,9	3,11	3,21	3,32	3,44	3,57	3,7	2
3110435	0,4	0,2	3,5	0,3	4	0,37	45	10,1	10,15	3,63	3,75	3,88	4,02	4,16	4,33	2
3110440	0,4	0,2	4	0,3	4	0,37	45	10,6	9,68	4,15	4,28	4,43	4,59	4,76	4,95	2
3120440	0,4	0,2	4	0,3	6	0,37	50	14,4	11,09	4,15	4,28	4,43	4,59	4,76	4,95	2
3110445	0,4	0,2	4,5	0,3	4	0,37	45	11,1	9,25	4,66	4,82	4,99	5,17	5,36	5,57	2
3110450	0,4	0,2	5	0,3	4	0,37	45	11,6	8,86	5,18	5,35	5,54	5,74	5,96	6,19	2
3120450	0,4	0,2	5	0,3	6	0,37	50	15,4	10,38	5,18	5,35	5,54	5,74	5,96	6,19	2
3110455	0,4	0,2	5,5	0,3	4	0,37	45	12,1	8,5	5,7	5,89	6,09	6,32	6,55	6,81	2
3110460	0,4	0,2	6	0,3	4	0,37	45	12,6	8,16	6,21	6,42	6,65	6,89	7,15	7,43	2
3120460	0,4	0,2	6	0,3	6	0,37	50	16,4	9,76	6,21	6,42	6,65	6,89	7,15	7,43	2
3110510	0,5	0,25	1	0,4	4	0,45	45	7,6	13,45	1,03	1,06	1,09	1,12	1,15	1,19	2
3110515	0,5	0,25	1,5	0,4	4	0,45	45	8,1	12,62	1,55	1,59	1,64	1,69	1,75	1,81	2
3120515	0,5	0,25	1,5	0,4	6	0,45	50	11,9	13,4	1,55	1,59	1,64	1,69	1,75	1,81	2
3110520	0,5	0,25	2	0,4	4	0,45	45	8,6	11,89	2,06	2,13	2,2	2,27	2,35	2,43	2
3120520	0,5	0,25	2	0,4	6	0,45	50	12,4	12,86	2,06	2,13	2,2	2,27	2,35	2,43	2
3110525	0,5	0,25	2,5	0,4	4	0,45	45	9,1	11,23	2,58	2,66	2,75	2,84	2,94	3,05	2
3120525	0,5	0,25	2,5	0,4	6	0,45	50	12,9	12,36	2,58	2,66	2,75	2,84	2,94	3,05	2
3110530	0,5	0,25	3	0,4	4	0,45	45	9,6	10,65	3,1	3,2	3,3	3,42	3,54	3,68	2
3120530	0,5	0,25	3	0,4	6	0,45	50	13,4	11,9	3,1	3,2	3,3	3,42	3,54	3,68	2
3110535	0,5	0,25	3,5	0,4	4	0,45	45	10,1	10,12	3,61	3,73	3,86	3,99	4,14	4,3	2
3110540	0,5	0,25	4	0,4	4	0,45	45	10,6	9,64	4,13	4,27	4,41	4,57	4,74	4,92	2
3120540	0,5	0,25	4	0,4	6	0,45	50	14,4	11,08	4,13	4,27	4,41	4,57	4,74	4,92	2
3110545	0,5	0,25	4,5	0,4	4	0,45	45	11,1	9,2	4,65	4,8	4,97	5,14	5,33	5,54	2
3110550	0,5	0,25	5	0,4	4	0,45	45	11,6	8,8	5,17	5,34	5,52	5,72	5,93	6,16	2
3120550	0,5	0,25	5	0,4	6	0,45	50	15,4	10,36	5,17	5,34	5,52	5,72	5,93	6,16	2
3110555	0,5	0,25	5,5	0,4	4	0,45	45	12,1	8,43	5,68	5,87	6,07	6,29	6,53	6,78	2
3110560	0,5	0,25	6	0,4	4	0,45	45	12,6	8,1	6,2	6,41	6,63	6,87	7,13	7,41	2
3120560	0,5	0,25	6	0,4	6	0,45	50	16,4	9,73	6,2	6,41	6,63	6,87	7,13	7,41	2
3110570	0,5	0,25	7	0,4	4	0,45	45	13,6	7,49	7,23	7,48	7,74	8,02	8,32	8,65	2
3110580	0,5	0,25	8	0,4	4	0,45	45	14,6	6,98	8,27	8,55	8,85	9,17	9,52	9,89	2
3120580	0,5	0,25	8	0,4	6	0,45	50	18,4	8,67	8,27	8,55	8,85	9,17	9,52	9,89	2
3110590	0,5	0,25	9	0,4	4	0,45	45	15,6	6,52	9,3	9,62	9,95	10,32	10,71	11,14	2
3110600	0,5	0,25	10	0,4	4	0,45	45	16,6	6,13	10,33	10,68	11,06	11,47	11,9	12,38	2
3110610	0,6	0,3	1	0,5	4	0,55	45	7,4	13,49	1,03	1,05	1,08	1,11	1,14	1,18	2
3110615	0,6	0,3	1,5	0,5	4	0,55	45	7,9	12,64	1,55	1,59	1,64	1,69	1,74	1,8	2
3120615	0,6	0,3	1,5	0,5	6	0,55	50	11,7	13,42	1,55	1,59	1,64	1,69	1,74	1,8	2
3110620	0,6	0,3	2	0,5	4	0,55	45	8,4	11,88	2,06	2,12	2,19	2,26	2,34	2,42	2
3120620	0,6	0,3	2	0,5	6	0,55	50	12,2	12,87	2,06	2,12	2,19	2,26	2,34	2,42	2
3110625	0,6	0,3	2,5	0,5	4	0,55	45	8,9	11,21	2,58	2,66	2,74	2,84	2,94	3,04	2
3120625	0,6	0,3	2,5	0,5	6	0,55	50	12,7	12,37	2,58	2,66	2,74	2,84	2,94	3,04	2
3110630	0,6	0,3	3	0,5	4	0,55	45	9,4	10,61	3,1	3,19	3,3	3,41	3,53	3,66	2
3120630	0,6	0,3	3	0,5	6	0,55	50	13,2	11,9	3,1	3,19	3,3	3,41	3,53	3,66	2
3110635	0,6	0,3	3,5	0,5	4	0,55	45	9,9	10,07	3,61	3,73	3,85	3,99	4,13	4,29	2
3110640	0,6	0,3	4	0,5	4	0,55	45	10,4	9,58	4,13	4,26	4,41	4,56	4,73	4,91	2

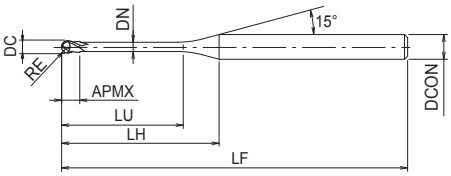
WXL-LN-EBD

Milling | Solid carbide

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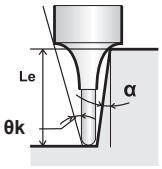






- Carbide end mill with WXL coating
- For hardened steels up to 65 HRC and stainless steels
- 2 flutes, long neck, ball nose
- 284 sizes







C.966

EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=2,5°)	Le(α=3°)	ZEFP
3120640	0,6	0,3	4	0,5	6	0,55	50	14,2	11,06	4,13	4,26	4,41	4,56	4,73	4,91	2
3110645	0,6	0,3	4,5	0,5	4	0,55	45	10,9	9,13	4,65	4,8	4,96	5,14	5,32	5,53	2
3110650	0,6	0,3	5	0,5	4	0,55	45	11,4	8,73	5,16	5,33	5,51	5,71	5,92	6,15	2
3120650	0,6	0,3	5	0,5	6	0,55	50	15,2	10,33	5,16	5,33	5,51	5,71	5,92	6,15	2
3110655	0,6	0,3	5,5	0,5	4	0,55	45	11,9	8,36	5,68	5,87	6,07	6,29	6,52	6,77	2
3110660	0,6	0,3	6	0,5	4	0,55	45	12,4	8,02	6,2	6,4	6,62	6,86	7,12	7,39	2
3120660	0,6	0,3	6	0,5	6	0,55	50	16,2	9,69	6,2	6,4	6,62	6,86	7,12	7,39	2
3110665	0,6	0,3	6,5	0,5	4	0,55	45	12,9	7,7	6,71	6,94	7,18	7,44	7,71	8,02	2
3110670	0,6	0,3	7	0,5	4	0,55	45	13,4	7,41	7,23	7,47	7,73	8,01	8,31	8,64	2
3110675	0,6	0,3	7,5	0,5	4	0,55	45	13,9	7,14	7,75	8,01	8,29	8,59	8,91	9,26	2
3110680	0,6	0,3	8	0,5	4	0,55	45	14,4	6,89	8,26	8,54	8,84	9,16	9,51	9,88	2
3120680	0,6	0,3	8	0,5	6	0,55	50	18,2	8,62	8,26	8,54	8,84	9,16	9,51	9,88	2
3110685	0,6	0,3	8,5	0,5	4	0,55	45	14,9	6,66	8,78	9,08	9,39	9,74	10,1	10,5	2
3110690	0,6	0,3	9	0,5	4	0,55	45	15,4	6,44	9,3	9,61	9,95	10,31	10,7	11,12	2
3110695	0,6	0,3	9,5	0,5	4	0,55	45	15,9	6,23	9,81	10,15	10,5	10,89	11,3	11,75	2
3110700	0,6	0,3	10	0,5	4	0,55	45	16,4	6,04	10,33	10,68	11,06	11,46	11,9	12,37	2
3120700	0,6	0,3	10	0,5	6	0,55	50	20,2	7,76	10,33	10,68	11,06	11,46	11,9	12,37	2
3110711	0,6	0,3	11	0,5	4	0,55	45	17,4	5,69	11,37	11,75	12,16	12,61	13,09	13,61	2
3110712	0,6	0,3	12	0,5	4	0,55	45	18,4	5,38	12,4	12,82	13,27	13,76	14,28	14,85	2
3110820	0,8	0,4	2	0,6	4	0,75	45	8,1	11,86	2,06	2,12	2,18	2,25	2,32	2,4	2
3120820	0,8	0,4	2	0,6	6	0,75	50	11,8	12,9	2,06	2,12	2,18	2,25	2,32	2,4	2
3110830	0,8	0,4	3	0,5	4	0,75	45	9,1	10,52	3,09	3,19	3,29	3,4	3,51	3,64	2
3120830	0,8	0,4	3	0,6	6	0,75	50	12,8	11,89	3,09	3,19	3,29	3,4	3,51	3,64	2
3110840	0,8	0,4	4	0,6	4	0,75	45	10,1	9,45	4,13	4,26	4,4	4,55	4,71	4,88	2
3120840	0,8	0,4	4	0,6	6	0,75	50	13,8	11,02	4,13	4,26	4,4	4,55	4,71	4,88	2
3110850	0,8	0,4	5	0,6	4	0,75	45	11,1	8,58	5,16	5,33	5,5	5,7	5,9	6,13	2
3120850	0,8	0,4	5	0,6	6	0,75	50	14,8	10,27	5,16	5,33	5,5	5,7	5,9	6,13	2
3110860	0,8	0,4	6	0,6	4	0,75	45	12,1	7,85	6,19	6,4	6,61	6,85	7,1	7,37	2
3120860	0,8	0,4	6	0,6	6	0,75	50	15,8	9,62	6,19	6,4	6,61	6,85	7,1	7,37	2
3110870	0,8	0,4	7	0,6	4	0,75	45	13,1	7,24	7,23	7,47	7,72	8	8,29	8,61	2
3110880	0,8	0,4	8	0,6	4	0,75	45	14,1	6,71	8,26	8,54	8,83	9,15	9,49	9,86	2
3120880	0,8	0,4	8	0,6	6	0,75	50	17,8	8,53	8,26	8,54	8,83	9,15	9,49	9,86	2
3110890	0,8	0,4	9	0,6	4	0,75	45	15,1	6,25	9,29	9,6	9,94	10,3	10,68	11,1	2
3110900	0,8	0,4	10	0,6	4	0,75	45	16,1	5,86	10,33	10,67	11,05	11,45	11,88	12,34	2
3120900	0,8	0,4	10	0,6	6	0,75	50	19,8	7,66	10,33	10,67	11,05	11,45	11,88	12,34	2
3110912	0,8	0,4	12	0,5	4	0,75	45	18,1	5,2	12,4	12,81	13,26	13,75	14,27	14,83	2
3111025	1	0,5	2,5	0,8	4	0,95	45	8,2	11,09	2,57	2,64	2,72	2,81	2,9	3	2
3111030	1	0,5	3	0,8	4	0,95	45	8,7	10,43	3,09	3,18	3,28	3,38	3,49	3,62	2
3121030	1	0,5	3	0,8	6	0,95	50	12,4	11,88	3,09	3,18	3,28	3,38	3,49	3,62	2
3111040	1	0,5	4	0,8	4	0,95	45	9,7	9,32	4,12	4,25	4,39	4,53	4,69	4,86	2
3121040	1	0,5	4	0,8	6	0,95	50	13,4	10,98	4,12	4,25	4,39	4,53	4,69	4,86	2
3111050	1	0,5	5	0,8	4	0,95	45	10,7	8,41	5,16	5,32	5,49	5,68	5,88	6,1	2
3121050	1	0,5	5	0,8	6	0,95	50	14,4	10,21	5,16	5,32	5,49	5,68	5,88	6,1	2
3111060	1	0,5	6	0,8	4	0,95	45	11,7	7,67	6,19	6,39	6,6	6,83	7,08	7,35	2
3121060	1	0,5	6	0,8	6	0,95	50	15,4	9,54	6,19	6,39	6,6	6,83	7,08	7,35	2
3111070	1	0,5	7	0,8	4	0,95	45	12,7	7,05	7,22	7,46	7,71	7,98	8,27	8,59	2

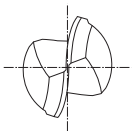


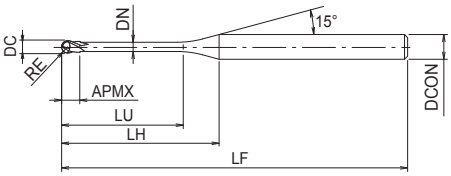
WXL-LN-EBD

Milling | Solid carbide

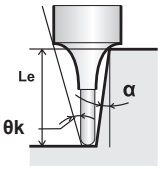
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- Carbide end mill with WXL coating
- For hardened steels up to 65 HRC and stainless steels
- 2 flutes, long neck, ball nose
- 284 sizes



P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S | H ~60 HRC

CARBIDE | WXL | 30° | SHRINK FIT | R ± 0.005

C.966

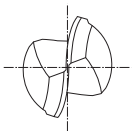
EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=2,5°)	Le(α=3°)	ZEFP
3121070	1	0,5	7	0,8	6	0,95	50	16,4	8,95	7,22	7,46	7,71	7,98	8,27	8,59	2
3111080	1	0,5	8	0,8	4	0,95	45	13,7	6,52	8,26	8,53	8,82	9,13	9,47	9,83	2
3121080	1	0,5	8	0,8	6	0,95	50	17,4	8,43	8,26	8,53	8,82	9,13	9,47	9,83	2
3111090	1	0,5	9	0,8	4	0,95	45	14,7	6,06	9,29	9,6	9,93	10,28	10,66	11,08	2
3111100	1	0,5	10	0,8	4	0,95	45	15,7	5,66	10,33	10,67	11,04	11,43	11,86	12,32	2
3121100	1	0,5	10	0,8	6	0,95	50	19,4	7,55	10,33	10,67	11,04	11,43	11,86	12,32	2
3111112	1	0,5	12	0,8	4	0,95	45	17,7	5,01	12,39	12,81	13,25	13,73	14,25	14,81	2
3121112	1	0,5	12	0,8	6	0,95	50	21,4	6,83	12,39	12,81	13,25	13,73	14,25	14,81	2
3111114	1	0,5	14	0,8	4	0,95	50	19,7	4,49	14,46	14,95	15,47	16,03	16,64	17,29	2
3121114	1	0,5	14	0,8	6	0,95	60	23,4	6,24	14,46	14,95	15,47	16,03	16,64	17,29	2
3111116	1	0,5	16	0,8	4	0,95	50	21,7	4,06	16,53	17,09	17,69	18,33	19,03	19,78	2
3121116	1	0,5	16	0,8	6	0,95	60	25,4	5,74	16,53	17,09	17,69	18,33	19,03	19,78	2
3111118	1	0,5	18	0,8	4	0,95	55	23,7	3,71	18,59	19,23	19,9	20,63	21,41	22,26	2
3111120	1	0,5	20	0,8	4	0,95	55	25,7	4,95	20,66	21,36	22,12	22,93	23,8	24,75	2
3121120	1	0,5	20	0,8	6	0,95	60	29,4	3,42	20,66	21,36	22,12	22,93	23,8	24,75	2
3121122	1	0,5	22	0,8	6	0,95	60	31,4	4,63	22,73	23,5	24,33	25,23	26,19	27,24	2
3111240	1,2	0,6	4	1	4	1,15	45	9,4	9,07	4,19	4,34	4,48	4,62	4,78	4,95	2
3111260	1,2	0,6	6	1	4	1,15	45	11,4	7,41	6,27	6,48	6,69	6,92	7,17	7,44	2
3121260	1,2	0,6	6	1	6	1,15	50	15,2	9,4	6,27	6,48	6,69	6,92	7,17	7,44	2
3111280	1,2	0,6	8	1	4	1,15	45	13,4	6,26	8,35	8,62	8,91	9,22	9,56	9,93	2
3121280	1,2	0,6	8	1	6	1,15	50	17,1	8,28	8,35	8,62	8,91	9,22	9,56	9,93	2
3111300	1,2	0,6	10	1	4	1,15	45	15,4	5,42	10,42	10,76	11,13	11,52	11,95	12,41	2
3121300	1,2	0,6	10	1	6	1,15	50	19,2	7,39	10,42	10,76	11,13	11,52	11,95	12,41	2
3111312	1,2	0,6	12	1	4	1,15	45	17,4	4,78	12,49	12,9	13,34	13,82	14,34	14,9	2
3121312	1,2	0,6	12	1	6	1,15	50	21,2	6,68	12,49	12,9	13,34	13,82	14,34	14,9	2
3111314	1,2	0,6	14	1	4	1,15	50	19,4	4,27	14,55	15,04	15,56	16,12	16,73	17,38	2
3111316	1,2	0,6	16	1	4	1,15	50	21,4	3,86	16,62	17,18	17,78	18,42	19,12	19,87	2
3121316	1,2	0,6	16	1	6	1,15	60	25,2	5,6	16,62	17,18	17,78	18,42	19,12	19,87	2
3111318	1,2	0,6	18	1	4	1,15	55	23,4	3,52	18,69	19,32	19,99	20,72	21,51	22,36	2
3111320	1,2	0,6	20	1	4	1,15	60	25,4	3,24	20,75	21,46	22,21	23,02	23,9	24,84	2
3111324	1,2	0,6	24	1	4	1,15	60	29,4	2,79	24,89	25,74	26,64	27,62	28,68	-	2
3111480	1,4	0,7	8	1,1	4	1,35	45	13,1	6,04	8,35	8,61	8,9	9,21	9,54	9,9	2
3111512	1,4	0,7	12	1,1	4	1,35	45	17,1	4,57	12,48	12,89	13,33	13,81	14,32	14,87	2
3111516	1,4	0,7	16	1,1	4	1,35	50	21,1	3,67	16,62	17,17	17,77	18,41	19,1	19,85	2
3111530	1,5	0,75	3	1,2	4	1,45	45	7,9	10,01	3,13	3,25	3,35	3,45	3,56	3,67	2
3111540	1,5	0,75	4	1,2	4	1,45	45	8,9	8,8	4,18	4,33	4,46	4,6	4,75	4,92	2
3111560	1,5	0,75	6	1,2	4	1,45	45	10,9	7,08	6,27	6,47	6,68	6,9	7,14	7,4	2
3121560	1,5	0,75	6	1,2	6	1,45	50	14,6	9,26	6,27	6,47	6,68	6,9	7,14	7,4	2
3111580	1,5	0,75	8	1,2	4	1,45	45	12,9	5,92	8,34	8,61	8,9	9,2	9,53	9,89	2
3121580	1,5	0,75	8	1,2	6	1,45	50	16,6	8,11	8,34	8,61	8,9	9,2	9,53	9,89	2
3111600	1,5	0,75	10	1,2	4	1,45	45	14,9	5,09	10,41	10,75	11,11	11,5	11,92	12,38	2
3121600	1,5	0,75	10	1,2	6	1,45	50	18,6	7,21	10,41	10,75	11,11	11,5	11,92	12,38	2
3111612	1,5	0,75	12	1,2	4	1,45	45	16,9	4,46	12,48	12,89	13,33	13,8	14,31	14,86	2
3121612	1,5	0,75	12	1,2	6	1,45	50	20,6	6,49	12,48	12,89	13,33	13,8	14,31	14,86	2
3111614	1,5	0,75	14	1,2	4	1,45	50	18,9	3,96	14,55	15,03	15,55	16,1	16,7	17,35	2
3111616	1,5	0,75	16	1,2	4	1,45	55	20,9	3,57	16,62	17,17	17,76	18,4	19,09	19,83	2

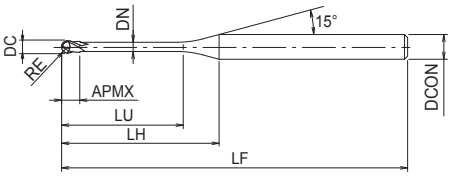
WXL-LN-EBD

Milling | Solid carbide

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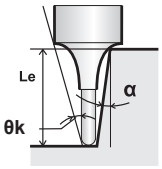






- Carbide end mill with WXL coating
- For hardened steels up to 65 HRC and stainless steels
- 2 flutes, long neck, ball nose
- 284 sizes









EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=2,5°)	Le(α=3°)	ZEFP
3121616	1,5	0,75	16	1,2	6	1,45	60	24,6	5,4	16,62	17,17	17,76	18,4	19,09	19,83	2
3111618	1,5	0,75	18	1,2	4	1,45	55	22,9	3,25	18,68	19,31	19,98	20,7	21,48	22,32	2
3111620	1,5	0,75	20	1,2	4	1,45	55	24,9	2,98	20,75	21,45	22,19	23	23,87	-	2
3121620	1,5	0,75	20	1,2	6	1,45	60	28,6	4,63	20,75	21,45	22,19	23	23,87	24,81	2
3111622	1,5	0,75	22	1,2	4	1,45	55	26,9	2,75	22,82	23,59	24,41	25,3	26,26	-	2
3111630	1,5	0,75	30	1,2	4	1,45	65	34,9	2,1	31,09	32,14	33,28	34,5	-	-	2
3111640	1,6	0,8	4	1,3	4	1,55	45	8,7	8,7	4,18	4,33	4,46	4,59	4,74	4,91	2
3111680	1,6	0,8	8	1,3	4	1,55	45	12,7	5,8	8,34	8,61	8,89	9,19	9,52	9,88	2
3111712	1,6	0,8	12	1,3	4	1,55	45	16,7	4,34	12,48	12,89	13,32	13,79	14,3	14,85	2
3111716	1,6	0,8	16	1,3	4	1,55	50	20,7	3,47	16,61	17,16	17,76	18,39	19,08	19,82	2
3111720	1,6	0,8	20	1,3	4	1,55	55	24,7	2,89	20,75	21,44	22,19	22,99	23,86	-	2
3111880	1,8	0,9	8	1,4	4	1,75	45	12,6	5,38	8,48	8,88	9,23	9,56	9,9	10,27	2
3111912	1,8	0,9	12	1,4	4	1,75	45	16,6	4,02	12,69	13,22	13,68	14,16	14,68	15,24	2
3111916	1,8	0,9	16	1,4	4	1,75	50	20,6	3,2	16,88	17,51	18,11	18,76	19,46	20,21	2
3111920	1,8	0,9	20	1,4	4	1,75	55	24,6	2,66	21,05	21,79	22,55	23,36	24,24	-	2
3112030	2	1	3	1,6	4	1,95	45	7,3	9,1	3,16	3,31	3,47	3,64	3,8	3,96	2
3112040	2	1	4	1,6	4	1,95	45	8,3	7,87	4,23	4,44	4,66	4,86	5,06	5,26	2
3122040	2	1	4	1,6	6	1,95	50	12	10,32	4,23	4,44	4,66	4,86	5,06	5,26	2
3112060	2	1	6	1,6	4	1,95	45	10,3	6,19	6,36	6,67	6,96	7,23	7,49	7,76	2
3122060	2	1	6	1,6	6	1,95	50	14	8,77	6,36	6,67	6,96	7,23	7,49	7,76	2
3112080	2	1	8	1,6	4	1,95	45	12,3	5,1	8,48	8,87	9,22	9,55	9,88	10,24	2
3122080	2	1	8	1,6	6	1,95	50	16	7,61	8,48	8,87	9,22	9,55	9,88	10,24	2
3112100	2	1	10	1,6	4	1,95	45	14,3	4,33	10,59	11,05	11,45	11,85	12,27	12,73	2
3122100	2	1	10	1,6	6	1,95	50	18	6,73	10,59	11,05	11,45	11,85	12,27	12,73	2
3112112	2	1	12	1,6	4	1,95	45	16,3	3,77	12,69	13,21	13,67	14,15	14,66	15,22	2
3122112	2	1	12	1,6	6	1,95	50	20	6,03	12,69	13,21	13,67	14,15	14,66	15,22	2
3112114	2	1	14	1,6	4	1,95	50	18,3	3,33	14,78	15,36	15,89	16,45	17,05	17,7	2
3112116	2	1	16	1,6	4	1,95	50	20,3	2,98	16,88	17,51	18,1	18,75	19,44	-	2
3122116	2	1	16	1,6	6	1,95	60	24	4,98	16,88	17,51	18,1	18,75	19,44	20,19	2
3112118	2	1	18	1,6	4	1,95	55	22,3	2,7	18,96	19,65	20,32	21,04	21,83	-	2
3112120	2	1	20	1,6	4	1,95	55	24,3	2,47	21,05	21,78	22,54	23,34	-	-	2
3122120	2	1	20	1,6	6	1,95	65	28	4,25	21,05	21,78	22,54	23,34	24,22	25,16	2
3112122	2	1	22	1,6	4	1,95	60	26,3	2,27	23,13	23,92	24,75	25,64	-	-	2
3112125	2	1	25	1,6	4	1,95	65	29,3	2,03	26,24	27,13	28,08	29,09	-	-	2
3122125	2	1	25	1,6	6	1,95	70	33	3,58	26,24	27,13	28,08	29,09	30,19	31,38	2
3112130	2	1	30	1,6	4	1,95	70	34,3	1,73	31,42	32,48	33,62	-	-	-	2
3122130	2	1	30	1,6	6	1,95	75	38	3,1	31,42	32,48	33,62	34,84	36,16	37,59	2
3112135	2	1	35	1,6	4	1,95	75	39,3	1,5	36,59	37,83	39,16	-	-	-	2
3122135	2	1	35	1,6	6	1,95	80	43	2,73	36,59	37,83	39,16	40,59	42,14	-	2
3112140	2	1	40	1,6	4	1,95	80	44,3	1,33	41,76	43,18	-	-	-	-	2
3112560	2,5	1,25	6	2	4	2,35	45	9,1	5,46	6,26	6,51	6,75	6,99	7,21	7,46	2
3112600	2,5	1,25	10	2	4	2,35	50	13,1	3,63	10,46	10,85	11,21	11,59	11,99	12,43	2
3112615	2,5	1,25	15	2	4	2,35	55	18,1	2,55	15,67	16,21	16,75	17,34	17,96	-	2
3112620	2,5	1,25	20	2	4	2,35	60	23,1	1,97	20,87	21,56	22,3	-	-	-	2
3112625	2,5	1,25	25	2	4	2,35	65	28,1	1,6	26,04	26,91	27,84	-	-	-	2
3112630	2,5	1,25	30	2	4	2,35	70	33,1	1,35	31,21	32,26	-	-	-	-	2

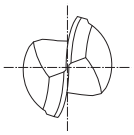


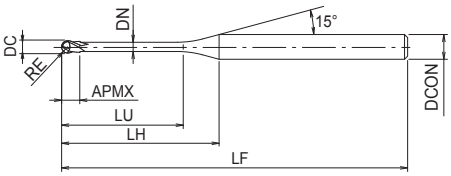
WXL-LN-EBD

Milling | Solid carbide

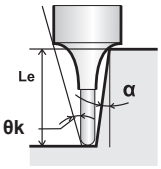
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- Carbide end mill with WXL coating
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- 2 flutes, long neck, ball nose
- 284 sizes



P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S | H ~60 HRC

CARBIDE | WXL | 30° | SHRINK FIT | R ± 0.005

C.966

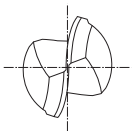
EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=2,5°)	Le(α=3°)	ZEFP
3112635	2,5	1,25	35	2	4	2,35	70	38,1	1,17	36,38	37,61	-	-	-	-	2
3113060	3	1,5	6	2,4	4	2,85	45	8,2	4,29	6,25	6,49	6,72	6,95	7,17	7,4	2
3123059	3	1,5	6	2,4	3	2,85	45	-	-	-	-	-	-	-	-	2
3123060	3	1,5	6	2,4	6	2,85	50	11,9	8,17	6,25	6,49	6,72	6,95	7,17	7,4	2
3123080	3	1,5	8	2,4	6	2,85	50	13,9	6,88	8,35	8,67	8,97	9,25	9,55	9,88	2
3123100	3	1,5	10	2,4	6	2,85	50	15,9	5,94	10,44	10,83	11,19	11,55	11,94	12,37	2
3123112	3	1,5	12	2,4	6	2,85	55	17,9	5,22	12,53	12,98	13,4	13,85	14,33	14,86	2
3123114	3	1,5	14	2,4	6	2,85	55	19,9	4,66	14,62	15,13	15,62	16,15	16,72	17,34	2
3123115	3	1,5	15	2,4	6	2,85	55	20,9	4,42	15,66	16,2	16,73	17,3	17,92	18,59	2
3123116	3	1,5	16	2,4	6	2,85	55	21,9	4,21	16,7	17,26	17,84	18,45	19,11	19,83	2
3123120	3	1,5	20	2,4	6	2,85	60	25,9	3,52	20,86	21,54	22,27	23,05	23,89	24,8	2
3123125	3	1,5	25	2,4	6	2,85	65	30,9	2,92	26,04	26,89	27,81	28,8	29,86	-	2
3123130	3	1,5	30	2,4	6	2,85	70	35,9	2,5	31,2	32,24	33,35	34,55	-	-	2
3123135	3	1,5	35	2,4	6	2,85	80	40,9	2,18	36,37	37,59	38,89	40,3	-	-	2
3123140	3	1,5	40	2,4	6	2,85	85	45,9	1,94	41,54	42,94	44,43	-	-	-	2
3123600	3,5	1,75	10	2,8	6	3,35	60	15	5,4	10,43	10,81	11,16	11,51	11,9	12,31	2
3123615	3,5	1,75	15	2,8	6	3,35	60	20	3,93	15,65	16,18	16,7	17,26	17,87	18,53	2
3123620	3,5	1,75	20	2,8	6	3,35	65	25	3,08	20,85	21,53	22,24	23,01	23,84	24,74	2
3123625	3,5	1,75	25	2,8	6	3,35	65	30	2,54	26,03	26,87	27,78	28,76	29,82	-	2
3123630	3,5	1,75	30	2,8	6	3,35	70	35	2,16	31,2	32,22	33,32	34,51	-	-	2
3123635	3,5	1,75	35	2,8	6	3,35	80	40	1,88	36,36	37,57	38,87	-	-	-	2
3123640	3,5	1,75	40	2,8	6	3,35	90	45	1,66	41,53	42,92	44,41	-	-	-	2
3123645	3,5	1,75	45	2,8	6	3,35	90	50	1,49	46,7	48,27	-	-	-	-	2
3114080	4	2	8	3,2	4	3,85	55	-	-	-	-	-	-	-	-	2
3124080	4	2	8	3,2	6	3,85	60	12,1	5,67	8,33	8,63	8,91	9,18	9,46	9,77	2
3124100	4	2	10	3,2	6	3,85	60	14,1	4,74	10,42	10,79	11,13	11,48	11,85	12,25	2
3124112	4	2	12	3,2	6	3,85	60	16,1	4,07	12,51	12,95	13,35	13,78	14,24	14,74	2
3124114	4	2	14	3,2	6	3,85	60	18,1	3,57	14,6	15,09	15,57	16,08	16,63	17,22	2
3124115	4	2	15	3,2	6	3,85	60	19,1	3,36	15,64	16,16	16,67	17,23	17,82	18,47	2
3124116	4	2	16	3,2	6	3,85	60	20,1	3,18	16,68	17,23	17,78	18,38	19,02	19,71	2
3124120	4	2	20	3,2	6	3,85	65	24,1	2,6	20,84	21,51	22,22	22,98	23,8	-	2
3124125	4	2	25	3,2	6	3,85	70	29,1	2,12	26,02	26,86	27,76	28,72	-	-	2
3124130	4	2	30	3,2	6	3,85	80	34,1	1,79	31,19	32,21	33,3	-	-	-	2
3124135	4	2	35	3,2	6	3,85	80	39,1	1,55	36,36	37,55	38,84	-	-	-	2
3124140	4	2	40	3,2	6	3,85	90	44,1	1,36	41,52	42,9	-	-	-	-	2
3124145	4	2	45	3,2	6	3,85	90	49,1	1,22	46,69	48,25	-	-	-	-	2
3124150	4	2	50	3,2	6	3,85	100	54,1	1,1	51,86	53,6	-	-	-	-	2
3125100	5	2,5	10	5	6	4,85	65	12,2	2,96	10,4	10,75	11,08	11,4	11,75	-	2
3125115	5	2,5	15	5	6	4,85	70	17,2	1,96	15,62	16,13	16,62	-	-	-	2
3125120	5	2,5	20	5	6	4,85	70	22,2	1,46	20,82	21,47	-	-	-	-	2
3125125	5	2,5	25	5	6	4,85	70	27,2	1,16	26	26,82	-	-	-	-	2
3125130	5	2,5	30	5	6	4,85	80	32,2	0,97	31,17	-	-	-	-	-	2
3125135	5	2,5	35	5	6	4,85	80	37,2	0,83	36,34	-	-	-	-	-	2
3125140	5	2,5	40	5	6	4,85	90	42,2	0,72	41,51	-	-	-	-	-	2
3125145	5	2,5	45	5	6	4,85	100	47,2	0,64	46,68	-	-	-	-	-	2
3125150	5	2,5	50	5	6	4,85	100	52,2	0,58	51,84	-	-	-	-	-	2

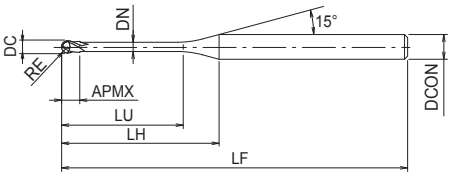
WXL-LN-EBD

Milling | Solid carbide

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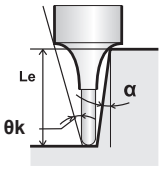






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- For hardened steels up to 65 HRC and stainless steels
- 2 flutes, long neck, ball nose
- 284 sizes







C.966

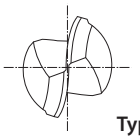
EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
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3126120	6	3	20	6	6	5,85	70	2
3126125	6	3	25	6	6	5,85	70	2
3126130	6	3	30	6	6	5,85	80	2
3126135	6	3	35	6	6	5,85	80	2
3126140	6	3	40	6	6	5,85	90	2
3126145	6	3	45	6	6	5,85	100	2
3126150	6	3	50	6	6	5,85	120	2

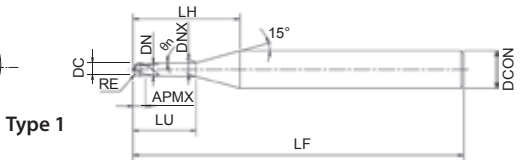
WXL-PC-EBD

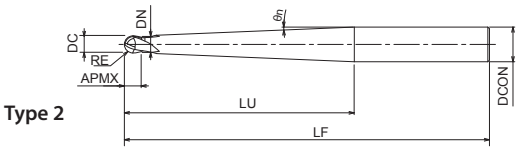
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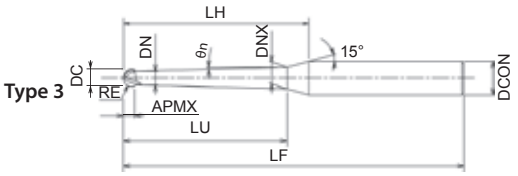
Milling | Solid carbide











- Carbide end mill with WXL coating
- For hardened steels up to 52 HRC
- 2 flutes, ball nose, pencil neck
- 152 sizes





C.971

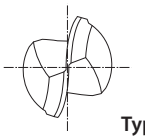
EDP	DC	RE	θn	LU	APMX	DCON	DN	DNX	LF	LH	ZEFP	Type
3170051	0,4	0,2	0,5	2	0,3	4	0,38	0,41	45	9	2	1
3170052	0,4	0,2	0,5	3	0,3	4	0,38	0,43	45	9,9	2	1
3170053	0,4	0,2	0,5	4	0,3	4	0,38	0,44	45	10,9	2	1
3170061	0,4	0,2	1	4	0,3	4	0,38	0,5	45	10,8	2	1
3170054	0,4	0,2	0,5	5	0,3	4	0,38	0,46	45	11,9	2	1
3170062	0,4	0,2	1	5	0,3	4	0,38	0,53	45	11,7	2	1
3170055	0,4	0,2	0,5	6	0,3	4	0,38	0,47	45	12,8	2	1
3170063	0,4	0,2	1	6	0,3	4	0,38	0,57	45	12,7	2	1
3170091	0,6	0,3	0,5	2	0,5	4	0,58	0,61	45	9	2	1
3170092	0,6	0,3	0,5	4	0,5	4	0,58	0,64	45	10,9	2	1
3170101	0,6	0,3	1	4	0,5	4	0,58	0,69	45	10,8	2	1
3170093	0,6	0,3	0,5	6	0,5	4	0,58	0,67	45	12,8	2	1
3170102	0,6	0,3	1	6	0,5	4	0,58	0,76	45	12,6	2	1
3170094	0,6	0,3	0,5	8	0,5	4	0,58	0,7	45	14,8	2	1
3170103	0,6	0,3	1	8	0,5	4	0,58	0,83	45	14,5	2	1
3170095	0,6	0,3	0,5	10	0,5	4	0,58	0,74	45	16,7	2	1
3170104	0,6	0,3	1	10	0,5	4	0,58	0,9	45	16,4	2	1
3170096	0,6	0,3	0,5	12	0,5	4	0,58	0,77	45	18,7	2	1
3170105	0,6	0,3	1	12	0,5	4	0,58	0,97	45	18,2	2	1
3170097	0,6	0,3	0,5	16	0,5	4	0,58	0,84	50	22,5	2	1
3170106	0,6	0,3	1	16	0,5	4	0,58	1,11	50	22	2	1
3170111	0,8	0,4	0,5	4	0,6	4	0,78	0,84	45	10,5	2	1
3170112	0,8	0,4	0,5	6	0,6	4	0,78	0,87	45	12,5	2	1
3170113	0,8	0,4	0,5	8	0,6	4	0,78	0,9	45	14,4	2	1
3170121	0,8	0,4	1	8	0,6	4	0,78	1,02	45	14,1	2	1
3170114	0,8	0,4	0,5	12	0,6	4	0,78	0,97	45	18,3	2	1
3170122	0,8	0,4	1	12	0,6	4	0,78	1,16	45	17,9	2	1
3170123	0,8	0,4	1	16	0,6	4	0,78	1,3	50	21,6	2	1
3170131	1	0,5	0,5	6	0,63	4	0,95	1,03	45	12,2	2	3
3170132	1	0,5	0,5	8	0,63	4	0,95	1,07	45	14,1	2	3
3170151	1	0,5	1,5	8	0,63	4	0,95	1,31	45	13,5	2	3
3170133	1	0,5	0,5	10	0,63	4	0,95	1,1	45	16	2	3
3170141	1	0,5	1	10	0,63	4	0,95	1,26	45	15,7	2	3
3170152	1	0,5	1,5	10	0,63	4	0,95	1,41	45	15,4	2	3
3170134	1	0,5	0,5	12	0,63	4	0,95	1,14	45	18	2	3
3170153	1	0,5	1,5	12	0,63	4	0,95	1,52	45	17,2	2	3
3170135	1	0,5	0,5	16	0,63	4	0,95	1,21	50	21,8	2	3
3170154	1	0,5	1,5	16	0,63	4	0,95	1,73	50	20,8	2	3
3170136	1	0,5	0,5	18	0,63	4	0,95	1,24	55	23,8	2	3
3170137	1	0,5	0,5	20	0,63	4	0,95	1,28	55	25,7	2	3
3170155	1	0,5	1,5	20	0,63	4	0,95	1,94	55	24,4	2	3
3170138	1	0,5	0,5	25	0,63	4	0,95	1,37	60	30,5	2	3
3170156	1	0,5	1,5	25	0,63	4	0,95	2,2	60	28,9	2	3
3170139	1	0,5	0,5	30	0,63	4	0,95	1,45	65	35,4	2	3
3170157	1	0,5	1,5	30	0,63	4	0,95	2,46	65	33,4	2	3
3170140	1	0,5	0,5	35	0,63	4	0,95	1,54	70	40,2	2	3

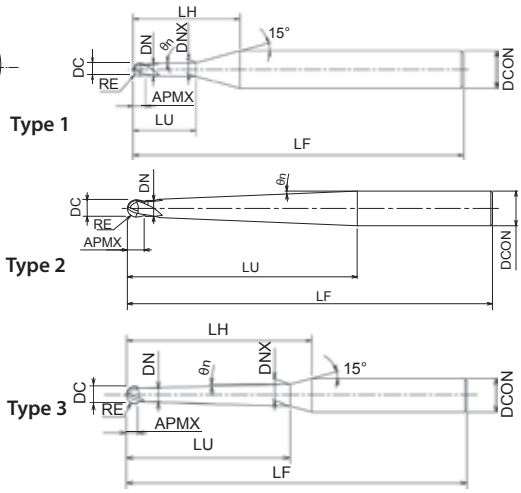


WXL-PC-EBD

Milling | Solid carbide







- Carbide end mill with WXL coating
- For hardened steels up to 52 HRC
- 2 flutes, ball nose, pencil neck
- 152 sizes

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S | H ~60 HRC

CARBIDE | WXL | 30° | SHRINK FIT | R ± 0.005

C.971

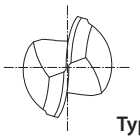
EDP	DC	RE	θn	LU	APMX	DCON	DN	DNX	LF	LH	ZEFP	Type
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3170143	1	0,5	1	20	0,63	4	0,95	1,61	55	25	2	3
3170144	1	0,5	1	25	0,63	4	0,95	1,78	60	29,7	2	3
3170145	1	0,5	1	30	0,63	4	0,95	1,96	65	34,4	2	3
3170146	1	0,5	1	35	0,63	4	0,95	2,13	70	39,1	2	3
3170158	1	0,5	1,5	35	0,63	4	0,95	2,72	70	37,9	2	3
3170147	1	0,5	1	40	0,63	4	0,95	2,31	80	43,7	2	3
3170161	1	0,5	2	45	0,63	4	0,95	-	80	-	2	2
3170148	1	0,5	1	50	0,63	4	0,95	2,66	90	53,1	2	3
3170149	1	0,5	1	60	0,63	4	0,95	3	100	62,4	2	3
3170150	1	0,5	1	70	0,63	4	0,95	3,35	110	71,8	2	3
3170211	1,5	0,75	0,5	8	0,95	4	1,42	1,53	45	13,2	2	3
3170212	1,5	0,75	0,5	10	0,95	4	1,42	1,57	45	15,2	2	3
3170221	1,5	0,75	1	10	0,95	4	1,42	1,71	45	14,8	2	3
3170230	1,5	0,75	1,5	10	0,95	4	1,42	1,87	45	14,5	2	3
3170213	1,5	0,75	0,5	12	0,95	4	1,42	1,6	45	17,1	2	3
3170222	1,5	0,75	1	12	0,95	4	1,42	1,79	45	16,7	2	3
3170231	1,5	0,75	1,5	12	0,95	4	1,42	1,97	45	16,3	2	3
3170214	1,5	0,75	0,5	16	0,95	4	1,42	1,67	55	21	2	3
3170223	1,5	0,75	1	16	0,95	4	1,42	1,93	55	20,4	2	3
3170232	1,5	0,75	1,5	16	0,95	4	1,42	2,18	55	19,9	2	3
3170215	1,5	0,75	0,5	20	0,95	4	1,42	1,74	55	24,8	2	3
3170224	1,5	0,75	1	20	0,95	4	1,42	2,07	55	24,2	2	3
3170233	1,5	0,75	1,5	20	0,95	4	1,42	2,39	55	23,5	2	3
3170216	1,5	0,75	0,5	25	0,95	4	1,42	1,83	60	29,7	2	3
3170225	1,5	0,75	1	25	0,95	4	1,42	2,24	60	28,9	2	3
3170234	1,5	0,75	1,5	25	0,95	4	1,42	2,65	60	28	2	3
3170217	1,5	0,75	0,5	30	0,95	4	1,42	1,92	65	34,5	2	3
3170226	1,5	0,75	1	30	0,95	4	1,42	2,41	65	33,5	2	3
3170235	1,5	0,75	1,5	30	0,95	4	1,42	2,91	65	32,6	2	3
3170218	1,5	0,75	0,5	35	0,95	4	1,42	2	70	39,4	2	3
3170227	1,5	0,75	1	35	0,95	4	1,42	2,59	70	38,2	2	3
3170236	1,5	0,75	1,5	35	0,95	4	1,42	3,17	70	37,1	2	3
3170241	1,5	0,75	2	38,6	0,95	4	1,42	-	70	-	2	2
3170271	2	1	0,5	8	1,26	4	1,93	2,04	45	12,3	2	3
3170272	2	1	0,5	10	1,26	4	1,93	2,07	45	14,2	2	3
3170273	2	1	0,5	12	1,26	4	1,93	2,11	45	16,2	2	3
3170274	2	1	0,5	16	1,26	4	1,93	2,18	50	20	2	3
3170281	2	1	1	16	1,26	4	1,93	2,43	50	19,5	2	3
3170291	2	1	1,5	16	1,26	4	1,93	2,67	50	19	2	3
3170275	2	1	0,5	20	1,26	4	1,93	2,25	55	23,9	2	3
3170282	2	1	1	20	1,26	4	1,93	2,57	55	23,3	2	3
3170276	2	1	0,5	25	1,26	4	1,93	2,33	65	28,7	2	3
3170277	2	1	0,5	30	1,26	4	1,93	2,42	70	33,6	2	3
3170278	2	1	0,5	35	1,26	4	1,93	2,51	75	38,4	2	3
3170279	2	1	0,5	40	1,26	4	1,93	2,6	80	43,2	2	3

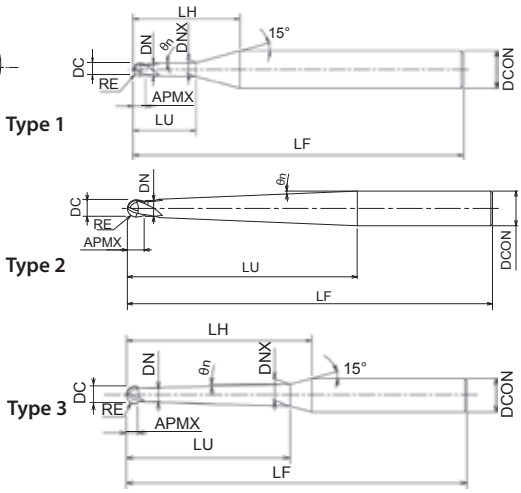
WXL-PC-EBD

INDEX

Milling | Solid carbide







- Carbide end mill with WXL coating
- For hardened steels up to 52 HRC
- 2 flutes, ball nose, pencil neck
- 152 sizes

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S | H ~60 HRC

CARBIDE | WXL | 30° | SHRINK FIT | R ± 0.005

C.971

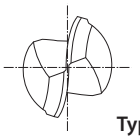
EDP	DC	RE	θn	LU	APMX	DCON	DN	DNX	LF	LH	ZEFP	Type
3170292	2	1	1,5	20	1,26	4	1,93	2,88	55	22,6	2	3
3170283	2	1	1	25	1,26	4	1,93	2,74	65	27,9	2	3
3170293	2	1	1,5	25	1,26	4	1,93	3,15	65	27,1	2	3
3170284	2	1	1	30	1,26	4	1,93	2,91	70	32,6	2	3
3170294	2	1	1,5	30	1,26	4	1,93	3,41	70	31,6	2	3
3170301	2	1	2	31,5	1,26	4	1,93	-	70	-	2	2
3170285	2	1	1	35	1,26	4	1,93	3,09	75	37,3	2	3
3170295	2	1	1,5	35	1,26	4	1,93	3,67	75	36,1	2	3
3170286	2	1	1	40	1,26	4	1,93	3,26	80	41,9	2	3
3170296	2	1	1,5	41,4	1,26	4	1,93	-	80	-	2	2
3170287	2	1	1	50	1,26	6	1,93	3,61	90	55	2	3
3170288	2	1	1	60	1,26	6	1,93	3,96	100	64,4	2	3
3170289	2	1	1	70	1,26	6	1,93	4,31	110	73,7	2	3
3170321	3	1,5	0,5	8	2,4	6	2,95	3,05	50	14,1	2	1
3170322	3	1,5	0,5	10	2,4	6	2,95	3,08	50	16,1	2	1
3170323	3	1,5	0,5	12	2,4	6	2,95	3,12	55	18	2	1
3170324	3	1,5	0,5	16	2,4	6	2,95	3,18	55	21,9	2	1
3170325	3	1,5	0,5	20	2,4	6	2,95	3,25	60	25,8	2	1
3170331	3	1,5	1	20	2,4	6	2,95	3,55	60	25,1	2	1
3170341	3	1,5	1,5	20	2,4	6	2,95	3,85	60	24,5	2	1
3170326	3	1,5	0,5	25	2,4	6	2,95	3,34	65	30,6	2	1
3170332	3	1,5	1	25	2,4	6	2,95	3,73	65	29,8	2	1
3170342	3	1,5	1,5	25	2,4	6	2,95	4,11	65	29	2	1
3170327	3	1,5	0,5	30	2,4	6	2,95	3,42	70	35,4	2	1
3170333	3	1,5	1	30	2,4	6	2,95	3,9	70	34,5	2	1
3170343	3	1,5	1,5	30	2,4	6	2,95	4,37	70	33,6	2	1
3170328	3	1,5	0,5	35	2,4	6	2,95	3,51	80	40,3	2	1
3170334	3	1,5	1	35	2,4	6	2,95	4,07	80	39,2	2	1
3170344	3	1,5	1,5	35	2,4	6	2,95	4,64	80	38,1	2	1
3170329	3	1,5	0,5	40	2,4	6	2,95	3,6	85	45,1	2	1
3170335	3	1,5	1	40	2,4	6	2,95	4,25	85	43,8	2	1
3170345	3	1,5	1,5	40	2,4	6	2,95	4,9	85	42,6	2	1
3170351	3	1,5	2	47,5	2,4	6	2,95	-	100	-	2	2
3170330	3	1,5	0,5	50	2,4	6	2,95	3,77	90	54,8	2	1
3170336	3	1,5	1	50	2,4	6	2,95	4,6	90	53,2	2	1
3170346	3	1,5	1,5	50	2,4	6	2,95	5,42	90	51,6	2	1
3170337	3	1,5	1	60	2,4	6	2,95	4,95	100	62,5	2	1
3170347	3	1,5	1,5	62,5	2,4	6	2,95	-	100	-	2	2
3170338	3	1,5	1	70	2,4	6	2,95	5,3	110	71,9	2	1
3170371	4	2	1	20	3,2	6	3,93	4,5	65	23,4	2	1
3170372	4	2	1	30	3,2	6	3,93	4,85	80	32,7	2	1
3170391	4	2	2	34	3,2	6	3,93	-	80	-	2	2
3170373	4	2	1	40	3,2	6	3,93	5,2	90	42,1	2	1
3170381	4	2	1,5	44,2	3,2	6	3,93	-	80	-	2	2
3170374	4	2	1	50	3,2	8	3,93	5,55	100	55,1	2	1
3170375	4	2	1	60	3,2	8	3,93	5,9	110	64,5	2	1

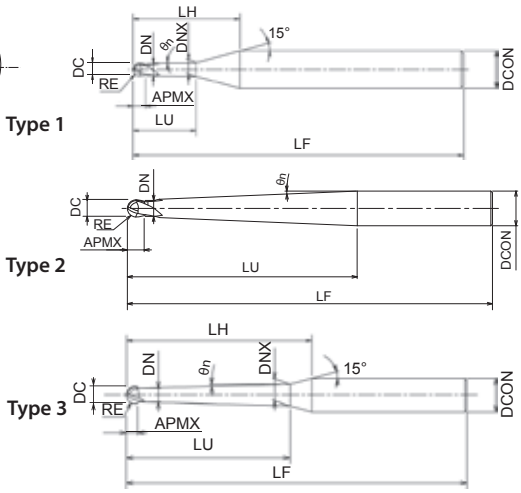
WXL-PC-EBD

INDEX

Milling | Solid carbide







- Carbide end mill with WXL coating
- For hardened steels up to 52 HRC
- 2 flutes, ball nose, pencil neck
- 152 sizes

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S | H ~60 HRC

CARBIDE | WXL | 30° | SHRINK FIT | R ± 0.005

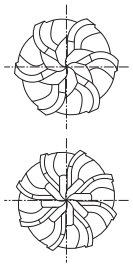
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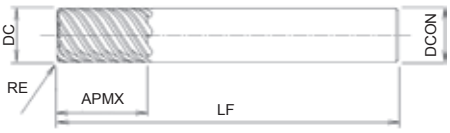
EDP	DC	RE	θn	LU	APMX	DCON	DN	DNX	LF	LH	ZEFP	Type
3170431	6	3	1	30	6	8	5,95	6,77	100	32,9	2	1
3170451	6	3	2	36	6	8	5,95	-	100	-	2	2
3170432	6	3	1	40	6	8	5,95	7,12	100	42,2	2	1
3170441	6	3	1,5	49	6	8	5,95	-	100	-	2	2
3170433	6	3	1	50	6	8	5,95	7,47	100	51,6	2	1
3170434	6	3	1	60	6	10	5,95	7,82	110	64,6	2	1
3170435	6	3	1	70	6	10	5,95	8,17	120	74	2	1
3170436	6	3	1	80	6	12	5,95	8,52	130	87,1	2	1
3170574	8	4	3	35,5	8	10	7,95	-	100	-	2	2
3170576	8	4	1,5	54,5	8	10	7,95	-	120	-	2	2
3170585	10	5	3	39,5	10	12	9,95	-	110	-	2	2
3170587	10	5	1,5	58,5	10	12	9,95	-	130	-	2	2
3170598	12	6	3	60	12	16	11,9	15,6	140	60,7	2	1
3170599	12	6	1,5	80	12	16	11,9	14,8	160	82,2	2	1

AM-CRE

Milling | Solid carbide







- Carbide end mill with DUROREY coating
- For additive manufacturing
- Multi flutes, corner radius







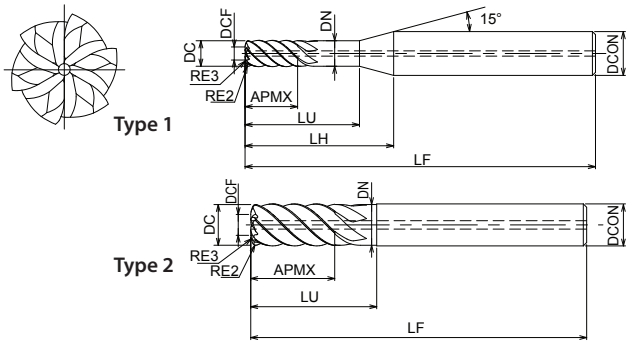
EDP	DC	RE	APMX	DCON	LF	ZEFP
3183010	6	1	9	6	60	6
3183015	6	1,5	9	6	60	6
3183018	8	1	12	8	70	6
3183020	8	2	12	8	70	6
3183110	10	1	15	10	80	6
3183120	10	2	15	10	80	6
3183210	12	1	18	12	90	8
3183220	12	2	18	12	90	8
3183226	16	1	24	16	105	8
3183230	16	3	24	16	105	8
3183310	20	1	30	20	110	8
3183330	20	3	30	20	110	8



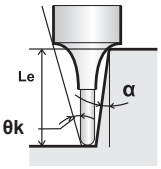
AM-HFC

Milling | Solid carbide





- Carbide end mill with DUROREY coating
- For high feed additive manufacturing milling
- 6 flutes
- Centre through coolant



P ~45 HRC | P ~55 HRC | M ~35 HRC | S Ti | S Ni | H ~70 HRC

CARBIDE | DUROREY | 45° | R ± 0.03 | SHRINK FIT

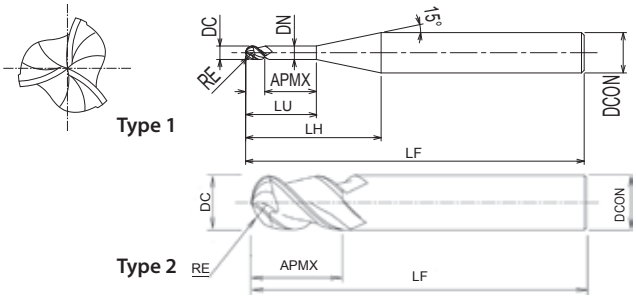
C.977

EDP	DC	RE	RE2	RE3	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=3°)	ZEFP	Type	DCF
3188204	4	0,5	0,4	2,5	12	8	6	3,8	50	15,9	3,73	12,53	12,98	13,43	13,91	15	6	1	2
3188205	5	0,6	0,5	3	15	10	6	4,8	60	17	1,76	15,64	16,18	16,74	-	-	6	1	2,50
3188206	6	0,8	0,6	3,5	18	12	6	5,8	60	-	-	-	-	-	-	-	6	2	3
3188208	8	1	0,8	5	24	16	8	7,7	70	-	-	-	-	-	-	-	6	2	4
3188210	10	1,2	1	6	30	20	10	9,7	80	-	-	-	-	-	-	-	6	2	5
3188212	12	1,5	1,2	7	36	24	12	11,7	90	-	-	-	-	-	-	-	6	2	6

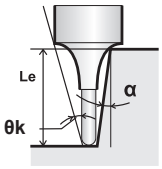
AM-EBT

Milling | Solid carbide





- Carbide end mill with DUROREY coating
- For additive manufacturing
- 3 flutes, ball nose



P ~45 HRC | P ~55 HRC | M ~35 HRC | S Ti | S Ni | H ~65 HRC

CARBIDE | DUROREY | 30° | R ±0.01 | SHRINK FIT

C.978

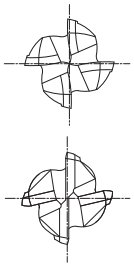
EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=2°)	Le(α=2,5°)	Le(α=3°)	ZEFP	Type
3187240	2	1	4	2	6	1,95	60	11,9	10,64	4,19	4,3	4,42	4,85	4,55	3	1
3187280	2	1	8	2	6	1,95	60	15,9	7,79	8,33	8,58	8,86	9,82	9,15	3	1
3187360	3	1,5	6	3	6	2,85	60	11,8	8,15	6,44	6,61	6,79	7,45	7	3	1
3187392	3	1,5	12	3	6	2,85	60	17,8	5,22	12,64	13,03	13,44	14,91	13,89	3	1
3187408	4	2	8	4	6	3,85	60	12	5,65	8,49	8,71	8,96	9,81	9,22	3	1
3187416	4	2	16	4	6	3,85	60	20	3,17	16,76	17,27	17,82	19,76	18,42	3	1
3187510	5	2,5	10	5	6	4,85	60	12,1	2,95	10,54	10,82	11,12	-	11,45	3	1
3187520	5	2,5	20	5	6	4,85	60	22,1	1,46	20,87	21,52	-	-	-	3	1
3188060	6	3	-	9	6	-	60	-	-	-	-	-	-	-	3	2
3188080	8	4	-	12	8	-	70	-	-	-	-	-	-	-	3	2
3188100	10	5	-	15	10	-	80	-	-	-	-	-	-	-	3	2
3188120	12	6	-	18	12	-	90	-	-	-	-	-	-	-	3	2
3188160	16	8	-	24	16	-	105	-	-	-	-	-	-	-	3	2
3188200	20	10	-	30	20	-	110	-	-	-	-	-	-	-	3	2

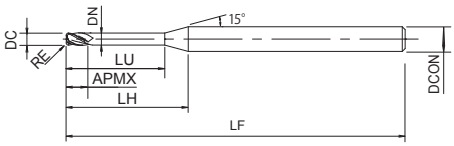
PHX-LN-CRE

INDEX

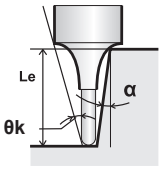
Milling | Solid carbide | Corner Radius







- Carbide end mill with WXS coating
- For steels up to 60 HRC
- 4 flutes, long neck, corner radius



P ~45 HRC | P ~55 HRC | M | K ~350 HB | N | S | H ~60 HRC

CARBIDE | WXS | SHRINK FIT | 30°

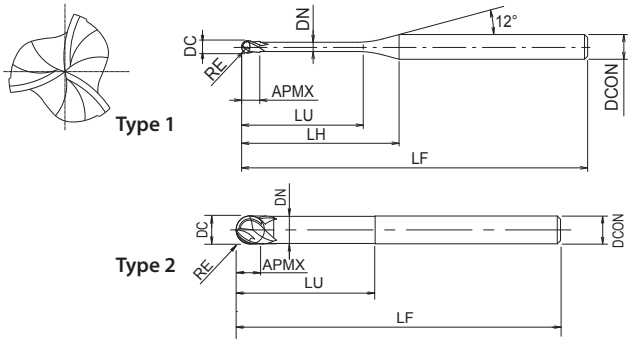
C.979

EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	ZEFP
3190800	0,8	0,1	2	0,32	4	0,72	50	8,1	11,48	2,06	2,13	4
3190801	0,8	0,1	4	0,32	4	0,72	50	10,1	9,2	4,13	4,27	4
3190802	0,8	0,1	6	0,32	4	0,72	50	12,1	7,67	6,2	6,41	4
3190803	0,8	0,1	8	0,32	4	0,72	50	14,1	6,58	8,27	8,55	4
3191006	1	0,1	4	0,4	4	0,93	50	9,7	8,97	4,13	4,27	4
3191007	1	0,1	6	0,4	4	0,93	50	11,7	7,43	6,2	6,41	4
3191008	1	0,1	8	0,4	4	0,93	50	13,7	6,34	8,27	8,55	4
3191009	1	0,1	10	0,4	4	0,93	50	15,7	5,53	10,33	10,69	4
3191010	1	0,1	12	0,4	4	0,93	50	17,7	4,9	12,4	12,83	4
3191011	1	0,2	4	0,4	4	0,93	50	9,7	9,05	4,13	4,26	4
3191012	1	0,2	6	0,4	4	0,93	50	11,7	7,49	6,2	6,4	4
3191013	1	0,2	8	0,4	4	0,93	50	13,7	6,38	8,26	8,54	4
3191014	1	0,2	10	0,4	4	0,93	50	15,7	5,56	10,33	10,68	4
3191015	1	0,2	12	0,4	4	0,93	50	17,7	4,93	12,4	12,82	4
3191018	1	0,3	4	0,4	4	0,93	50	9,7	9,14	4,12	4,26	4
3191019	1	0,3	6	0,4	4	0,93	50	11,7	7,55	6,19	6,4	4
3191501	1,5	0,1	4	0,6	4	1,41	50	8,8	8,3	4,13	4,27	4
3191503	1,5	0,1	8	0,6	4	1,41	50	12,8	5,68	8,27	8,55	4
3191505	1,5	0,1	12	0,6	4	1,41	50	16,8	4,31	12,4	12,83	4
3191506	1,5	0,2	4	0,6	4	1,41	50	8,8	8,39	4,13	4,26	4
3191507	1,5	0,2	6	0,6	4	1,41	50	10,8	6,8	6,2	6,4	4
3191508	1,5	0,2	8	0,6	4	1,41	50	12,8	5,72	8,26	8,54	4
3192001	2	0,1	8	0,8	4	1,89	50	12,1	4,91	8,27	8,55	4
3192002	2	0,1	10	0,8	4	1,89	50	14,1	4,19	10,33	10,69	4
3192003	2	0,1	12	0,8	4	1,89	50	16,1	3,66	12,4	12,83	4
3192004	2	0,1	16	0,8	4	1,89	50	20,1	2,92	16,54	17,11	4
3192013	2	0,3	8	0,8	4	1,89	50	12,1	4,99	8,26	8,54	4
3192015	2	0,3	12	0,8	4	1,89	50	16,1	3,71	12,39	12,82	4
3192019	2	0,5	6	0,8	4	1,89	50	10,1	6,16	6,19	6,38	4
3192020	2	0,5	8	0,8	4	1,89	50	12,1	5,08	8,25	8,52	4
3192021	2	0,5	10	0,8	4	1,89	50	14,1	4,32	10,32	10,66	4
3192022	2	0,5	12	0,8	4	1,89	50	16,1	3,75	12,39	12,8	4
3193008	3	0,3	12	1,2	4	2,85	50	14,2	2,11	12,39	12,82	4

PHX-LN-DBT

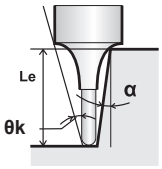
Milling | Solid carbide | Ball nose





- Carbide end mill with WXS coating
- For steels up to 60 HRC
- 3 flutes, long neck, ball nose









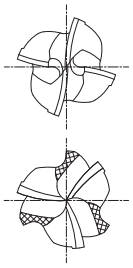
EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	ZEFP	Type
3194901	0,6	0,3	1	0,45	4	0,55	50	9,1	11,02	1,03	1,06	3	1
3194902	0,6	0,3	2	0,45	4	0,55	50	10,1	9,92	2,07	2,15	3	1
3194903	0,6	0,3	3	0,45	4	0,55	50	11,1	9,01	3,12	3,24	3	1
3194904	0,6	0,3	4	0,45	4	0,55	50	12,1	8,25	4,16	4,33	3	1
3194906	0,6	0,3	6	0,45	4	0,55	50	14,1	7,07	6,24	6,51	3	1
3195004	1	0,5	4	0,75	4	0,95	50	11,2	8,06	4,15	4,31	3	1
3195006	1	0,5	6	0,75	4	0,95	50	13,2	6,8	6,24	6,49	3	1
3195008	1	0,5	8	0,75	4	0,95	50	15,2	5,87	8,32	8,67	3	1
3195010	1	0,5	10	0,75	4	0,95	50	17,2	5,17	10,41	10,85	3	1
3195012	1	0,5	12	0,75	4	0,95	50	19,2	4,62	12,49	13,03	3	1
3195014	1	0,5	14	0,75	4	0,95	50	21,2	4,17	14,58	15,21	3	1
3195016	1	0,5	16	0,75	4	0,95	50	23,2	3,8	16,66	17,39	3	1
3195106	1,5	0,75	6	1,13	4	1,45	50	12	6,38	6,22	6,47	3	1
3195108	1,5	0,75	8	1,13	4	1,45	50	14	5,42	8,31	8,65	3	1
3195110	1,5	0,75	10	1,13	4	1,45	50	16	4,71	10,4	10,83	3	1
3195112	1,5	0,75	12	1,13	4	1,45	50	18	4,17	12,48	13,01	3	1
3195116	1,5	0,75	16	1,13	4	1,45	50	22	3,38	16,65	17,36	3	1
3195206	2	1	6	1,5	4	1,95	50	11	5,85	6,21	6,45	3	1
3195208	2	1	8	1,5	4	1,95	50	13	4,87	8,3	8,63	3	1
3195210	2	1	10	1,5	4	1,95	50	15	4,16	10,39	10,81	3	1
3195212	2	1	12	1,5	4	1,95	50	17	3,64	12,47	12,98	3	1
3195214	2	1	14	1,5	4	1,95	50	19	3,23	14,56	15,16	3	1
3195216	2	1	16	1,5	4	1,95	50	21	2,9	16,64	17,34	3	1
3195218	2	1	18	1,5	4	1,95	60	23	2,64	18,73	19,52	3	1
3195220	2	1	20	1,5	4	1,95	60	25	2,41	20,81	21,7	3	1
3195222	2	1	22	1,5	4	1,95	60	27	2,23	22,9	23,88	3	1
3195312	3	1,5	12	2,25	4	2,85	60	14,5	2,22	12,45	12,94	3	1
3195316	3	1,5	16	2,25	4	2,85	60	18,5	1,7	16,62	17,3	3	1
3195320	3	1,5	20	2,25	4	2,85	60	22,5	1,37	20,79	21,66	3	1
3195325	3	1,5	25	2,25	4	2,85	60	27,5	1,11	26,01	27,1	3	1
3195416	4	2	16	3	4	3,85	60	-	-	-	-	3	2
3195420	4	2	20	3	4	3,85	60	-	-	-	-	3	2
3195425	4	2	25	3	4	3,85	60	-	-	-	-	3	2
3195520	6	3	20	4,5	6	5,85	70	-	-	-	-	3	2
3195530	6	3	30	4,5	6	5,85	70	-	-	-	-	3	2

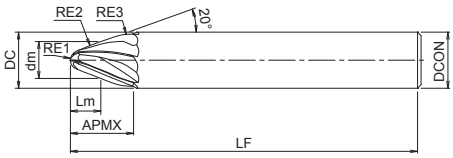
VU-TBR

INDEX

Milling | Solid carbide

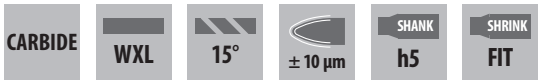






- Carbide end mill with WXL coating
- High-efficiency finishing
- 4-6 flutes, Taper Barrel Solid Type





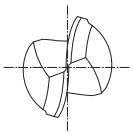
C.981

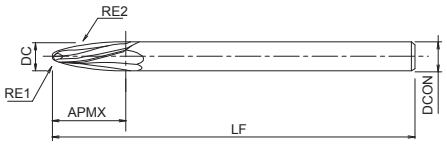
EDP	DC	RE	RE2	RE3	APMX	DCON	LF	ZEFP	Lm	dm
8549544	6	0,5	150	5	8,2	6	50	4	3,43	3,27
8549545	8	1	150	5	9,9	8	60	4	4,48	4,78
8549546	10	1,5	300	5	11,7	10	70	4	5,52	6,20
8549547	12	2	300	5	13,5	12	80	6	6,57	7,70
8549548	16	2,5	500	5	18	16	100	6	8,99	10,18
8549549	16	3	500	5	17,1	16	100	6	8,67	10,62

VU-EGG

Milling | Solid carbide







- Carbide end mill with WXL coating
- High-efficiency finishing
- 2 flutes, Oval shape Type







EDP	DC	RE	RE2	APMX	DCON	LF	ZEFP
W1901274	8	1,5	50	16,88	8	100	2

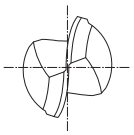


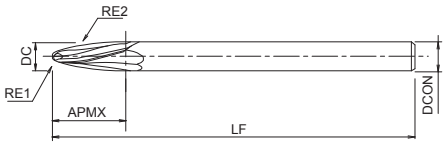
VU-EGG-H

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Milling | Solid carbide







- Carbide end mill with DUROREY coating
- High-efficiency finishing
- 2 flutes, Oval shape Type







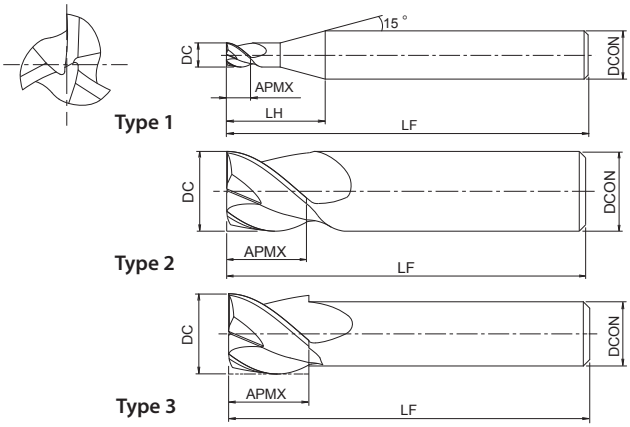
EDP	DC	RE	RE2	APMX	DCON	LF	ZEFP
W1901273	8	1,5	50	16,88	8	100	2

AE-VTSS

Milling | Solid carbide

INDEX





- First choice in quality and performance
- Anti-vibration carbide end mill compatible with sliding head lathes
- Wide variety in applications and work materials
- 3 flutes, variable helix and unequal spacing

P ~40 HRC | P ~45 HRC | M ~35 HRC | K ~350 HB | N | S | H

A | CARBIDE | DUARISE | 40°~43 | 0~-0.02 | SHRINK FIT | C.985

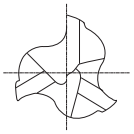
EDP	DC	APMX	DCON	LF	LH	ZEFP	Type
8557251	3	4,5	6	45	12,2	3	1
8557252	4	6	6	45	11,9	3	1
8557253	5	6	6	45	11,7	3	1
8557254	6	6	6	45	-	3	2
8557255	8	8	8	45	-	3	2
8557256	10	10	10	45	-	3	2
8557257	12	12	10	50	-	3	3

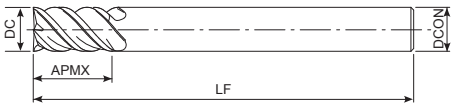
WX-G-ETSS

INDEX

Milling | Solid carbide







- Carbide end mill with WX coating
- For general applications
- 3 flutes, extra short length of cut







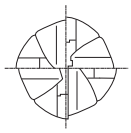
EDP	DC	APMX	DCON	LF	ZEFP
48120030	3	4,5	6	50	3
48120040	4	6	6	50	3
48120050	5	7,5	6	50	3
48120060	6	9	6	50	3
48120080	8	12	8	60	3
48120100	10	15	10	70	3
48120120	12	18	12	75	3
48120160	16	24	16	100	3

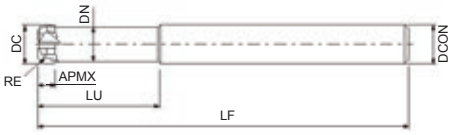


WX-HS-CRE

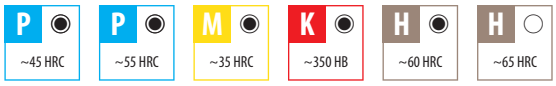
Milling | Solid carbide







- Carbide end mill with WX coating
- For general applications
- 4 flutes, shorter overall length, super radius





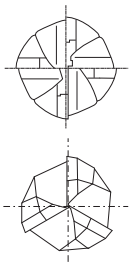


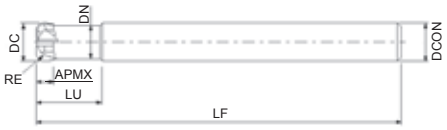
EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
3019867	6	1,5	24	2,5	6	5,4	50	4
3019889	8	2	32	3,5	8	7,2	60	4
3019909	10	2	40	4	10	9	70	4
3019933	12	3	48	5	12	11	80	4

WX-CRE

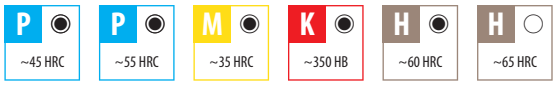
Milling | Solid carbide







- Carbide end mill with WX coating
- For general applications
- Multi flute, super radius







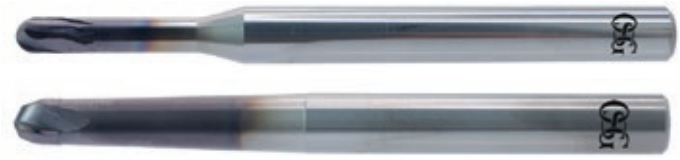
* While stock lasts

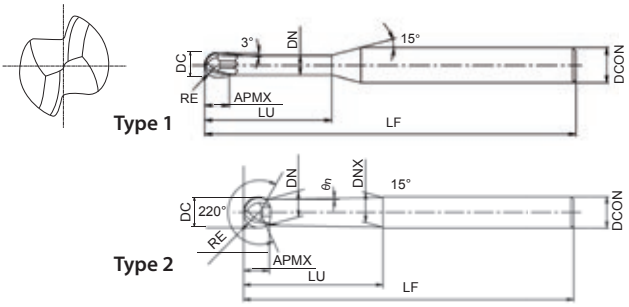
EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
8549421	2	0,5	5	0,8	6	1,8	60	3
8549433	3	0,75	7,5	1,2	6	2,7	60	4
8549445	4	1	10	1,6	6	3,6	70	4
8549457	5	1,2	12,5	2	6	4,5	80	4
8549467	6	1,5	12	2,5	6	5,4	90	4
8549477	7	1,5	-	3	6	-	90	4
8549489	8	2	16	3,5	8	7,2	100	4
8549499	9	2	-	4	8	-	100	4
8549509	10	2	20	4	10	9	100	4
8549519*	11	2	-	4,5	10	-	100	4
8549533	12	3	24	5	12	11	110	4
8549543*	13	3	-	5,5	12	-	110	4



FXS-EQD

Milling | Solid carbide





- Carbide end mill with TiAlN coating
- For general applications
- 2 flutes, 220 degree ball nose

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | S | H ~60 HRC

CARBIDE | FX | SHRINK FIT | 220°

C.989

EDP	DC	RE	θn	LU	APMX	DCON	DN	DNX	LF	ZEFP	Type
8544005	1	0,5	-	5	0,7	6	0,85	-	60	2	1
8544010	2	1	-	10	1,5	6	1,7	-	60	2	1
8544015	3	1,5	-	15	2,3	6	2,7	-	70	2	1
8544020	4	2	-	20	3	6	3,7	-	70	2	1
8544030	6	3	1,5	30	4	6	4,6	5,9	90	2	2
8544040	8	4	1,5	40	5,4	8	6,2	7,9	100	2	2
8544050	10	5	1,5	50	6,7	10	7,7	9,9	110	2	2

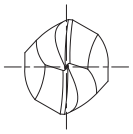
CBN-FB2

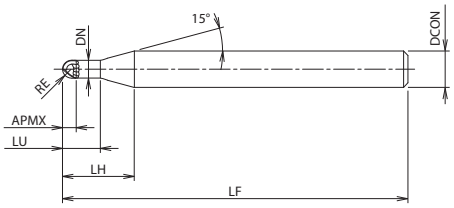
Milling | CBN

INDEX

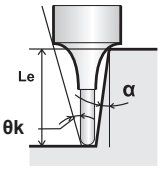
NEW







- 2 flutes CBN ball end mill
- Excellent ball radius accuracy for high-quality surface finishing
- Optimized shank design for ultra-high precision



P ○ ~45 HRC | P ◉ ~55 HRC | H ◉ ~60 HRC | H ◉ ~68 HRC

CBN | 10° | SHRINK FIT | SHANK -0.001~ -0.003 | R ± 0.003

C.990

EDP	RE	LH	LU	LF	APMX	DCON	DN	θk	Effective length by inclined angles Le (α)*				
									0,5°	1°	1,5°	2°	3°
8526505	0,1	7,4	0,3	38	0,12	4	0,19	14,49°	0,31	0,33	0,35	0,36	0,4
8526506	0,1	7,6	0,5	38	0,12	4	0,19	14,12°	0,53	0,56	0,58	0,61	0,66
8526507	0,1	7,7	0,6	38	0,12	4	0,19	13,95°	0,63	0,67	0,7	0,73	0,78
8526508	0,1	8,1	1	38	0,12	4	0,19	13,28°	1,06	1,11	1,15	1,19	1,28
8526509	0,1	9,1	2	38	0,12	4	0,19	11,86°	2,11	2,18	2,26	2,34	2,52
8526510	0,15	7,3	0,3	38	0,18	4	0,29	14,56°	0,31	0,32	0,34	0,35	0,38
8526511	0,15	7,5	0,5	38	0,18	4	0,29	14,18°	0,52	0,55	0,58	0,6	0,64
8526512	0,15	7,8	0,75	38	0,18	4	0,29	13,73°	0,79	0,83	0,86	0,89	0,95
8526513	0,15	7,9	0,9	38	0,18	4	0,29	13,48°	0,95	0,99	1,03	1,07	1,14
8526514	0,15	8,5	1,5	38	0,18	4	0,29	12,54°	1,58	1,64	1,7	1,76	1,89
8526515	0,2	7,2	0,5	38	0,24	4	0,38	14,29°	0,51	0,53	0,55	0,57	0,6
8526516	0,2	7,5	0,75	38	0,24	4	0,38	13,82°	0,78	0,81	0,83	0,86	0,91
8526517	0,2	7,7	1	38	0,24	4	0,38	13,38°	1,04	1,08	1,11	1,15	1,23
8526518	0,2	7,9	1,2	38	0,24	4	0,38	13,05°	1,25	1,29	1,33	1,38	1,47
8526519	0,2	8,7	2	38	0,24	4	0,38	11,87°	2,08	2,15	2,22	2,3	2,47
8526520	0,2	9,7	3	38	0,24	4	0,38	10,66°	3,12	3,22	3,33	3,45	3,71
8526521	0,25	7,6	1	38	0,3	4	0,48	13,42°	1,04	1,07	1,11	1,14	1,21
8526522	0,25	8,1	1,5	38	0,3	4	0,48	12,59°	1,56	1,61	1,66	1,72	1,84
8526523	0,25	9,1	2,5	38	0,3	4	0,48	11,21°	2,6	2,68	2,77	2,86	3,08
8526524	0,25	10,1	3,5	38	0,3	4	0,48	10,1°	3,63	3,75	3,88	4,01	4,32
8526525	0,3	7,6	1,2	38	0,36	4	0,58	13,1°	1,24	1,29	1,32	1,36	1,45
8526526	0,3	7,9	1,5	38	0,36	4	0,58	12,6°	1,56	1,61	1,66	1,71	1,82
8526527	0,3	8,2	1,8	38	0,36	4	0,58	12,14°	1,87	1,93	1,99	2,05	2,2
8526528	0,3	8,4	2	38	0,36	4	0,58	11,85°	2,08	2,14	2,21	2,28	2,44
8526529	0,3	9,4	3	38	0,36	4	0,58	10,59°	3,11	3,21	3,32	3,43	3,69
8526530	0,3	10,4	4	38	0,36	4	0,58	9,56°	4,15	4,28	4,43	4,58	4,93
8526531	0,3	10,9	4,5	40	0,36	4	0,58	9,12°	4,67	4,82	4,98	5,16	5,55
8526532	0,3	11,4	5	40	0,36	4	0,58	8,72°	5,18	5,35	5,54	5,73	6,17
8526533	0,3	12,4	6	40	0,36	4	0,58	8,01°	6,22	6,42	6,64	6,88	7,42
8526534	0,4	7,5	1,5	38	0,48	4	0,78	12,63°	1,55	1,6	1,65	1,69	1,8
8526535	0,4	7,6	1,6	38	0,48	4	0,78	12,46°	1,66	1,71	1,76	1,81	1,92
8526536	0,4	8	2	38	0,48	4	0,78	11,83°	2,07	2,14	2,2	2,27	2,42
8526537	0,4	8,4	2,4	38	0,48	4	0,78	11,26°	2,49	2,56	2,64	2,73	2,92
8526538	0,4	10	4	40	0,48	4	0,78	9,44°	4,15	4,28	4,42	4,57	4,91
8526539	0,4	12	6	40	0,48	4	0,78	7,84°	6,21	6,42	6,63	6,87	7,39
8526540	0,5	7,6	2	38	0,6	4	0,98	11,81°	2,07	2,13	2,19	2,25	2,4
8526541	0,5	8,1	2,5	38	0,6	4	0,98	11,06°	2,59	2,66	2,74	2,83	3,02
8526542	0,5	8,6	3	38	0,6	4	0,98	10,41°	3,11	3,2	3,3	3,4	3,64
8526543	0,5	9,6	4	38	0,6	4	0,98	9,3°	4,14	4,27	4,41	4,55	4,88
8526544	0,5	11,6	6	45	0,6	4	0,98	7,66°	6,21	6,41	6,62	6,85	7,37
8526545	0,5	13,6	8	45	0,6	4	0,98	6,51°	8,28	8,55	8,84	9,15	9,86
8526546	0,5	15,6	10	45	0,6	4	0,98	5,66°	10,34	10,69	11,06	11,45	12,34
8526547	0,6	7,8	2,4	38	0,72	4	1,18	10,91°	2,55	2,68	2,78	2,88	3,07
8526548	0,6	8,4	3	38	0,72	4	1,18	10,1°	3,19	3,34	3,46	3,57	3,82

*If there is no value in the actual effective length (Le column) for the work gradient angle α , it indicates no interference.



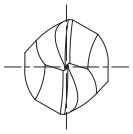
CBN-FB2

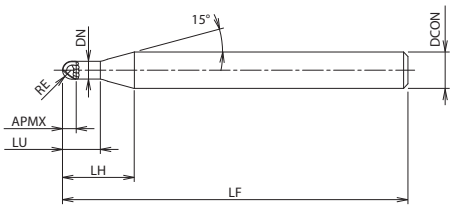
Milling | CBN

INDEX

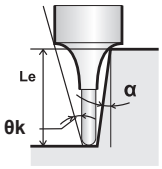
NEW







- 2 flutes CBN ball end mill
- Excellent ball radius accuracy for high-quality surface finishing
- Optimized shank design for ultra-high precision



P ~45 HRC | P ~55 HRC | H ~60 HRC | H ~68 HRC

CBN | 10° | SHRINK FIT | SHANK -0.001~-0.003 | R ± 0.003 | C.990

EDP	RE	LH	LU	LF	APMX	DCON	DN	θk	Effective length by inclined angles Le (α)*				
									0,5°	1°	1,5°	2°	3°
8526549	0,6	11,4	6	38	0,72	4	1,18	7,36°	6,35	6,57	6,79	7,02	7,54
8526550	0,75	7,8	3	38	0,9	4	1,47	9,95°	3,16	3,29	3,4	3,51	3,73
8526551	0,75	8,6	3,8	38	0,9	4	1,47	8,97°	4	4,16	4,29	4,43	4,73
8526552	0,75	12,3	7,5	38	0,9	4	1,47	6,15°	7,87	8,13	8,39	8,68	9,33
8526553	0,75	14,8	10	38	0,9	4	1,47	5,07°	10,46	10,8	11,17	11,56	12,44
8526554	0,75	19,8	15	38	0,9	4	1,47	3,75°	15,63	16,15	16,71	17,31	18,65
8526555	1	8,2	4	38	1,2	4	1,97	7,82°	4,24	4,47	4,69	4,91	5,32
8526556	1	9,2	5	38	1,2	4	1,97	6,89°	5,31	5,59	5,86	6,11	6,58
8526557	1	10,2	6	38	1,2	4	1,97	6,16°	6,38	6,71	7,01	7,29	7,82
8526558	1	12,2	8	50	1,2	4	1,97	5,08°	8,5	8,91	9,28	9,61	10,31
8526559	1	14,2	10	50	1,2	4	1,97	4,32°	10,62	11,1	11,51	11,9	12,79
8526560	1	18,2	14	50	1,2	4	1,97	3,32°	14,82	15,42	15,94	16,5	17,77
8526561	1	24,2	20	50	1,2	4	1,97	2,47°	21,09	21,84	22,59	23,4	-
8526562	1,5	12	6	50	1,7	6	2,94	8,05°	6,31	6,6	6,87	7,12	7,6
8526563	1,5	15	9	50	1,7	6	2,94	6,31°	9,48	9,89	10,25	10,59	11,33

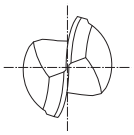
*If there is no value in the actual effective length (Le column) for the work gradient angle α , it indicates no interference.

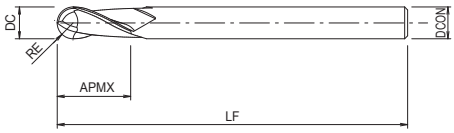


DG-EBD

Milling | Solid carbide







- Carbide end mill with diamond coating
- For graphite milling
- 2 flutes, ball nose

GRAPHITE

CARBIDE | DG | 30° | SHRINK FIT | R ±0.01

C.991

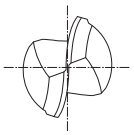
EDP	DC	RE	APMX	DCON	LF	ZEFP
8553541	4	2	8	4	80	2
8553561	6	3	12	6	80	2
8553581	8	4	16	8	100	2
8553601	10	5	20	10	100	2
8553621	12	6	36	12	130	2

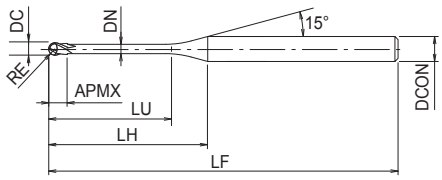
DG-LN-EBD

INDEX

Milling | Solid carbide







- Carbide end mill with diamond coating
- For graphite milling
- 2 flutes, ball nose, long neck for deep reach

GRAPHITE

CARBIDE | DG | 30° | SHRINK FIT | ± 0.01 0,5≤R | ± 0.008 0,5>R

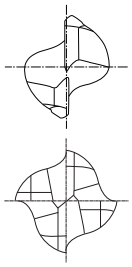
C.992

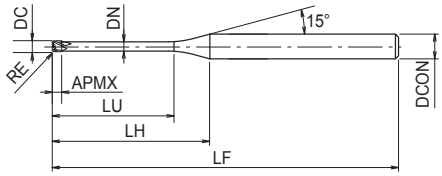
EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	ULDR	ZEFP
8553701	0,4	0,2	4	0,6	4	0,34	50	11,17	-	2
8553702	0,4	0,2	8	0,6	4	0,34	50	15,17	-	2
8553711	0,6	0,3	6	0,9	4	0,54	50	12,8	-	2
8553712	0,6	0,3	10	0,9	4	0,54	50	16,8	-	2
48104001	0,8	0,4	15	1,2	4	0,76	60	21,4	-	2
8553721	1	0,5	4	1,5	4	0,93	50	10,05	-	2
8553722	1	0,5	6	1,5	4	0,93	50	12,05	-	2
8553723	1	0,5	10	1,5	4	0,93	50	16,05	-	2
8553724	1	0,5	16	1,5	4	0,93	60	22,05	-	2
48249116	1	0,5	16	1,5	4	0,93	50	21,8	16	2
8553725	1	0,5	20	1,5	4	0,93	60	26,05	-	2
8553726	1	0,5	30	1,5	4	0,93	80	36,05	-	2
8553731	1,5	0,75	6	2,3	4	1,41	50	11,07	-	2
8553732	1,5	0,75	10	2,3	4	1,41	50	15,07	-	2
8553733	1,5	0,75	16	2,3	4	1,41	60	21,07	-	2
8553742	2	1	10	3	4	1,87	50	14,35	-	2
8553743	2	1	16	3	4	1,87	60	20,35	-	2
8553744	2	1	20	3	4	1,87	60	24,35	-	2
48249220	2	1	20	3	4	1,87	50	24,2	10	2
8553745	2	1	30	3	4	1,87	80	34,35	-	2
8553761	3	1,5	20	4,5	4	2,87	60	22,48	-	2
8553762	3	1,5	40	4,5	4	2,87	80	42,48	-	2
8553781	4	2	20	6	4	3,87	60	-	-	2

DG-CPR

Milling | Solid carbide







- Carbide end mill with diamond coating
- For graphite milling
- Multi flute, long neck for deep reach, corner radius

GRAPHITE

CARBIDE | DG | 30° | SHRINK FIT | R ±0.01 | D<1 0~-0.02 | D≥1 0~-0.027 | C.993

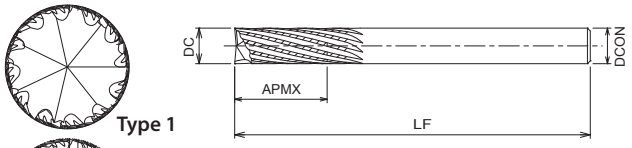
EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	ZEFP
8554511	0,5	0,1	4	0,9	4	0,44	50	10,98	2
8554512	0,5	0,1	6	0,9	4	0,44	50	12,98	2
48103001	1	0,1	10	1,5	4	0,96	50	16,05	2
8554542	2	0,2	10	3	4	1,87	60	14,35	2
8554544	2	0,2	20	3	4	1,87	70	24,35	2
48103002	4	0,3	40	6	6	3,9	100	-	4
48103004	4	0,5	25	6	6	3,9	70	-	4
48103003	4	0,5	40	6	6	3,9	100	-	4
48103005	4	1	40	6	6	3,9	100	-	4
48103006	6	0,3	30	6	6	5,7	100	-	4
8554621	6	0,5	30	6	6	5,7	100	-	4
8554622	6	1	30	6	6	5,67	100	-	4
48103007	8	0,3	100	8	8	7,6	150	-	4
8554661	8	0,5	32	8	8	7,57	100	-	4
48103008	8	0,5	100	8	8	7,6	150	-	4
48103009	8	1	100	8	8	7,6	150	-	4
8554701	10	0,5	40	10	10	9,47	125	-	4
8554702	10	1	40	10	10	9,47	125	-	4
8554722	12	1	48	12	12	11,37	150	-	4

DIA-BNC

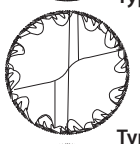
Milling | Solid carbide

INDEX

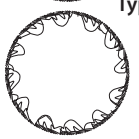




Type 1



Type 2



Type 3

- Carbide end mill with diamond coating
- For CFRP milling
- Multi flute, fine nick geometry
- Also available with LH helix

CFRP

CARBIDE | DIA | SHRINK FIT

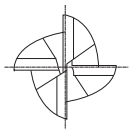
C.994

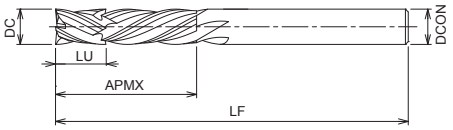
EDP	DC	APMX	DCON	LF	ZEFP	Type	specification
8809012	6	18	6	88	10	3	Left helix
48108001	6	18	6	68	8	1	Trimming
48108011	6	18	6	68	8	2	Trimming & Plunging
8809013	8	24	8	94	14	3	Left helix
48108002	8	24	8	74	10	1	Trimming
48108012	8	24	8	74	10	2	Trimming & Plunging
48108003	10	30	10	80	12	1	Trimming
48108013	10	30	10	80	12	2	Trimming & Plunging
48108004	12	36	12	86	14	1	Trimming
48108014	12	36	12	86	14	2	Trimming & Plunging

DIA-HBC

Milling | Solid carbide







- Carbide end mill with diamond coating
- For CFRP milling
- 4 flutes, left-hand / right-hand flute to suppress delamination

CFRP

CARBIDE | DIA | SHRINK FIT

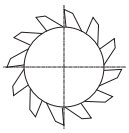
C.994

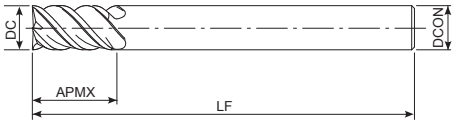
EDP	DC	LU	APMX	DCON	LF	ZEFP
48109001	6	15	7,5	6	65	4
48109002	8	20	10	8	70	4
48109003	10	25	12,5	10	75	4
48109004	12	30	15	12	100	4

DIA-MFC

Milling | Solid carbide







- Carbide end mill with diamond coating
- For CFRP milling
- Multi flute, for excellent surface finishing

CFRP

CARBIDE | DIA | SHRINK FIT

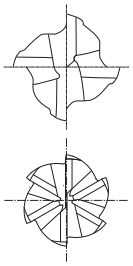
C.994

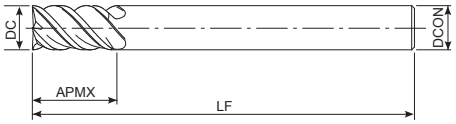
EDP	DC	APMX	DCON	LF	ZEFP
8809171	6	18	6	80	8
8809173	8	24	8	90	10
8809175	10	30	10	100	12

DIA-REC

Milling | Solid carbide







- Carbide end mill with diamond coating
- For CFRP milling
- Multi flute, roughing and semi finishing

CFRP

CARBIDE | DIA | SHRINK FIT

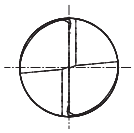
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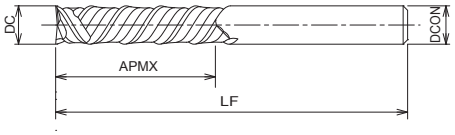
EDP	DC	APMX	DCON	LF	ZEFP
8809161	6	18	6	68	4
8809163	8	24	8	74	6
8809165	10	30	10	80	6

HBC60

Milling | Solid carbide







- Carbide end mill, bright finish
- For honeycomb composite materials
- 2 flutes, left-hand / right-hand flute

HONEYCOMB

CARBIDE

60°

C.994

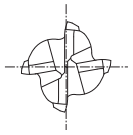
EDP	DC	APMX	DCON	LF	ZEFP
8809181	6	18	6	68	2
8809183	8	24	8	74	2
8809185	10	30	10	80	2
8809187	12	36	12	86	2

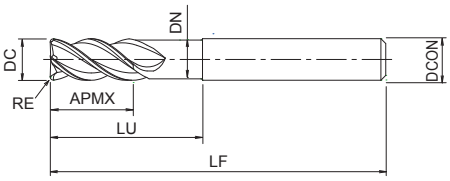
UVX-TI-4FL

INDEX

Milling | Solid carbide

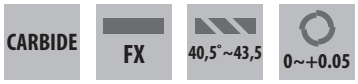






- First choice in quality and performance
- Carbide end mill with TiAlN coating
- For Titanium alloys
- 4 flutes, variable helix and unequal spacing, corner radius







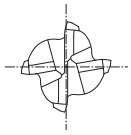
EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
8555120	12	-	36	24	12	11,5	90	4
8555121	12	1	36	24	12	11,5	90	4
8555122	12	1,5	36	24	12	11,5	90	4
8555123	12	2	36	24	12	11,5	90	4
8555124	12	2,5	36	24	12	11,5	90	4
8555125	12	3	36	24	12	11,5	90	4
8555126	12	4	36	24	12	11,5	90	4
8555160	16	-	48	32	16	15,5	100	4
8555161	16	1	48	32	16	15,5	100	4
8555162	16	1,5	48	32	16	15,5	100	4
8555163	16	2	48	32	16	15,5	100	4
8555164	16	2,5	48	32	16	15,5	100	4
8555165	16	3	48	32	16	15,5	100	4
8555166	16	4	48	32	16	15,5	100	4
8555200	20	-	60	40	20	19,5	120	4
8555201	20	1	60	40	20	19,5	120	4
8555202	20	1,5	60	40	20	19,5	120	4
8555203	20	2	60	40	20	19,5	120	4
8555204	20	2,5	60	40	20	19,5	120	4
8555205	20	3	60	40	20	19,5	120	4
8555206	20	4	60	40	20	19,5	120	4
8555207	20	5	60	40	20	19,5	120	4
8555250	25	-	75	50	25	24,5	140	4
8555251	25	1	75	50	25	24,5	140	4
8555252	25	1,5	75	50	25	24,5	140	4
8555253	25	2	75	50	25	24,5	140	4
8555254	25	2,5	75	50	25	24,5	140	4
8555255	25	3	75	50	25	24,5	140	4
8555256	25	4	75	50	25	24,5	140	4
8555257	25	5	75	50	25	24,5	140	4
8555258	25	6	75	50	25	24,5	140	4

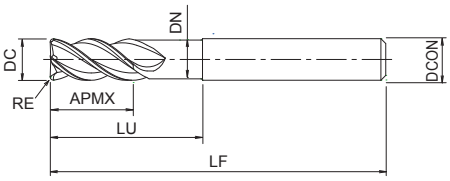
UVX-TI-4FL SAFE LOCK

INDEX

Milling | Solid carbide

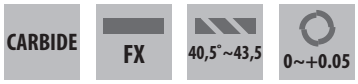






- First choice in quality and performance
- Carbide end mill with TiAlN coating
- For Titanium alloys
- 4 flutes, variable helix and unequal spacing, corner radius
- SafeLock shank







EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
8555660	12	1	36	24	12	11,5	90	4
8555661	12	3	36	24	12	11,5	90	4
8555662	16	1	48	32	16	15,5	100	4
8555663	16	3	48	32	16	15,5	100	4
8555664	20	1	60	40	20	19,5	120	4
8555665	20	3	60	40	20	19,5	120	4
8555666	20	5	60	40	20	19,5	120	4
8555667	25	1	75	50	25	24,5	140	4
8555668	25	3	75	50	25	24,5	140	4
8555669	25	5	75	50	25	24,5	140	4

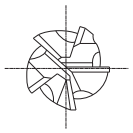


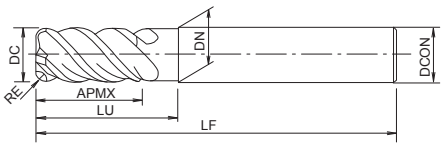
UVX-TI-5FL

INDEX

Milling | Solid carbide

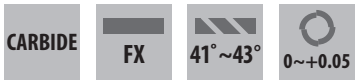






- First choice in quality and performance
- Carbide end mill with TiAlN coating
- For Titanium alloys
- 5 flutes, variable helix and unequal spacing, corner radius







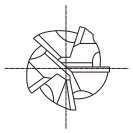
EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
8555320	12	-	36	24	12	11,5	90	5
8555321	12	1	36	24	12	11,5	90	5
8555322	12	1,5	36	24	12	11,5	90	5
8555323	12	2	36	24	12	11,5	90	5
8555324	12	2,5	36	24	12	11,5	90	5
8555325	12	3	36	24	12	11,5	90	5
8555326	12	4	36	24	12	11,5	90	5
8555360	16	-	48	32	16	15,5	100	5
8555361	16	1	48	32	16	15,5	100	5
8555362	16	1,5	48	32	16	15,5	100	5
8555363	16	2	48	32	16	15,5	100	5
8555364	16	2,5	48	32	16	15,5	100	5
8555365	16	3	48	32	16	15,5	100	5
8555366	16	4	48	32	16	15,5	100	5
8555400	20	-	60	40	20	19,5	120	5
8555401	20	1	60	40	20	19,5	120	5
8555402	20	1,5	60	40	20	19,5	120	5
8555403	20	2	60	40	20	19,5	120	5
8555404	20	2,5	60	40	20	19,5	120	5
8555405	20	3	60	40	20	19,5	120	5
8555406	20	4	60	40	20	19,5	120	5
8555407	20	5	60	40	20	19,5	120	5
8555450	25	-	75	50	25	24,5	140	5
8555451	25	1	75	50	25	24,5	140	5
8555452	25	1,5	75	50	25	24,5	140	5
8555453	25	2	75	50	25	24,5	140	5
8555454	25	2,5	75	50	25	24,5	140	5
8555455	25	3	75	50	25	24,5	140	5
8555456	25	4	75	50	25	24,5	140	5
8555457	25	5	75	50	25	24,5	140	5
8555458	25	6	75	50	25	24,5	140	5

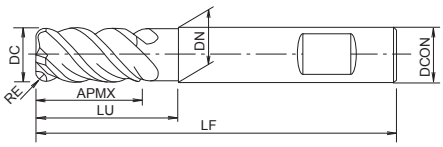
UVX-TI-5FL Weldon

INDEX

Milling | Solid carbide







- First choice in quality and performance
- Carbide end mill with TiAlN coating
- For Titanium alloys
- 5 flutes, variable helix and unequal spacing, corner radius
- Weldon shank







EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
W1204247	12	-	36	24	12	11,5	90	5
W1204248	12	1	36	24	12	11,5	90	5
W1204249	12	2,5	36	24	12	11,5	90	5
W1304511	12	4	36	24	12	11,5	90	5
W1204250	16	-	48	32	16	15,5	100	5
W1304512	16	1	48	32	16	15,5	100	5
W1204251A	16	2,5	48	32	16	15,5	100	5
W1204252A	16	4	48	32	16	15,5	100	5
W1204253	20	-	52	40	20	19,5	105	5
W1304513	20	1	52	40	20	19,5	105	5
W1204254A	20	2,5	52	40	20	19,5	105	5
W1204255A	20	4	52	40	20	19,5	105	5
W1204256A	20	5	52	40	20	19,5	105	5
W1204257	20	6	52	40	20	19,5	105	5

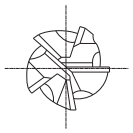


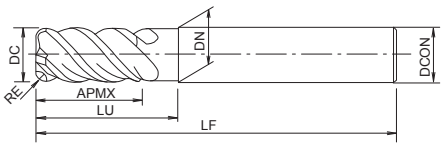
UVX-TI-5FL SAFE LOCK

INDEX

Milling | Solid carbide

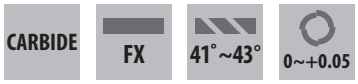






- First choice in quality and performance
- Carbide end mill with TiAlN coating
- For Titanium alloys
- 5 flutes, variable helix and unequal spacing, corner radius
- SafeLock shank





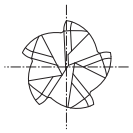


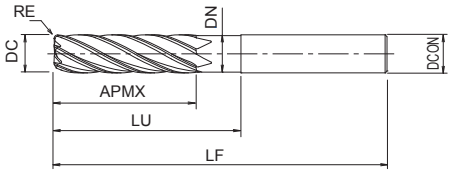
EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
48247120	12	-	36	24	12	11,5	90	5
8555670	12	1	36	24	12	11,5	90	5
48247123	12	1,5	36	24	12	11,5	90	5
48247124	12	2	36	24	12	11,5	90	5
48247125	12	2,5	36	24	12	11,5	90	5
8555671	12	3	36	24	12	11,5	90	5
48247127	12	4	36	24	12	11,5	90	5
48247160	16	-	48	32	16	15,5	100	5
8555672	16	1	48	32	16	15,5	100	5
48247163	16	1,5	48	32	16	15,5	100	5
48247164	16	2	48	32	16	15,5	100	5
48247165	16	2,5	48	32	16	15,5	100	5
8555673	16	3	48	32	16	15,5	100	5
48247167	16	4	48	32	16	15,5	100	5
48247200	20	-	60	40	20	19,5	120	5
8555674	20	1	60	40	20	19,5	120	5
48247203	20	1,5	60	40	20	19,5	120	5
48247204	20	2	60	40	20	19,5	120	5
48247205	20	2,5	60	40	20	19,5	120	5
8555675	20	3	60	40	20	19,5	120	5
48247207	20	4	60	40	20	19,5	120	5
8555676	20	5	60	40	20	19,5	120	5
48247250	25	-	75	50	25	24,5	140	5
8555677	25	1	75	50	25	24,5	140	5
48247253	25	1,5	75	50	25	24,5	140	5
48247254	25	2	75	50	25	24,5	140	5
48247255	25	2,5	75	50	25	24,5	140	5
8555678	25	3	75	50	25	24,5	140	5
48247257	25	4	75	50	25	24,5	140	5
8555679	25	5	75	50	25	24,5	140	5
48247259	25	6	75	50	25	24,5	140	5

UVXL-TI-5FL

Milling | Solid carbide

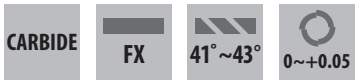






- First choice in quality and performance
- Carbide end mill with TiAlN coating
- For Titanium alloys
- 5 flutes, long length of cut, variable helix and unequal spacing, corner radius







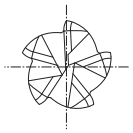
EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
8555520	12	-	60	48	12	11,5	110	5
8555521	12	1	60	48	12	11,5	110	5
8555522	12	1,5	60	48	12	11,5	110	5
8555523	12	2	60	48	12	11,5	110	5
8555524	12	2,5	60	48	12	11,5	110	5
8555525	12	3	60	48	12	11,5	110	5
8555526	12	4	60	48	12	11,5	110	5
8555560	16	-	80	64	16	15,5	130	5
8555561	16	1	80	64	16	15,5	130	5
8555562	16	1,5	80	64	16	15,5	130	5
8555563	16	2	80	64	16	15,5	130	5
8555564	16	2,5	80	64	16	15,5	130	5
8555565	16	3	80	64	16	15,5	130	5
8555566	16	4	80	64	16	15,5	130	5
8555600	20	-	100	80	20	19,5	160	5
8555601	20	1	100	80	20	19,5	160	5
8555602	20	1,5	100	80	20	19,5	160	5
8555603	20	2	100	80	20	19,5	160	5
8555604	20	2,5	100	80	20	19,5	160	5
8555605	20	3	100	80	20	19,5	160	5
8555606	20	4	100	80	20	19,5	160	5
8555607	20	5	100	80	20	19,5	160	5
8555650	25	-	125	100	25	24,5	190	5
8555651	25	1	125	100	25	24,5	190	5
8555652	25	1,5	125	100	25	24,5	190	5
8555653	25	2	125	100	25	24,5	190	5
8555654	25	2,5	125	100	25	24,5	190	5
8555655	25	3	125	100	25	24,5	190	5
8555656	25	4	125	100	25	24,5	190	5
8555657	25	5	125	100	25	24,5	190	5
8555658	25	6	125	100	25	24,5	190	5

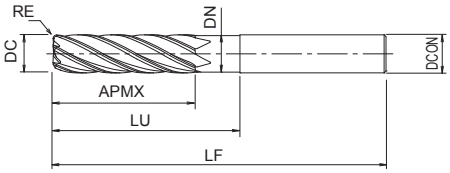
UVXL-TI-5FL SAFE LOCK

INDEX

Milling | Solid carbide

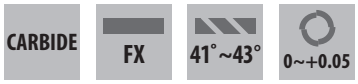






- First choice in quality and performance
- Carbide end mill with TiAlN coating
- For Titanium alloys
- 5 flutes, long length of cut, variable helix and unequal spacing, corner radius
- SafeLock shank





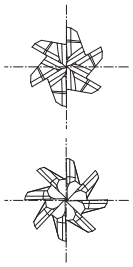


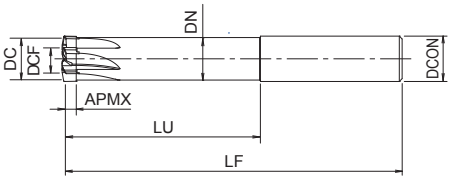
EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
48248120	12	-	60	48	12	11,5	110	5
8555680	12	1	60	48	12	11,5	110	5
48248123	12	1,5	60	48	12	11,5	110	5
48248124	12	2	60	48	12	11,5	110	5
48248125	12	2,5	60	48	12	11,5	110	5
8555681	12	3	60	48	12	11,5	110	5
48248127	12	4	60	48	12	11,5	110	5
48248160	16	-	80	64	16	15,5	130	5
8555682	16	1	80	64	16	15,5	130	5
48248163	16	1,5	80	64	16	15,5	130	5
48248164	16	2	80	64	16	15,5	130	5
48248165	16	2,5	80	64	16	15,5	130	5
8555683	16	3	80	64	16	15,5	130	5
48248167	16	4	80	64	16	15,5	130	5
48248200	20	-	100	80	20	19,5	160	5
8555684	20	1	100	80	20	19,5	160	5
48248203	20	1,5	100	80	20	19,5	160	5
48248204	20	2	100	80	20	19,5	160	5
48248205	20	2,5	100	80	20	19,5	160	5
8555685	20	3	100	80	20	19,5	160	5
48248207	20	4	100	80	20	19,5	160	5
8555686	20	5	100	80	20	19,5	160	5
48248250	25	-	125	100	25	24,5	190	5
8555687	25	1	125	100	25	24,5	190	5
48248253	25	1,5	125	100	25	24,5	190	5
48248254	25	2	125	100	25	24,5	190	5
48248255	25	2,5	125	100	25	24,5	190	5
8555688	25	3	125	100	25	24,5	190	5
48248257	25	4	125	100	25	24,5	190	5
8555689	25	5	125	100	25	24,5	190	5
48248259	25	6	125	100	25	24,5	190	5

HFC-TI

Milling | Solid carbide







- Carbide end mill, bright finish
- For high feed Titanium alloy milling
- Multi flute

S

CARBIDE

C.996

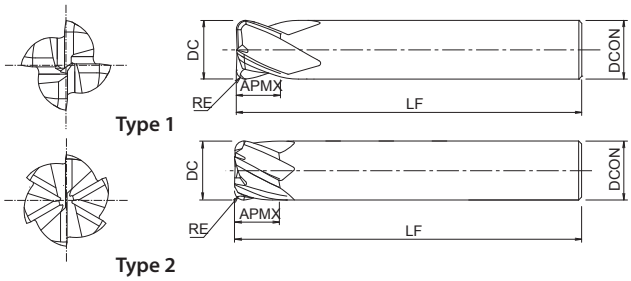
EDP	DC	LU	APMX	DCON	DN	LF	ZEFP	DCF
8555716	16	70	5	16	15	120	6	7,77
8555720	20	70	5	20	19	120	8	9,72
8555725	25	70	5	25	24	120	8	12,15

CM-RMS

Milling | Ceramic

INDEX





- Ceramic end mill, peripheral cutting edge type
- Optimum flute geometry
- Negative cutter form
- 4 or 6 flutes specification based on your application needs

S
Ni

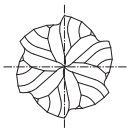
CERAMIC | R ± 0.03 | 0~+0.05 | h6 | 30° | C.996

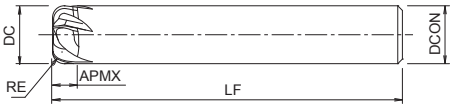
EDP	DC	RE	APMX	DCON	LF	ZEFP	Type
8557100	6	0,75	4,5	6	60	4	1
8557200	6	0,75	4,5	6	60	6	2
8557110	8	1	6	8	60	4	1
8557210	8	1	6	8	60	6	2
8557120	10	1,25	7,5	10	65	4	1
8557220	10	1,25	7,5	10	65	6	2
8557130	12	1,5	9	12	70	4	1
8557230	12	1,5	9	12	70	6	2

CM-CRE

Milling | Ceramic

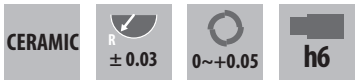






- Ceramic end mill, end cutting edge type
- Suitable for 3D machining
- Large-diameter specification
- Regrindable







EDP	DC	RE	APMX	DCON	LF	ZEFP
8557016	16	4	5	16	120	5
8557020	20	4	5	20	120	6
8557025	25	4	5	25	120	7

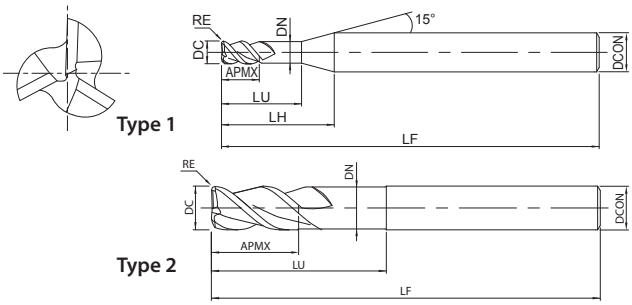


AE-TS-N

Milling | Solid carbide

INDEX





- First choice in quality and performance
- Carbide end mill with DLC coating
- For non-ferrous materials
- 3 flutes, short length of cut

N Al

N AC, ADC

A | CARBIDE | DLC | 0~-0.02 | 41° | SHRINK FIT | C.997

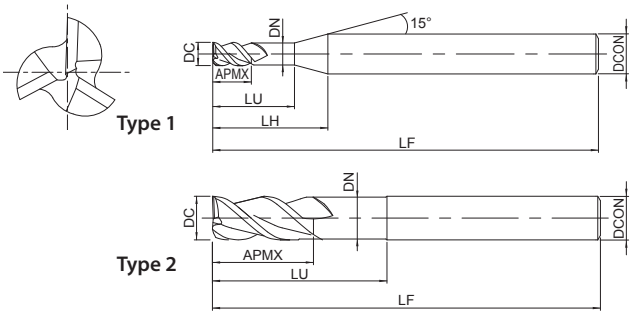
EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	ZEFP	Type
8557235	1	-	3	1,5	4	0,95	45	8,6	3	1
8557236	1,5	-	4,5	2,3	4	1,45	45	9,3	3	1
8557237	2	-	6	3	4	1,9	45	10,1	3	1
8557238	2,5	-	7,5	3,8	4	2,4	45	10,6	3	1
8557330	3	-	9	4,5	6	2,85	55	14,9	3	1
8557370	3	0,2	9	4,5	6	2,85	55	14,8	3	1
8557371	3	0,5	9	4,5	6	2,85	55	14,8	3	1
8557331	4	-	12	6	6	3,8	55	16	3	1
8557372	4	0,2	12	6	6	3,8	55	15,9	3	1
8557373	4	0,5	12	6	6	3,8	55	15,9	3	1
8557374	4	1	12	6	6	3,8	55	15,9	3	1
8557332	5	-	15	7,5	6	4,8	55	17,1	3	1
8557375	5	0,2	15	7,5	6	4,8	55	16,8	3	1
8557376	5	0,5	15	7,5	6	4,8	55	16,8	3	1
8557377	5	1	15	7,5	6	4,8	55	16,8	3	1
8557333	6	-	18	9	6	5,8	60	-	3	2
8557378	6	0,3	18	9	6	5,8	60	-	3	2
8557379	6	0,5	18	9	6	5,8	60	-	3	2
8557380	6	1	18	9	6	5,8	60	-	3	2
8557334	8	-	24	12	8	7,7	70	-	3	2
8557381	8	0,3	24	12	8	7,7	70	-	3	2
8557382	8	0,5	24	12	8	7,7	70	-	3	2
8557383	8	1	24	12	8	7,7	70	-	3	2
8557384	8	1,5	24	12	8	7,7	70	-	3	2
8557385	8	2	24	12	8	7,7	70	-	3	2
8557335	10	-	30	15	10	9,7	75	-	3	2
8557386	10	0,3	30	15	10	9,7	75	-	3	2
8557387	10	0,5	30	15	10	9,7	75	-	3	2
8557388	10	1	30	15	10	9,7	75	-	3	2
8557389	10	1,5	30	15	10	9,7	75	-	3	2
8557390	10	2	30	15	10	9,7	75	-	3	2
8557391	10	3	30	15	10	9,7	75	-	3	2
8557336	12	-	36	18	12	11,7	80	-	3	2
8557392	12	0,3	36	18	12	11,7	80	-	3	2
8557393	12	0,5	36	18	12	11,7	80	-	3	2
8557394	12	1	36	18	12	11,7	80	-	3	2
8557395	12	1,5	36	18	12	11,7	80	-	3	2
8557396	12	2	36	18	12	11,7	80	-	3	2
8557397	12	3	36	18	12	11,7	80	-	3	2
8557337	16	-	48	24	16	15,7	110	-	3	2
8557338	20	-	60	30	20	19,7	120	-	3	2
8557339	25	-	75	37,5	25	24,7	140	-	3	2

AE-TS-N SP

Milling | Solid carbide

INDEX





- First choice in quality and performance
- Carbide end mill with DLC coating
- For non-ferrous materials
- 3 flutes, short length of cut
- Sharp corner for milling 90° corner

N AI

N AC, ADC

A CARBIDE | DLC | 0~-0.02 | 41° | SHRINK FIT | SHARP

C.997

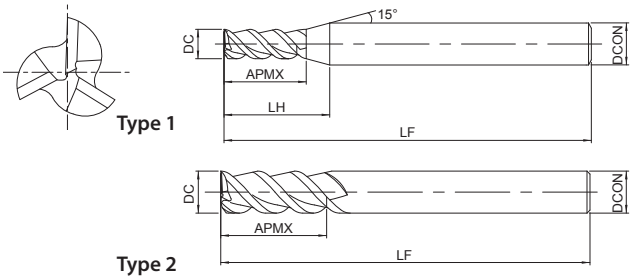
EDP	DC	LU	APMX	DCON	DN	LF	LH	ZEFP	Type
8557239	1	3	1,5	4	0,95	45	8,6	3	1
8557240	1,5	4,5	2,3	4	1,45	45	9,3	3	1
8557241	2	6	3	4	1,9	45	10,1	3	1
8557242	2,5	7,5	3,8	4	2,4	45	10,6	3	1
8557430	3	9	4,5	6	2,85	55	14,8	3	1
8557431	4	12	6	6	3,8	55	15,9	3	1
8557432	5	15	7,5	6	4,8	55	16,8	3	1
8557433	6	18	9	6	5,8	60	-	3	2
8557434	8	24	12	8	7,7	70	-	3	2
8557435	10	30	15	10	9,7	75	-	3	2
8557436	12	36	18	12	11,7	80	-	3	2

AE-TL-N

Milling | Solid carbide

INDEX





- First choice in quality and performance
- Carbide end mill with DLC coating
- For non-ferrous materials
- 3 flutes, long length of cut

N Al

N AC, ADC

CARBIDE | DLC | 0~-0.02 | 41° | SHRINK FIT | C.1000

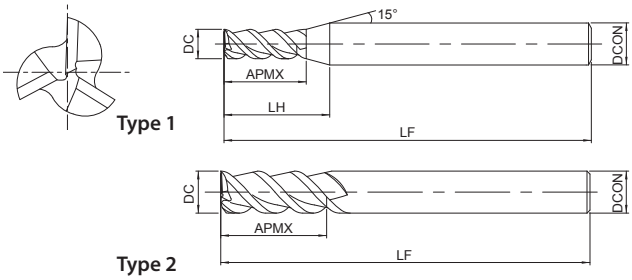
EDP	DC	APMX	DCON	LF	LH	ULDR	ZEFP	Type
8557340	3	9	6	55	17	3	3	1
8557350	3	15	6	55	23	5	3	1
8557341	4	12	6	55	18,1	3	3	1
8557351	4	20	6	60	26,1	5	3	1
8557342	5	15	6	55	19,3	3	3	1
8557352	5	25	6	65	29,3	5	3	1
8557343	6	18	6	60	-	3	3	2
8557353	6	30	6	75	-	5	3	2
8557344	8	24	8	70	-	3	3	2
8557354	8	40	8	90	-	5	3	2
8557345	10	30	10	75	-	3	3	2
8557355	10	50	10	100	-	5	3	2
8557346	12	36	12	80	-	3	3	2
8557356	12	60	12	110	-	5	3	2
8557347	16	48	16	120	-	3	3	2
8557357	16	80	16	150	-	5	3	2
8557348	20	60	20	135	-	3	3	2
8557358	20	100	20	175	-	5	3	2
8557349	25	75	25	155	-	3	3	2
8557359	25	125	25	205	-	5	3	2

AE-TL-N SP

Milling | Solid carbide

INDEX





- First choice in quality and performance
- Carbide end mill with DLC coating
- For non-ferrous materials
- 3 flutes, long length of cut
- Sharp corner for milling 90° corner

N Al

N AC, ADC

A CARBIDE | DLC | 0~-0.02 | 41° | SHRINK FIT | SHARP | C.1000

EDP	DC	APMX	DCON	LF	LH	ULDR	ZEFP	Type
8557440	3	9	6	55	16,6	3	3	1
8557450	3	15	6	55	22,6	5	3	1
8557441	4	12	6	55	17,7	3	3	1
8557451	4	20	6	60	25,7	5	3	1
8557442	5	15	6	55	18,9	3	3	1
8557452	5	25	6	65	28,9	5	3	1
8557443	6	18	6	60	-	3	3	2
8557453	6	30	6	75	-	5	3	2
8557444	8	24	8	70	-	3	3	2
8557454	8	40	8	90	-	5	3	2
8557445	10	30	10	75	-	3	3	2
8557455	10	50	10	100	-	5	3	2
8557446	12	36	12	80	-	3	3	2
8557456	12	60	12	110	-	5	3	2

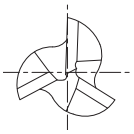
AE-TL-N

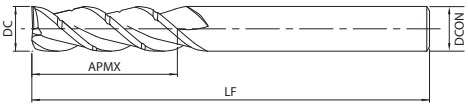
Milling | Solid carbide

INDEX

CHIPBREAKER NEW







- First choice in quality and performance
- Carbide end mill with DLC coating
- For non-ferrous materials
- 3 flutes, long length of cut
- Square with Chipbreaker







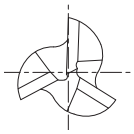
EDP	DC	APMX	DCON	LF	ULDR	ZEFP
8558200	6	18	6	60	3	3
8558210	6	30	6	75	5	3
8558201	8	24	8	70	3	3
8558211	8	40	8	90	5	3
8558202	10	30	10	75	3	3
8558212	10	50	10	100	5	3
8558203	12	36	12	80	3	3
8558213	12	60	12	110	5	3
8558204	16	48	16	120	3	3
8558214	16	80	16	150	5	3
8558205	20	60	20	135	3	3
8558215	20	100	20	175	5	3

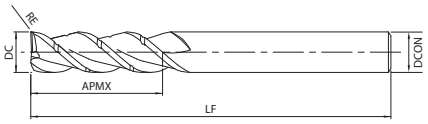
AE-TL-N

Milling | Solid carbide

CHIPBREAKER NEW







- First choice in quality and performance
- Carbide end mill with DLC coating
- For non-ferrous materials
- 3 flutes, long length of cut
- Radius with Chipbreaker







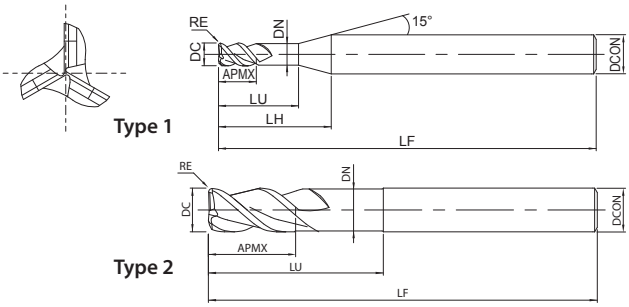
EDP	ZEFP	DC	RE	LF	APMX	DCON	ULDR
8558300	3	6	0,3	60	18	6	3
8558350	3	6	0,3	75	30	6	5
8558301	3	6	0,5	60	18	6	3
8558351	3	6	0,5	75	30	6	5
8558302	3	6	1	60	18	6	3
8558352	3	6	1	75	30	6	5
8558303	3	8	0,3	70	24	8	3
8558353	3	8	0,3	90	40	8	5
8558304	3	8	0,5	70	24	8	3
8558354	3	8	0,5	90	40	8	5
8558305	3	8	1	70	24	8	3
8558355	3	8	1	90	40	8	5
8558306	3	8	2	70	24	8	3
8558356	3	8	2	90	40	8	5
8558307	3	10	0,3	75	30	10	3
8558357	3	10	0,3	100	50	10	5
8558308	3	10	0,5	75	30	10	3
8558358	3	10	0,5	100	50	10	5
8558309	3	10	1	75	30	10	3
8558359	3	10	1	100	50	10	5
8558310	3	10	2	75	30	10	3
8558360	3	10	2	100	50	10	5
8558311	3	10	3	75	30	10	3
8558361	3	10	3	100	50	10	5
8558312	3	12	0,3	80	36	12	3
8558362	3	12	0,3	110	60	12	5
8558313	3	12	0,5	80	36	12	3
8558363	3	12	0,5	110	60	12	5
8558314	3	12	1	80	36	12	3
8558364	3	12	1	110	60	12	5
8558315	3	12	2	80	36	12	3
8558365	3	12	2	110	60	12	5
8558316	3	12	3	80	36	12	3
8558366	3	12	3	110	60	12	5
8558317	3	16	0,5	120	48	16	3
8558367	3	16	0,5	150	80	16	5
8558318	3	20	0,5	135	60	20	3
8558368	3	20	0,5	175	100	20	5



AE-VTS-N

^IMilling^I | Solid carbide





- First choice in quality and performance
- Carbide end mill with DLC-IGUSS coating
- For non-ferrous materials
- 3 flutes, variable helix and unequal spacing

N Al

N AC, ADC

A CARBIDE | DLC-IGUSS | 0~-0.02 | 40°~43 | SHRINK FIT

C.1004

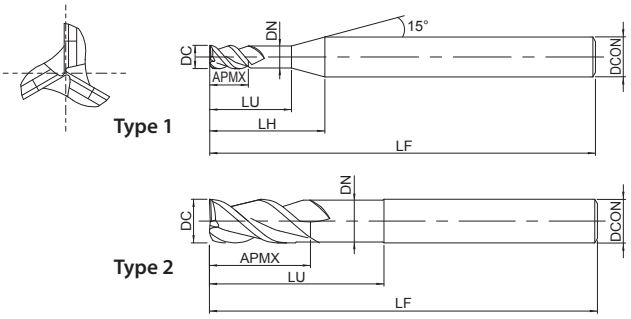
EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	ZEFP	Type
8557243	1	-	3	1,5	4	0,95	45	8,6	3	1
8557244	1,5	-	4,5	2,3	4	1,45	45	9,3	3	1
8557245	2	-	6	3	4	1,95	45	10,1	3	1
8557246	2,5	-	7,5	3,8	4	2,4	45	10,6	3	1
8557360	3	-	9	4,5	6	2,85	55	14,9	3	1
8557400	3	0,2	9	4,5	6	2,85	55	14,8	3	1
8557401	3	0,5	9	4,5	6	2,85	55	14,8	3	1
8557361	4	-	12	6	6	3,8	55	16	3	1
8557402	4	0,2	12	6	6	3,8	55	15,9	3	1
8557403	4	0,5	12	6	6	3,8	55	15,9	3	1
8557404	4	1	12	6	6	3,8	55	15,9	3	1
8557362	5	-	15	7,5	6	4,8	55	17,1	3	1
8557405	5	0,2	15	7,5	6	4,8	55	16,8	3	1
8557406	5	0,5	15	7,5	6	4,8	55	16,8	3	1
8557407	5	1	15	7,5	6	4,8	55	16,8	3	1
8557363	6	-	18	9	6	5,8	60	-	3	2
8557408	6	0,3	18	9	6	5,8	60	-	3	2
8557409	6	0,5	18	9	6	5,8	60	-	3	2
8557410	6	1	18	9	6	5,8	60	-	3	2
8557364	8	-	24	12	8	7,7	70	-	3	2
8557411	8	0,3	24	12	8	7,7	70	-	3	2
8557412	8	0,5	24	12	8	7,7	70	-	3	2
8557413	8	1	24	12	8	7,7	70	-	3	2
8557414	8	1,5	24	12	8	7,7	70	-	3	2
8557415	8	2	24	12	8	7,7	70	-	3	2
8557365	10	-	30	15	10	9,7	75	-	3	2
8557416	10	0,3	30	15	10	9,7	75	-	3	2
8557417	10	0,5	30	15	10	9,7	75	-	3	2
8557418	10	1	30	15	10	9,7	75	-	3	2
8557419	10	1,5	30	15	10	9,7	75	-	3	2
8557420	10	2	30	15	10	9,7	75	-	3	2
8557421	10	3	30	15	10	9,7	75	-	3	2
8557366	12	-	36	18	12	11,7	80	-	3	2
8557422	12	0,3	36	18	12	11,7	80	-	3	2
8557423	12	0,5	36	18	12	11,7	80	-	3	2
8557424	12	1	36	18	12	11,7	80	-	3	2
8557425	12	1,5	36	18	12	11,7	80	-	3	2
8557426	12	2	36	18	12	11,7	80	-	3	2
8557427	12	3	36	18	12	11,7	80	-	3	2

AE-VTS-N SP

Milling | Solid carbide

INDEX





- First choice in quality and performance
- Carbide end mill with DLC-IGUSS coating
- For non-ferrous materials
- 3 flutes, variable helix and unequal spacing
- Sharp corner for milling 90° corner

N Al

N AC, ADC

A | CARBIDE | DLC-IGUSS | 0~-0.02 | 40°~43 | SHRINK FIT | SHARP

C.1004

EDP	DC	LU	APMX	DCON	DN	LF	LH	ZEFP	Type
8557247	1	3	1,5	4	0,95	45	8,6	3	1
8557248	1,5	4,5	2,3	4	1,45	45	9,3	3	1
8557249	2	6	3	4	1,95	45	10,1	3	1
8557250	2,5	7,5	3,8	4	2,4	45	10,6	3	1
8557460	3	9	4,5	6	2,85	55	14,8	3	1
8557461	4	12	6	6	3,8	55	15,9	3	1
8557462	5	15	7,5	6	4,8	55	16,8	3	1
8557463	6	18	9	6	5,8	60	-	3	2
8557464	8	24	12	8	77	70	-	3	2
8557465	10	30	15	10	9,7	75	-	3	2
8557466	12	36	18	12	11,7	80	-	3	2

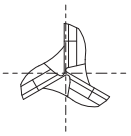


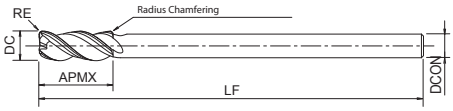
AE-VTFE-N

Milling | Solid carbide

INDEX







- First choice in quality and performance
- Carbide end mill with DLC-IGUSS coating
- For non-ferrous materials
- 3 flutes, variable helix and unequal spacing
- For deep wall milling

N Al

N AC, ADC

A CARBIDE | DLC-IGUSS | 0~-0.02 | 40°~43 | SHRINK FIT

C.1007

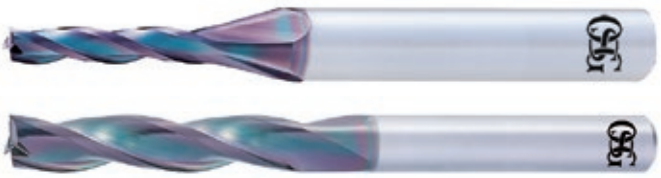
EDP	DC	RE	APMX	DCON	LF	ZEFP
8550126	6	-	15	4	100	3
8550156	6	0,2	15	4	100	3
8550128	8	-	20	6	110	3
8550158	8	0,5	20	6	110	3
8550130	10	-	25	8	130	3
8550160	10	0,5	25	8	130	3
8550161	10	1	25	8	130	3
8550132	12	-	30	10	150	3
8550168	12	0,5	30	10	150	3
8550169	12	1	30	10	150	3
8550134	14	-	35	12	160	3
8550174	14	0,5	35	12	160	3
8550175	14	1	35	12	160	3
8550138	18	-	45	16	180	3
8550180	18	1	45	16	180	3
8550142	22	-	55	20	200	3
8550184	22	1	55	20	200	3

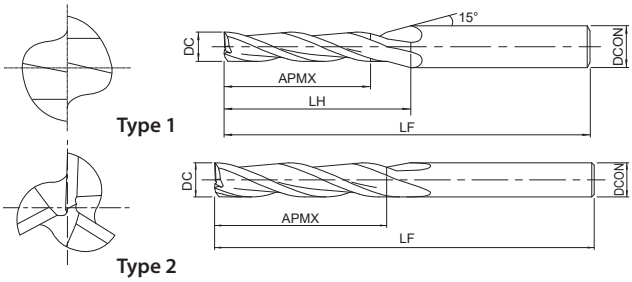
SEP-EL

Milling | Solid carbide | 3/5xD

INDEX

NEW





- DLC coated carbide end mill for super engineering plastics
- 2-3 flutes, sharp corner edge
- 12 sizes

N AI | N AC, ADC | O PET | O PEI | O PEEK

CARBIDE | DLC-IGUSS | SHARP | SHRINK FIT | 25°

DC<6 0~-0,015
6=DC -0,005~-0,02

C.1047

3xD Cutting length

EDP	DC	APMX	DCON	LF	LH	ZEFP	Typ
8471005	0,5	2,5	4	45	9,7	2	1
8471010	1	5	4	45	11,4	3	1
8471020	2	10	4	50	15,2	3	1
8471030	3	15	6	55	22,9	3	1
8471040	4	20	6	60	26,1	3	1
8471060	6	30	6	75	-	3	2

5xD Cutting length

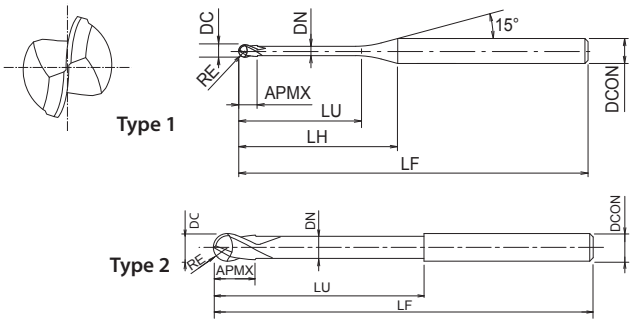
EDP	DC	APMX	DCON	LF	LH	ZEFP	Typ
8471005	0,5	2,5	4	45	9,7	2	1
8471010	1	5	4	45	11,4	3	1
8471020	2	10	4	50	15,2	3	1
8471030	3	15	6	55	22,9	3	1
8471040	4	20	6	60	26,1	3	1
8471060	6	30	6	75	-	3	2

AE-LNBD-N

Milling | Solid carbide

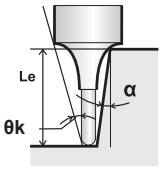
INDEX





- First choice in quality and performance
- Carbide end mill with DLC coating
- For copper electrodes
- 2 flutes, long neck, ball nose
- 72 sizes

N Cu | N W-Cu | N AC, ADC



A | CARBIDE | DLC-IGUSS | 30° | SHANK h4 | SHRINK FIT | R ± 0.002 RE ≤2 | R ± 0.003 0,2<RE≤1,5 | R ± 0.004 1,5<RE

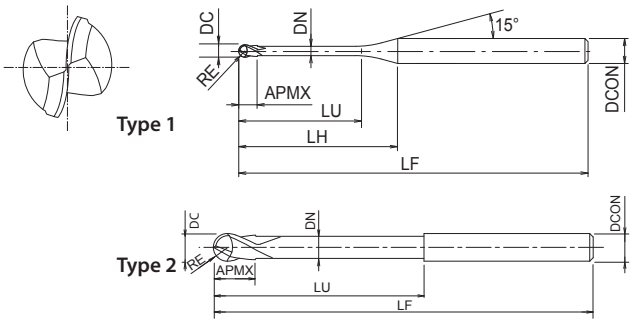
C.1009

EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=3°)	ZEFP	Type
3056370	0,1	0,05	0,3	0,08	4	0,09	45	7,6	14,52	0,3	0,31	0,32	0,33	0,36	2	1
3056371	0,1	0,05	0,5	0,08	4	0,09	45	7,8	14,07	0,53	0,56	0,59	0,62	0,67	2	1
3056372	0,15	0,08	0,3	0,12	4	0,14	45	7,5	14,55	0,3	0,31	0,32	0,33	0,35	2	1
3056373	0,15	0,08	0,5	0,12	4	0,14	45	7,7	14,12	0,52	0,55	0,58	0,6	0,65	2	1
3056374	0,15	0,08	1	0,12	4	0,14	45	8,2	13,29	1,05	1,1	1,14	1,18	1,27	2	1
3056375	0,2	0,1	0,3	0,16	4	0,19	45	7,4	14,59	0,3	0,31	0,32	0,33	0,34	2	1
3056376	0,2	0,1	0,5	0,16	4	0,19	45	7,6	14,12	0,53	0,56	0,58	0,61	0,66	2	1
3056377	0,2	0,1	1	0,16	4	0,19	45	8,1	13,28	1,06	1,11	1,15	1,19	1,28	2	1
3056378	0,2	0,1	1,5	0,16	4	0,19	45	8,6	12,53	1,58	1,65	1,7	1,76	1,9	2	1
3056379	0,3	0,15	0,6	0,24	4	0,29	45	7,5	14,02	0,63	0,65	0,68	0,7	0,75	2	1
3056380	0,3	0,15	1	0,24	4	0,29	45	7,9	13,33	1,05	1,09	1,13	1,17	1,25	2	1
3056381	0,3	0,15	1,5	0,24	4	0,29	45	8,4	12,56	1,57	1,63	1,68	1,74	1,87	2	1
3056382	0,3	0,15	2	0,24	4	0,29	45	8,9	11,87	2,09	2,16	2,24	2,32	2,49	2	1
3056383	0,4	0,2	1	0,3	4	0,38	45	7,7	13,38	1,04	1,08	1,11	1,15	1,23	2	1
3056384	0,4	0,2	2	0,3	4	0,38	45	8,7	11,87	2,08	2,15	2,22	2,3	2,47	2	1
3056385	0,4	0,2	3	0,3	4	0,38	45	9,7	10,66	3,12	3,22	3,33	3,45	3,71	2	1
3056386	0,4	0,2	4	0,3	4	0,38	45	10,7	9,68	4,15	4,29	4,44	4,6	4,95	2	1
3056387	0,5	0,25	1	0,4	4	0,48	45	7,6	13,43	1,03	1,07	1,1	1,13	1,2	2	1
3056388	0,5	0,25	2	0,4	4	0,48	45	8,6	11,87	2,07	2,14	2,21	2,28	2,45	2	1
3056389	0,5	0,25	3	0,4	4	0,48	45	9,6	10,63	3,11	3,21	3,32	3,43	3,69	2	1
3056390	0,5	0,25	4	0,4	4	0,48	45	10,6	9,63	4,14	4,28	4,42	4,58	4,93	2	1
3056391	0,5	0,25	5	0,4	4	0,48	45	11,6	8,79	5,18	5,35	5,53	5,73	6,18	2	1
3056392	0,6	0,3	1	0,5	4	0,55	45	7,3	13,5	1,02	1,05	1,07	1,1	1,17	2	1
3056393	0,6	0,3	2	0,5	4	0,55	45	8,3	11,89	2,06	2,12	2,18	2,25	2,41	2	1
3056394	0,6	0,3	3	0,5	4	0,55	45	9,3	10,62	3,09	3,19	3,29	3,4	3,66	2	1
3056395	0,6	0,3	4	0,5	4	0,55	45	10,3	9,59	4,12	4,26	4,4	4,55	4,9	2	1
3056396	0,6	0,3	5	0,5	4	0,55	45	11,3	8,74	5,16	5,33	5,51	5,7	6,14	2	1
3056397	0,6	0,3	6	0,5	4	0,55	45	12,3	8,02	6,19	6,4	6,62	6,85	7,39	2	1
3056398	0,8	0,4	2	0,6	4	0,75	45	8	11,87	2,05	2,11	2,17	2,24	2,39	2	1
3056399	0,8	0,4	3	0,6	4	0,75	45	9,1	10,53	3,09	3,18	3,28	3,39	3,63	2	1
3056400	0,8	0,4	4	0,6	4	0,75	45	10	9,46	4,12	4,25	4,39	4,54	4,88	2	1
3056401	0,8	0,4	6	0,6	4	0,75	45	12	7,86	6,19	6,39	6,61	6,84	7,36	2	1
3056402	0,8	0,4	8	0,6	4	0,75	45	14	6,72	8,25	8,53	8,82	9,14	9,85	2	1
3056403	1	0,5	2	0,8	4	0,95	45	7,6	11,85	2,05	2,1	2,16	2,22	2,37	2	1
3056404	1	0,5	3	0,8	4	0,95	45	8,6	10,44	3,08	3,17	3,27	3,37	3,61	2	1
3056405	1	0,5	4	0,8	4	0,95	45	9,6	9,32	4,12	4,24	4,38	4,52	4,85	2	1
3056406	1	0,5	5	0,8	4	0,95	45	10,6	8,42	5,15	5,31	5,49	5,67	6,1	2	1
3056407	1	0,5	6	0,8	4	0,95	45	11,6	7,68	6,18	6,38	6,59	6,82	7,34	2	1
3056408	1	0,5	8	0,8	4	0,95	45	13,6	6,52	8,25	8,52	8,81	9,12	9,83	2	1
3056409	1	0,5	10	0,8	4	0,95	45	15,6	5,67	10,32	10,66	11,03	11,42	12,31	2	1
3056410	1	0,5	12	0,8	4	0,95	45	17,6	5,01	12,39	12,8	13,24	13,72	14,8	2	1
3056411	1,5	0,75	4	1,2	4	1,45	45	8,8	8,8	4,18	4,33	4,46	4,6	4,92	2	1
3056412	1,5	0,75	6	1,2	4	1,45	45	10,8	7,09	6,27	6,47	6,68	6,9	7,4	2	1
3056413	1,5	0,75	12	1,2	4	1,45	55	16,8	4,46	12,48	12,89	13,33	13,8	14,86	2	1
3056414	1,5	0,75	18	1,2	4	1,45	55	22,8	3,25	18,68	19,31	19,98	20,7	22,32	2	1
3056415	2	1	4	1,6	4	1,95	50	8,2	7,88	4,22	4,44	4,65	4,86	5,26	2	1

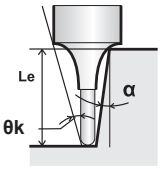
AE-LNBD-N

Milling | Solid carbide





- First choice in quality and performance
- Carbide end mill with DLC coating
- For copper electrodes
- 2 flutes, long neck, ball nose
- 72 sizes



N Cu | N W-Cu | N AC, ADC

CARBIDE | DLC-IGUSS | 30° | SHANK h4 | SHRINK FIT | R ± 0.002 RE ≤2 | R ± 0.003 0,2<RE≤1,5 | R ± 0.004 1,5<RE | C.1009

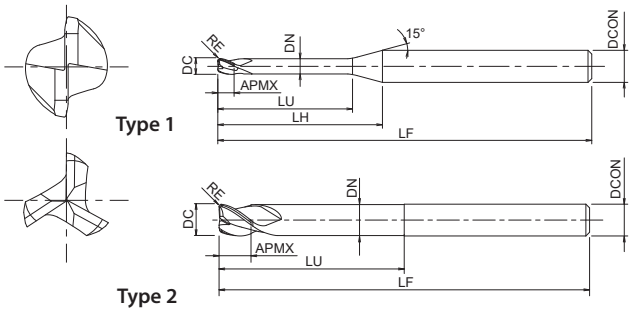
EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=3°)	ZEFP	Type
3056416	2	1	6	1,6	4	1,95	50	10,2	6,2	6,35	6,67	6,96	7,23	7,75	2	1
3056417	2	1	8	1,6	4	1,95	50	12,2	5,1	8,47	8,87	9,22	9,54	10,24	2	1
3056418	2	1	10	1,6	4	1,95	50	14,2	4,34	10,58	11,05	11,45	11,84	12,73	2	1
3056419	2	1	12	1,6	4	1,95	50	16,2	3,77	12,68	13,21	13,67	14,14	15,21	2	1
3056420	2	1	14	1,6	4	1,95	50	18,2	3,33	14,78	15,36	15,88	16,44	17,7	2	1
3056421	2	1	16	1,6	4	1,95	50	20,2	2,99	16,87	17,5	18,1	18,74	-	2	1
3056422	2	1	20	1,6	4	1,95	60	24,2	2,47	21,04	21,78	22,53	23,34	-	2	1
3056423	2	1	25	1,6	4	1,95	60	29,2	2,04	26,24	27,13	28,07	29,09	-	2	1
3056424	3	1,5	10	2,4	6	2,85	55	15,8	5,95	10,44	10,83	11,18	11,55	12,37	2	1
3056425	3	1,5	12	2,4	6	2,85	55	17,8	5,23	12,53	12,98	13,4	13,85	14,85	2	1
3056426	3	1,5	14	2,4	6	2,85	55	19,8	4,67	14,62	15,12	15,62	16,15	17,34	2	1
3056427	3	1,5	16	2,4	6	2,85	55	21,8	4,21	16,7	17,26	17,83	18,45	19,83	2	1
3056428	3	1,5	20	2,4	6	2,85	55	25,8	3,53	20,85	21,54	22,27	23,05	24,8	2	1
3056429	3	1,5	25	2,4	6	2,85	65	30,8	2,93	26,03	26,89	27,81	28,8	-	2	1
3056430	3	1,5	30	2,4	6	2,85	65	35,8	2,5	31,2	32,24	33,35	34,54	-	2	1
3056431	4	2	10	3,2	6	3,85	60	14	4,75	10,42	10,79	11,13	11,47	12,25	2	1
3056432	4	2	15	3,2	6	3,85	60	19	3,37	15,64	16,16	16,67	17,22	18,47	2	1
3056433	4	2	20	3,2	6	3,85	65	24	2,61	20,84	21,51	22,21	22,97	-	2	1
3056434	4	2	25	3,2	6	3,85	65	29	2,13	26,02	26,85	27,75	28,72	-	2	1
3056435	4	2	30	3,2	6	3,85	80	34	1,79	31,18	32,2	33,3	-	-	2	1
3056436	4	2	40	3,2	6	3,85	80	44	1,37	41,52	42,9	-	-	-	2	1
3056437	6	3	10	4,8	6	5,85	70	-	-	-	-	-	-	-	2	2
3056438	6	3	15	4,8	6	5,85	70	-	-	-	-	-	-	-	2	2
3056439	6	3	20	4,8	6	5,85	70	-	-	-	-	-	-	-	2	2
3056440	6	3	30	4,8	6	5,85	90	-	-	-	-	-	-	-	2	2
3056441	6	3	50	4,8	6	5,85	90	-	-	-	-	-	-	-	2	2

AE-CPR-N

Milling | Solid carbide

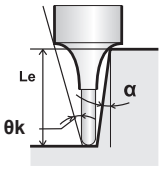
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- 2-3 flutes, long neck, corner radius
- 144 sizes

N Cu | N W-Cu | N AC, ADC



A | CARBIDE | DLC-IGUSS | 38° | SHANK h4 | SHRINK FIT | D≤1 0~-0.006 | 1<D 0~-0.01 | C.1010

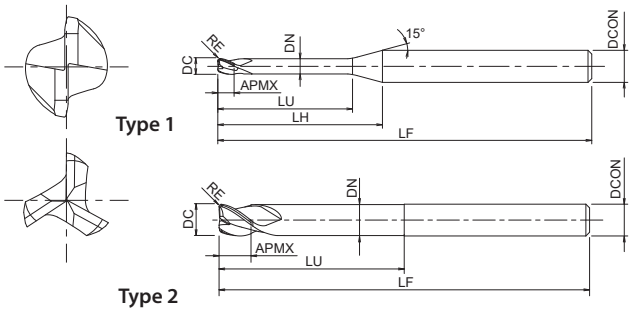
EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=3°)	ZEFP	Type
8557646	0,2	0,05	0,4	0,2	4	0,18	45	7,5	14,28	0,41	0,43	0,45	0,47	0,51	2	1
8557647	0,2	0,05	0,6	0,2	4	0,18	45	7,7	13,92	0,62	0,65	0,68	0,7	0,75	2	1
8557648	0,2	0,05	1	0,2	4	0,18	45	8,1	13,26	1,04	1,08	1,12	1,16	1,25	2	1
8557649	0,2	0,05	1,5	0,2	4	0,18	45	8,6	12,51	1,56	1,62	1,68	1,74	1,87	2	1
8557650	0,3	0,05	0,6	0,3	4	0,28	45	7,5	13,9	0,62	0,65	0,68	0,7	0,75	2	1
8557651	0,3	0,05	1	0,3	4	0,28	45	7,9	13,22	1,04	1,08	1,12	1,16	1,25	2	1
8557652	0,3	0,05	1,5	0,3	4	0,28	45	8,4	12,45	1,56	1,62	1,68	1,74	1,87	2	1
8557653	0,3	0,05	2	0,3	4	0,28	45	8,9	11,77	2,08	2,15	2,23	2,31	2,5	2	1
8557654	0,4	0,02	0,8	0,4	4	0,37	45	7,5	13,47	0,83	0,86	0,9	0,93	1	2	1
8557655	0,4	0,02	2	0,4	4	0,37	45	8,7	11,68	2,08	2,15	2,23	2,31	2,5	2	1
8557656	0,4	0,05	0,8	0,4	4	0,37	45	7,5	13,52	0,83	0,86	0,89	0,92	1	2	1
8557657	0,4	0,05	1,2	0,4	4	0,37	45	7,9	12,86	1,25	1,29	1,34	1,38	1,49	2	1
8557658	0,4	0,05	2	0,4	4	0,37	45	8,7	11,71	2,08	2,15	2,22	2,3	2,49	2	1
8557659	0,4	0,05	3	0,4	4	0,37	45	9,7	10,53	3,11	3,22	3,33	3,45	3,75	2	1
8557660	0,4	0,05	4	0,4	4	0,37	45	10,7	9,75	4,14	4,29	4,44	4,6	4,97	2	1
8557661	0,4	0,1	0,8	0,4	4	0,37	45	7,5	13,6	0,83	0,86	0,89	0,92	0,98	2	1
8557662	0,4	0,1	1,2	0,4	4	0,37	45	7,9	12,93	1,24	1,29	1,33	1,38	1,48	2	1
8557663	0,4	0,1	2	0,4	4	0,37	45	8,7	11,77	2,07	2,14	2,22	2,3	2,48	2	1
8557664	0,4	0,1	3	0,4	4	0,37	45	9,7	10,58	3,11	3,21	3,33	3,45	3,72	2	1
8557665	0,4	0,1	4	0,4	4	0,37	45	10,7	9,61	4,14	4,28	4,43	4,6	4,96	2	1
8557666	0,5	0,05	1	0,5	4	0,45	45	7,5	13,16	1,03	1,06	1,1	1,14	1,23	2	1
8557667	0,5	0,05	2	0,5	4	0,45	45	8,5	11,65	2,06	2,13	2,21	2,29	2,47	2	1
8557668	0,5	0,05	3	0,5	4	0,45	45	9,5	10,45	3,1	3,2	3,32	3,44	3,72	2	1
8557669	0,5	0,05	4	0,5	4	0,45	45	10,5	9,48	4,13	4,27	4,43	4,59	4,96	2	1
8557670	0,5	0,05	5	0,5	4	0,45	45	11,5	8,67	5,16	5,34	5,53	5,74	6,2	2	1
8557671	0,5	0,1	1	0,5	4	0,45	45	7,5	13,23	1,03	1,06	1,1	1,13	1,22	2	1
8557672	0,5	0,1	2	0,5	4	0,45	45	8,5	11,71	2,06	2,13	2,2	2,28	2,46	2	1
8557673	0,5	0,1	3	0,5	4	0,45	45	9,5	10,5	3,1	3,2	3,31	3,43	3,7	2	1
8557674	0,5	0,1	4	0,5	4	0,45	45	10,5	9,52	4,13	4,27	4,42	4,58	4,95	2	1
8557675	0,5	0,1	5	0,5	4	0,55	45	11,5	8,7	5,16	5,34	5,53	5,73	6,19	2	1
8557676	0,6	0,05	1,2	0,6	4	0,55	45	7,5	7,5	1,24	1,28	1,32	1,37	1,48	2	1
8557677	0,6	0,05	2	0,6	4	0,55	45	8,3	8,3	2,06	2,13	2,21	2,29	2,47	2	1
8557678	0,6	0,05	4	0,6	4	0,55	45	10,3	10,3	4,13	4,27	4,43	4,59	4,96	2	1
8557679	0,6	0,05	6	0,6	4	0,55	45	12,3	12,3	6,2	6,41	6,64	6,89	7,45	2	1
8557680	0,6	0,1	1,2	0,6	4	0,55	45	7,5	7,5	1,23	1,27	1,32	1,36	1,47	2	1
8557681	0,6	0,1	2	0,6	4	0,55	45	8,3	8,3	2,06	2,13	2,2	2,28	2,46	2	1
8557682	0,6	0,1	3	0,6	4	0,55	45	9,3	9,3	3,1	3,2	3,31	3,43	3,7	2	1
8557683	0,6	0,1	4	0,6	4	0,55	45	10,3	10,3	4,13	4,27	4,42	4,58	4,95	2	1
8557684	0,6	0,1	6	0,6	4	0,55	45	12,3	12,3	6,2	6,41	6,64	6,88	7,43	2	1
8557685	0,6	0,2	1,2	0,6	4	0,55	45	7,5	7,5	1,23	1,27	1,31	1,35	1,44	2	1
8557686	0,6	0,2	4	0,6	4	0,55	45	10,3	10,3	4,13	4,26	4,41	4,57	4,92	2	1
8557687	0,8	0,05	1,6	0,8	4	0,75	45	7,6	7,6	1,65	1,71	1,77	1,83	1,98	2	1
8557688	0,8	0,05	4	0,8	4	0,75	45	10	10	4,13	4,27	4,43	4,59	4,96	2	1
8557689	0,8	0,05	6	0,8	4	0,75	45	12	12	6,2	6,41	6,64	6,89	7,45	2	1
8557690	0,8	0,05	8	0,8	4	0,75	45	14	14	8,27	8,55	8,86	9,19	9,93	2	1
8557691	0,8	0,1	1,6	0,8	4	0,75	45	7,6	7,6	1,65	1,7	1,76	1,82	1,96	2	1

AE-CPR-N

Milling | Solid carbide

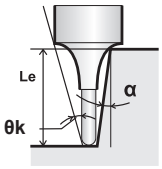
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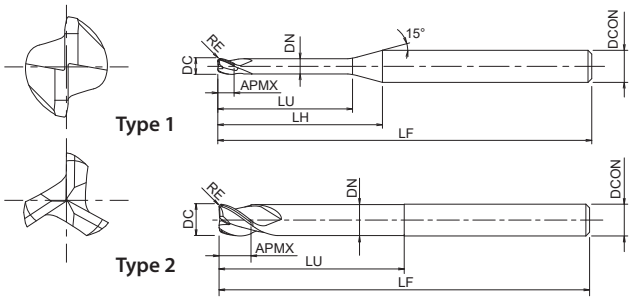
EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=3°)	ZEFP	Type
8557692	0,8	0,1	4	0,8	4	0,75	45	10	10	4,13	4,27	4,42	4,58	4,95	2	1
8557693	0,8	0,1	6	0,8	4	0,75	45	12	12	6,2	6,41	6,64	6,88	7,43	2	1
8557694	0,8	0,1	8	0,8	4	0,75	45	14	14	8,26	8,55	8,85	9,18	9,92	2	1
8557695	1	0,02	2	1	4	0,95	45	7,6	7,6	2,06	2,14	2,21	2,29	2,48	3	1
8557696	1	0,02	3	1	4	0,95	45	8,6	8,6	3,1	3,21	3,32	3,44	3,72	3	1
8557697	1	0,1	2	1	4	0,95	45	7,6	7,6	2,06	2,13	2,2	2,28	2,46	3	1
8557698	1	0,1	3	1	4	0,95	45	8,6	8,6	3,1	3,2	3,31	3,43	3,7	3	1
8557699	1	0,1	4	1	4	0,95	45	9,6	9,6	4,13	4,27	4,42	4,58	4,95	3	1
8557700	1	0,1	5	1	4	0,95	45	10,6	10,6	5,16	5,34	5,53	5,73	6,19	3	1
8557701	1	0,1	6	1	4	0,95	45	11,6	11,6	6,2	6,41	6,64	6,88	7,43	3	1
8557702	1	0,1	8	1	4	0,95	45	13,6	13,6	8,26	8,55	8,85	9,18	9,92	3	1
8557703	1	0,1	10	1	4	0,95	45	15,6	15,6	10,33	10,69	11,07	11,48	12,41	3	1
8557704	1	0,2	2	1	4	0,95	45	7,6	7,6	2,06	2,12	2,19	2,27	2,44	3	1
8557705	1	0,2	3	1	4	0,95	45	8,6	8,6	3,09	3,19	3,3	3,42	3,68	3	1
8557706	1	0,2	4	1	4	0,95	45	9,6	9,6	4,13	4,26	4,41	4,57	4,92	3	1
8557707	1	0,2	5	1	4	0,95	45	10,6	10,6	5,16	5,33	5,52	5,72	6,17	3	1
8557708	1	0,2	6	1	4	0,95	45	11,6	11,6	6,19	6,14	6,63	6,87	7,41	3	1
8557709	1	0,2	8	1	4	0,95	45	13,6	13,6	8,26	8,54	8,84	9,17	9,9	3	1
8557710	1	0,2	10	1	4	0,95	45	15,6	15,6	10,33	10,68	11,06	11,47	12,38	3	1
8557711	1	0,3	2	1	4	0,95	45	7,6	7,6	2,06	2,12	2,18	2,25	2,41	3	1
8557712	1	0,3	3	1	4	0,95	45	8,6	8,6	3,09	3,19	3,29	3,4	3,66	3	1
8557713	1,5	0,3	3	1,5	4	1,45	45	7,8	9,48	3,15	3,28	3,4	3,52	3,78	3	1
8557714	1,5	0,5	3	1,5	4	1,45	45	7,8	9,71	3,14	3,27	3,38	3,49	3,73	3	1
8557715	1,5	0,5	10	1,5	4	1,45	45	14,8	5	10,42	10,77	11,14	11,54	12,43	3	1
8557716	1,5	0,5	12	1,5	4	1,45	60	16,8	4,39	12,49	13,91	13,35	13,84	14,92	3	1
8557717	1,5	0,5	20	1,5	4	1,45	60	24,8	2,95	20,76	21,46	22,22	23,04	-	3	1
8557718	2	0,1	4	2	4	1,95	50	8,2	7,07	4,28	4,55	4,79	5,03	5,48	3	1
8557719	2	0,1	6	2	4	1,95	50	10,2	5,68	6,41	6,76	7,08	7,37	7,97	3	1
8557720	2	0,1	8	2	4	1,95	50	12,2	4,74	8,52	8,95	9,32	9,67	10,45	3	1
8557721	2	0,1	10	2	4	1,95	50	14,2	4,07	10,63	11,12	11,54	11,97	12,94	3	1
8557722	2	0,1	15	2	4	1,95	50	19,2	3,01	15,87	16,49	17,09	17,72	19,15	3	1
8557723	2	0,1	16	2	4	1,95	60	20,2	2,86	16,91	17,56	18,19	18,87	-	3	1
8557724	2	0,1	20	2	4	1,95	60	24,2	2,38	21,08	21,84	22,63	23,47	-	3	1
8557725	2	0,2	4	2	4	1,95	50	8,8	7,15	4,28	4,53	4,78	5,01	5,46	3	1
8557726	2	0,2	10	2	4	1,95	50	14,2	4,1	10,62	11,11	11,53	11,96	12,91	3	1
8557727	2	0,2	16	2	4	1,95	60	20,2	2,87	16,91	17,56	18,18	18,86	-	3	1
8557728	2	0,2	20	2	4	1,95	60	24,2	2,39	21,08	21,84	22,62	23,46	-	3	1
8557729	2	0,3	4	2	4	1,95	50	8,2	7,24	4,27	4,52	4,76	4,99	5,43	3	1
8557730	2	0,3	6	2	4	1,95	50	10,2	5,79	6,39	6,74	7,05	7,34	7,92	3	1
8557731	2	0,3	8	2	4	1,95	50	12,2	4,82	8,51	8,93	9,3	9,64	10,4	3	1
8557732	2	0,3	10	2	4	1,95	50	14,2	4,13	10,62	11,1	11,52	11,94	12,89	3	1
8557733	2	0,3	15	2	4	1,95	50	19,2	3,04	15,86	16,48	17,06	17,69	19,11	3	1
8557734	2	0,3	16	2	4	1,95	60	20,2	2,89	16,9	17,55	18,17	18,84	-	3	1
8557735	2	0,3	20	2	4	1,95	60	24,2	2,4	21,07	21,83	22,61	23,44	-	3	1
8557736	2,5	0,5	5	2,5	4	2,4	55	8,1	5,61	5,28	5,54	5,79	6,03	6,49	3	1
8557737	2,5	0,5	20	2,5	4	2,4	55	23,1	1,9	20,97	21,7	22,46	-	-	3	1



AE-CPR-N

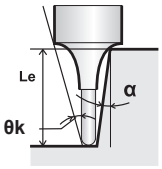
Milling | Solid carbide





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N Cu | N W-Cu | N AC, ADC



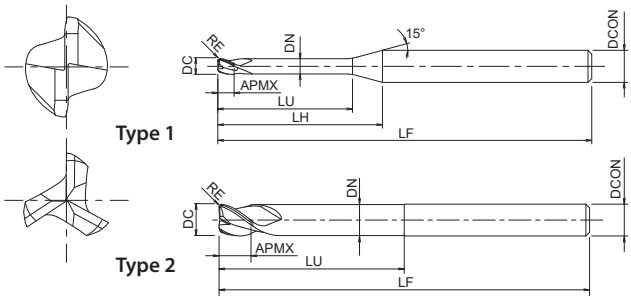
A | CARBIDE | DLC-IGUSS | 38° | SHANK h4 | SHRINK FIT | D≤1 0~-0.006 | 1<D 0~-0.01 | C.1010

EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=3°)	ZEFP	Type
8557738	3	0,2	6	3	6	2,85	55	11,8	7,34	6,31	6,6	6,88	7,14	7,7	3	1
8557739	3	0,2	12	3	6	2,85	55	17,8	4,86	12,59	13,07	13,54	14,04	15,16	3	1
8557740	3	0,2	18	3	6	2,85	55	23,8	3,64	18,83	19,49	20,19	20,94	22,92	3	1
8557741	3	0,2	21	3	6	2,85	70	26,8	3,23	21,94	22,7	23,51	24,39	26,35	3	1
8557742	3	0,2	24	3	6	2,85	70	29,8	2,9	25,04	25,91	26,84	27,84	-	3	1
8557743	3	0,3	6	3	6	2,85	55	11,8	7,4	6,31	6,6	6,87	7,12	7,68	3	1
8557744	3	0,3	8	3	6	2,85	55	13,8	6,32	8,4	8,77	9,09	9,42	10,17	3	1
8557745	3	0,3	12	3	6	2,85	55	17,8	4,89	12,58	13,07	13,53	14,02	15,14	3	1
8557746	3	0,3	20	3	6	2,85	55	25,8	3,37	20,9	21,62	22,39	23,22	25,08	3	1
8557747	3	0,5	6	3	6	2,85	55	11,8	7,52	6,3	6,58	6,84	7,1	7,63	3	1
8557748	3	0,5	12	3	6	2,85	55	17,8	4,94	12,57	13,05	13,51	13,99	15,09	3	1
8557749	3	0,5	15	3	6	2,85	55	20,8	4,22	15,7	16,26	16,83	17,44	18,82	3	1
8557750	3	0,5	18	3	6	2,85	55	23,8	3,68	18,82	19,47	20,16	20,89	22,55	3	1
8557751	3	0,5	21	3	6	2,85	70	26,8	3,26	21,93	22,68	23,48	24,34	26,28	3	1
8557752	3	0,5	25	3	6	2,85	70	30,8	2,83	26,07	26,96	27,91	28,94	-	3	1
8557753	3	0,5	30	3	6	2,85	70	35,8	2,43	31,24	32,31	33,46	34,69	-	3	1
8557754	4	0,2	8	4	6	3,85	60	12	4,86	8,41	8,77	9,11	9,44	10,19	3	1
8557755	4	0,2	16	4	6	3,85	60	20	2,9	16,75	17,35	17,97	18,64	-	3	1
8557756	4	0,2	20	4	6	3,85	60	24	2,41	20,9	21,63	22,4	23,24	-	3	1
8557757	4	0,2	24	4	6	3,85	60	28	2,07	25,04	25,91	26,84	27,84	-	3	1
8557758	4	0,2	28	4	6	3,85	75	32	1,81	29,18	30,19	31,27	-	-	3	1
8557759	4	0,2	32	4	6	3,85	75	36	1,61	33,31	34,47	35,7	-	-	3	1
8557760	4	0,3	8	4	6	3,85	60	12	4,9	8,4	8,77	9,09	9,42	10,17	3	1
8557761	4	0,3	20	4	6	3,85	60	24	2,42	20,9	21,62	22,39	23,22	-	3	1
8557762	4	0,5	8	4	6	3,85	60	12	4,98	8,39	8,75	9,07	9,4	10,12	3	1
8557763	4	0,5	12	4	6	3,85	60	16	3,7	12,57	13,05	13,51	13,99	15,09	3	1
8557764	4	0,5	16	4	6	3,85	60	20	2,94	16,74	17,33	17,94	18,59	-	3	1
8557765	4	0,5	20	4	6	3,85	60	24	2,44	20,89	21,61	22,37	23,19	-	3	1
8557766	4	0,5	24	4	6	3,85	60	28	2,09	25,03	25,89	26,81	27,79	-	3	1
8557767	4	0,5	25	4	6	3,85	60	29	2,02	26,07	26,96	27,91	28,94	-	3	1
8557768	4	0,5	28	4	6	3,85	75	32	1,82	29,17	30,17	31,24	-	-	3	1
8557769	4	0,5	32	4	6	3,85	75	36	1,62	33,3	34,45	35,67	-	-	3	1
8557770	4	1	8	4	6	3,85	60	12	5,19	8,37	8,71	9,02	9,32	10	3	1
8557771	4	1	16	4	6	3,85	60	20	3,02	16,72	17,3	17,89	18,52	19,95	3	1
8557772	4	1	24	4	6	3,85	60	28	2,13	25,02	25,85	26,75	27,72	-	3	1
8557773	4	1	28	4	6	3,85	75	32	1,85	29,15	30,13	31,19	-	-	3	1
8557774	4	1	32	4	6	3,85	75	36	1,64	33,29	34,41	35,62	-	-	3	1
8557775	6	0,1	12	6	6	5,85	60	-	-	-	-	-	-	-	3	2
8557776	6	0,1	24	6	6	5,85	60	-	-	-	-	-	-	-	3	2
8557777	6	0,2	12	6	6	5,85	60	-	-	-	-	-	-	-	3	2
8557778	6	0,2	24	6	6	5,85	60	-	-	-	-	-	-	-	3	2
8557779	6	0,2	32	6	6	5,85	80	-	-	-	-	-	-	-	3	2
8557780	6	0,2	48	6	6	5,85	80	-	-	-	-	-	-	-	3	2
8557781	6	0,5	12	6	6	5,85	60	-	-	-	-	-	-	-	3	2
8557782	6	0,5	24	6	6	5,85	60	-	-	-	-	-	-	-	3	2
8557783	6	0,5	30	6	6	5,85	60	-	-	-	-	-	-	-	3	2

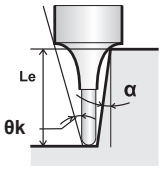
AE-CPR-N

Milling | Solid carbide





- First choice in quality and performance
- Carbide end mill with DLC IGUSS coating
- For copper electrodes
- 2-3 flutes, long neck, corner radius
- 144 sizes



N Cu | N W-Cu | N AC, ADC

A | CARBIDE | DLC-IGUSS | 38° | SHANK h4 | SHRINK FIT | D≤1 0~-0.006 | 1<D 0~-0.01

C.1010

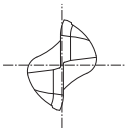
EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP	Type
8557784	6	0,5	32	6	6	5,85	80	3	2
8557785	6	0,5	48	6	6	5,85	80	3	2
8557786	6	1	12	6	6	5,85	60	3	2
8557787	6	1	24	6	6	5,85	60	3	2
8557788	6	1	32	6	6	5,85	80	3	2
8557789	6	1	48	6	6	5,85	80	3	2

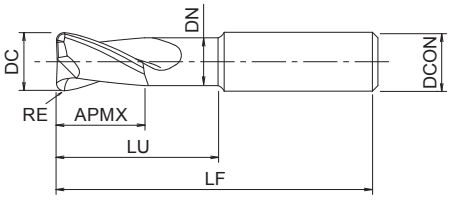
DLC-AIR-EDS

Milling | Solid carbide

INDEX







- Carbide end mill with DLC coating
- For high volume milling of aluminium alloys
- 2 flutes, short length of cut, corner radius







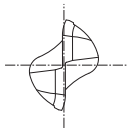
EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
8528822	12	1	40	14	12	11	90	2
8528823	12	1,6	40	14	12	11	90	2
8528826	12	3	40	14	12	11	90	2
8528862	16	1	45	18	16	14,4	100	2
8528863	16	1,6	45	18	16	14,4	100	2
8528866	16	3	45	18	16	14,4	100	2
8528902	20	1	56	22	20	18	110	2
8528903	20	1,6	56	22	20	18	110	2
8528906	20	3	56	22	20	18	110	2
8528952	25	1	56	27	25	23	110	2
8528953	25	1,6	56	27	25	23	110	2
8528956	25	3	56	27	25	23	110	2

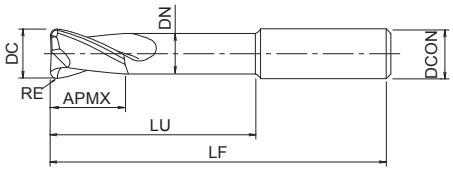
AERO-LN-EDS

Milling | Solid carbide

INDEX







- Carbide end mill with DLC coating
- For ultra high volume milling of aluminium alloys
- 2 flutes, long neck, corner radius

N

CARBIDE | DLC | 25° | 0~-0.02

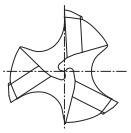
C.1012

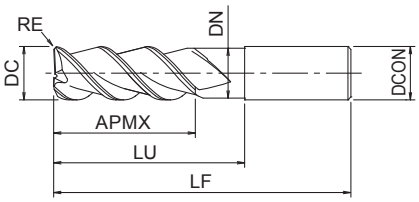
EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
48239166	16	3	80	18	16	14,4	130	2
48239167	16	4	80	18	16	14,4	130	2
48239206	20	3	80	22	20	18	130	2
48239207	20	4	80	22	20	18	130	2
48239256	25	3	80	27	25	23	130	2
48239257	25	4	80	27	25	23	130	2

AERO-ETS

Milling | Solid carbide







- Carbide end mill with DLC coating
- For ultra high volume milling of aluminium alloys
- 3 flutes, short length of cut, corner radius

N

CARBIDE | DLC | 30° | 0~-0.02

C.1012

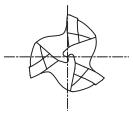
EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
8533249	12	-	55	18	12	11	100	3
8533250	12	1	55	18	12	11	100	3
48238126	12	3	35	18	12	11	80	3
48238999	12	3	45	18	12	11	90	3
8533252	12	3	55	18	12	11	100	3
8533253	16	-	55	24	16	14,4	100	3
8533254	16	1	55	24	16	14,4	100	3
8533256	16	3	55	24	16	14,4	100	3
8533257	16	4	55	24	16	14,4	100	3
8533258	16	5	55	24	16	14,4	100	3
8533259	20	-	55	30	20	18	100	3
8533260	20	1	55	30	20	18	100	3
8533262	20	3	55	30	20	18	100	3
8533263	20	4	55	30	20	18	100	3
8533264	20	5	55	30	20	18	100	3
8533265	25	-	55	37,5	25	23	100	3
8533266	25	1	55	37,5	25	23	100	3
8533268	25	3	55	37,5	25	23	100	3
8533269	25	4	55	37,5	25	23	100	3
8533270	25	5	55	37,5	25	23	100	3

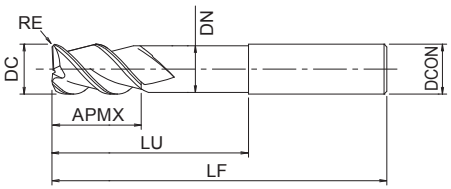
AERO-LN-ETS

Milling | Solid carbide

INDEX







- Carbide end mill with DLC coating
- For ultra high volume milling of aluminium alloys
- 3 flutes, long neck, corner radius

N

CARBIDE | DLC | 30° | 0~-0.02

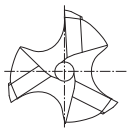
C.1012

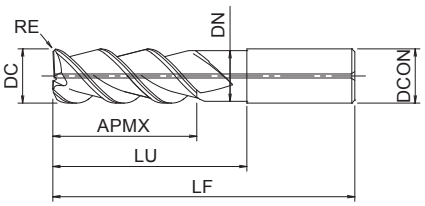
EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
48237166	16	3	80	24	16	14,4	130	3
48237167	16	4	80	24	16	14,4	130	3
48237206	20	3	80	30	20	18	130	3
48237207	20	4	80	30	20	18	130	3
48237256	25	3	80	37,5	25	23	130	3
48237257	25	4	80	37,5	25	23	130	3

AERO-O-ETS

Milling | Solid carbide







- Carbide end mill with oil hole, DLC coating
- For ultra high volume milling of aluminium alloys
- 3 flutes, short length of cut, corner radius

N

CARBIDE | DLC | 30° | 0~-0.02

C.1013

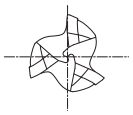
EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
8533301	20	1	55	30	20	18	100	3
8533303	20	3	55	30	20	18	100	3
8533304	20	4	55	30	20	18	100	3
8533305	20	5	55	30	20	18	100	3
8533307	25	1	55	37,5	25	23	100	3
8533309	25	3	55	37,5	25	23	100	3
8533310	25	4	55	37,5	25	23	100	3
8533311	25	5	55	37,5	25	23	100	3

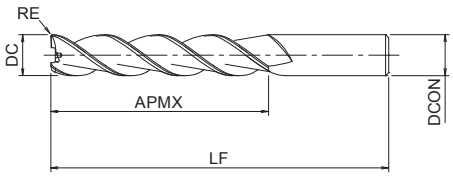
AERO-ETL

Milling | Solid carbide

INDEX







- Carbide end mill with DLC coating
- For ultra high volume milling of aluminium alloys
- 3 flutes, long length of cut, corner radius

N

CARBIDE | DLC | 35° | 0~-0.02

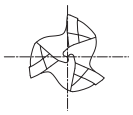
C.1013

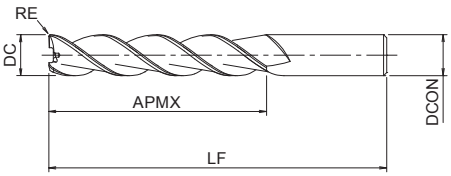
EDP	DC	RE	APMX	DCON	LF	ZEFP
8533350	12	-	50	12	110	3
8533351	12	1	50	12	110	3
8533353	12	3	50	12	110	3
8533354	12	4	50	12	110	3
8533355	16	-	50	16	110	3
8533356	16	1	50	16	110	3
8533358	16	3	50	16	110	3
8533359	16	4	50	16	110	3
8533360	16	5	50	16	110	3
8533361	20	-	50	20	110	3
8533362	20	1	50	20	110	3
8533364	20	3	50	20	110	3
8533365	20	4	50	20	110	3
8533366	20	5	50	20	110	3

AERO-EXTL

Milling | Solid carbide







- Carbide end mill with DLC coating
- For ultra high volume milling of aluminium alloys
- 3 flutes, extra long length of cut, corner radius

N

CARBIDE | DLC | 35° | 0~-0.02

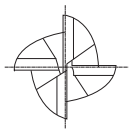
C.1013

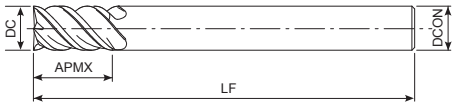
EDP	DC	RE	APMX	DCON	LF	ZEFP
8533401	20	1	100	20	160	3
8533403	20	3	100	20	160	3
8533404	20	4	100	20	160	3
8533405	20	5	100	20	160	3

UP-PHS

Milling | Solid carbide







- Carbide end mill with FX coating
- For steels, stainless, Titanium alloys
- 4 flutes, anti-vibration

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S | H ~60 HRC

CARBIDE | FX | 38° | SHRINK FIT | 0~-0.02

C.1014

EDP	DC	APMX	DCON	LF	ZEFP
8529030	3	8	6	60	4
8529040	4	11	6	60	4
8529050	5	13	6	60	4
8529060	6	13	6	60	4
8529080	8	19	8	80	4
8529100	10	22	10	80	4
8529120	12	26	12	100	4



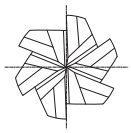
NEO-CR-EMS

Milling | Solid carbide

INDEX

WHILE STOCK LASTS







- Carbide end mill with TiAlN coating
- For exotic materials
- 6 flutes, variable helix and unequal spacing, corner radius

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | S | H ~60 HRC

CARBIDE | FX | 36°~39° | SHRINK FIT | D>16 0~-0.03 | D≤16 0~-0.02

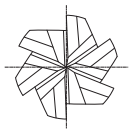
C.1015

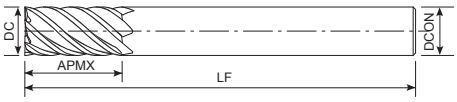
EDP	DC	RE	APMX	DCON	LF	ZEFP
8519662	6	0,3	12	6	50	6
8519663	6	0,5	12	6	50	6
8519665	6	1	12	6	50	6
8519682	8	0,3	16	8	60	6
8519683	8	0,5	16	8	60	6
8519685	8	1	16	8	60	6
8519687	8	1,5	16	8	60	6
8519689	8	2	16	8	60	6
8519702	10	0,3	20	10	70	6
8519703	10	0,5	20	10	70	6
8519705	10	1	20	10	70	6
8519707	10	1,5	20	10	70	6
8519709	10	2	20	10	70	6
8519713	10	3	20	10	70	6
8519733	12	0,5	24	12	75	6
8519735	12	1	24	12	75	6
8519737	12	1,5	24	12	75	6
8519739	12	2	24	12	75	6
8519743	12	3	24	12	75	6
8519762	16	1	32	16	100	6
8519763	16	1,5	32	16	100	6
8519764	16	2	32	16	100	6
8519765	16	3	32	16	100	6
8519782	20	1	40	20	105	6
8519784	20	2	40	20	105	6
8519785	20	3	40	20	105	6
8519786	20	4	40	20	105	6
8519787	20	5	40	20	105	6

NEO-EMS

Milling | Solid carbide







- Carbide end mill with TiAlN coating
- For exotic materials
- 6 flutes, variable helix and unequal spacing

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | S

CARBIDE | FX | 36°~39° | SHRINK FIT | D>16 0~-0.03 | D≤16 0~-0.02

C.1015

EDP	DC	APMX	DCON	LF	ZEFP
8519360	6	12	6	50	6
8519380	8	16	8	60	6
8519400	10	20	10	70	6
8519420	12	24	12	75	6
8519460	16	32	16	100	6
8519500	20	40	20	105	6

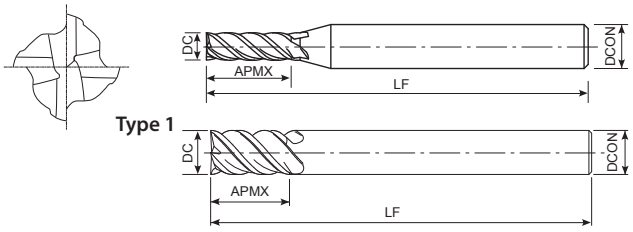


NEO-PHS

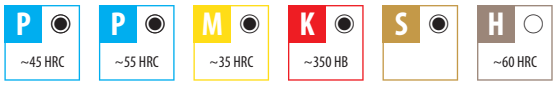
Milling | Solid carbide

WHILE STOCK LASTS





- Carbide end mill with TiAlN coating
- For exotic materials
- 4 flutes, variable helix and unequal spacing







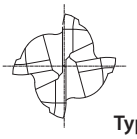
EDP	DC	APMX	DCON	LF	ZEFP	Type
8529230	3	6	6	50	4	1
8529240	4	8	6	50	4	1
8529250	5	10	6	50	4	1
8529260	6	12	6	50	4	2
8529280	8	16	8	60	4	2
8529300	10	20	10	70	4	2
8529320	12	24	12	75	4	2
8529360	16	32	16	100	4	2
8529400	20	40	20	105	4	2

NEO-CR-PHS

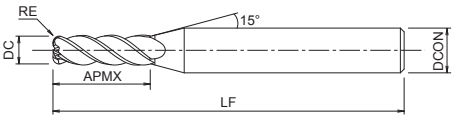
Milling | Solid carbide

WHILE STOCK LASTS

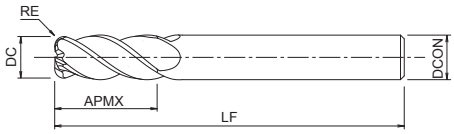




Type 1



Type 2



- Carbide end mill with TiAlN coating
- For exotic materials
- 4 flutes, variable helix and unequal spacing, corner radius







EDP	DC	RE	APMX	DCON	LF	ZEFP	Type
8529531	3	0,2	6	6	50	4	1
8529533	3	0,5	6	6	50	4	1
8529541	4	0,2	8	6	50	4	1
8529543	4	0,5	8	6	50	4	1
8529545	4	1	8	6	50	4	1
8529551	5	0,2	10	6	50	4	1
8529553	5	0,5	10	6	50	4	1
8529555	5	1	10	6	50	4	1
8529562	6	0,3	12	6	50	4	2
8529563	6	0,5	12	6	50	4	2
8529565	6	1	12	6	50	4	2
8529582	8	0,3	16	8	60	4	2
8529583	8	0,5	16	8	60	4	2
8529585	8	1	16	8	60	4	2
8529587	8	1,5	16	8	60	4	2
8529589	8	2	16	8	60	4	2
8529602	10	0,3	20	10	70	4	2
8529603	10	0,5	20	10	70	4	2
8529605	10	1	20	10	70	4	2
8529607	10	1,5	20	10	70	4	2
8529609	10	2	20	10	70	4	2
8529613	10	3	20	10	70	4	2
8529633	12	0,5	24	12	75	4	2
8529635	12	1	24	12	75	4	2
8529637	12	1,5	24	12	75	4	2
8529639	12	2	24	12	75	4	2
8529643	12	3	24	12	75	4	2
8529662	16	1	32	16	100	4	2
8529663	16	1,5	32	16	100	4	2
8529664	16	2	32	16	100	4	2
8529665	16	3	32	16	100	4	2
8529682	20	1	40	20	105	4	2
8529684	20	2	40	20	105	4	2
8529685	20	3	40	20	105	4	2
8529686	20	4	40	20	105	4	2
8529687	20	5	40	20	105	4	2

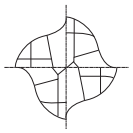


FX-CR-MG-EMS

INDEX

Milling | Solid carbide







- Carbide end mill with TiAlN coating
- For general applications and cast iron
- 4 flutes, short length of cut, corner radius







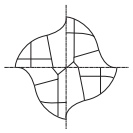
EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
W0280011A	4	0,5	12	4	6	3,8	45	4
W0280012A	6	0,5	18	6	6	5,8	50	4
W0280013A	6	1	18	6	6	5,8	50	4
W0280014A	8	0,5	24	8	8	7,8	60	4
W0280015A	8	1	24	8	8	7,8	60	4
W0280016A	10	0,5	30	10	10	9,7	70	4
W0280017A	10	1	30	10	10	9,7	70	4
W0280018A	12	1	36	12	12	11,7	75	4

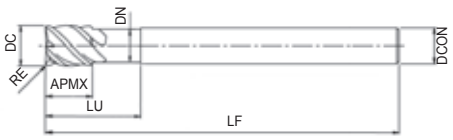


FXS-PKE

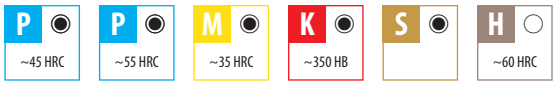
Milling | Solid carbide







- Carbide end mill with TiAlN coating
- For general applications
- 4 flutes, corner radius, for pocketing







EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
8547803	3	0,2	9	5	6	2,85	60	4
8547853	3	0,2	15	5	6	2,85	70	4
8548003	3	0,5	9	5	6	2,85	60	4
8548053	3	0,5	15	5	6	2,85	70	4
8547804	4	0,2	12	6	6	3,8	70	4
8547854	4	0,2	20	6	6	3,8	80	4
8548004	4	0,5	12	6	6	3,8	70	4
8548054	4	0,5	20	6	6	3,8	80	4
8547805	5	0,2	15	8	6	4,8	80	4
8547855	5	0,2	25	8	6	4,8	90	4
8548005	5	0,5	15	8	6	4,8	80	4
8548055	5	0,5	25	8	6	4,8	90	4
8548006	6	0,5	18	9	6	5,8	90	4
8548056	6	0,5	30	9	6	5,8	100	4
8548206	6	1	18	9	6	5,8	90	4
8548256	6	1	30	9	6	5,8	100	4
8548008	8	0,5	24	12	8	7,7	100	4
8548058	8	0,5	40	12	8	7,7	110	4
8548208	8	1	24	12	8	7,7	100	4
8548258	8	1	40	12	8	7,7	110	4
8548010	10	0,5	30	15	10	9,7	100	4
8548060	10	0,5	50	15	10	9,7	120	4
8548210	10	1	30	15	10	9,7	100	4
8548260	10	1	50	15	10	9,7	120	4
8548610	10	2	30	15	10	9,7	100	4
8548660	10	2	50	15	10	9,7	120	4
8548012	12	0,5	36	18	12	11,7	110	4
8548062	12	0,5	60	18	12	11,7	130	4
8548212	12	1	36	18	12	11,7	110	4
8548262	12	1	60	18	12	11,7	130	4
8548612	12	2	36	18	12	11,7	110	4
8548662	12	2	60	18	12	11,7	130	4

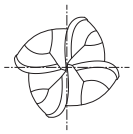


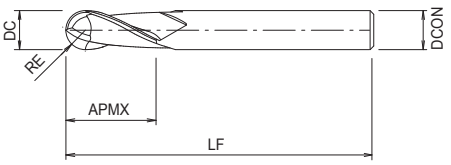
FXS-HS-EBM

INDEX

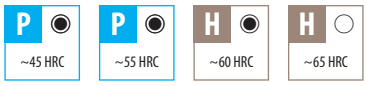
Milling | Solid carbide







- Carbide end mill with TiAlN coating
- For high speed milling in hardened steels
- 4 flutes, ball nose, shorter overall length







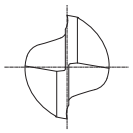
EDP	DC	RE	APMX	DCON	LF	ZEFP
8521706	6	3	12	6	50	4
8521708	8	4	14	8	50	4
8521710	10	5	18	10	70	4
8521712	12	6	22	12	80	4
8521716	16	8	30	16	100	4
8521720	20	10	38	20	110	4

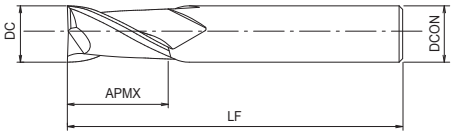


CA-RG-EDS

Milling | Solid carbide







- Carbide end mill, bright finish
- For aluminium and copper alloys
- 2 flutes, short length of cut

N

CARBIDE | 30° | SHRINK FIT | 0~-0.03

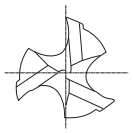
C.1019

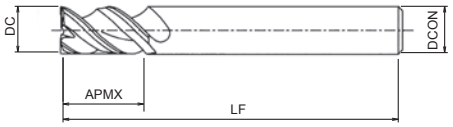
EDP	DC	APMX	DCON	LF	ZEFP
8502010	1	2,5	4	40	2
8502015	1,5	4	4	40	2
8502020	2	6	4	40	2
8502025	2,5	8	4	40	2
8502030	3	8	6	45	2
8502035	3,5	10	6	45	2
8502040	4	11	6	45	2
8502045	4,5	11	6	45	2
8502050	5	13	6	50	2
8502055	5,5	13	6	50	2
8502060	6	13	6	50	2
8502065	6,5	16	8	60	2
8502070	7	16	8	60	2
8502075	7,5	16	8	60	2
8502080	8	19	8	60	2
8502085	8,5	19	10	70	2
8502090	9	19	10	70	2
8502095	9,5	19	10	70	2
8502100	10	22	10	70	2
8502105	10,5	22	12	75	2
8502110	11	22	12	75	2
8502115	11,5	22	12	75	2
8502120	12	26	12	75	2
8502130	13	26	12	85	2
8502140	14	26	12	85	2
8502150	15	26	16	90	2
8502160	16	32	16	100	2
8502170	17	32	16	100	2
8502180	18	32	16	100	2
8502190	19	32	20	100	2
8502200	20	38	20	105	2

CA-ETS

Milling | Solid carbide







- Carbide end mill, bright finish
- For aluminium and copper alloys
- 3 flutes, short length of cut

N

CARBIDE | ±40° | SHRINK FIT | 0~-0.02 | C.1020

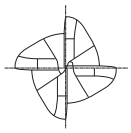
EDP	DC	APMX	DCON	LF	ZEFP
8502806	3	8	6	50	3
8502808	4	11	6	50	3
8502810	5	13	6	50	3
8502812	6	13	6	50	3
8502816	8	19	8	60	3
8502820	10	22	10	70	3
8502822	12	26	12	75	3
8502826	16	32	16	100	3
8502830	20	38	20	105	3

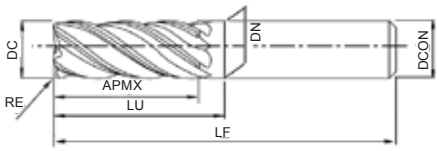
EPL-HP-4FL

INDEX

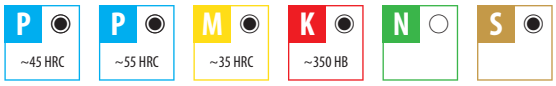
Milling | Solid carbide

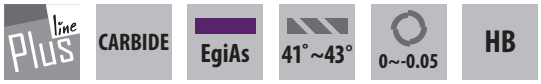






- Carbide end mill with EgiAs coating
- For general applications and exotic materials
- 4 flutes, variable helix and unequal spacing, corner radius
- Weldon shank





C.1021

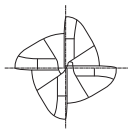
EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
EP01930399	3	-	11	8	6	-	57	4
EP01930300	3	0,25	11	8	6	-	57	4
EP01930301	3	0,5	11	8	6	-	57	4
EP01930499	4	-	13	11	6	-	57	4
EP01930400	4	0,25	13	11	6	-	57	4
EP01930401	4	0,5	13	11	6	-	57	4
EP01930402	4	1	13	11	6	-	57	4
EP01930599	5	-	15	13	6	-	57	4
EP01930500	5	0,25	15	13	6	-	57	4
EP01930501	5	0,5	15	13	6	-	57	4
EP01930502	5	1	15	13	6	-	57	4
EP01930699	6	-	20	13	6	5,8	57	4
EP01930600	6	0,25	20	13	6	5,8	57	4
EP01930601	6	0,5	20	13	6	5,8	57	4
EP01930602	6	1	20	13	6	5,8	57	4
EP01930603	6	1,5	20	13	6	5,8	57	4
EP01930899	8	-	25	19	8	7,8	63	4
EP01930800	8	0,25	25	19	8	7,8	63	4
EP01930801	8	0,5	25	19	8	7,8	63	4
EP01930802	8	1	25	19	8	7,8	63	4
EP01930803	8	1,5	25	19	8	7,8	63	4
EP01931099	10	-	30	22	10	9,8	72	4
EP01931000	10	0,25	30	22	10	9,8	72	4
EP01931001	10	0,5	30	22	10	9,8	72	4
EP01931002	10	1	30	22	10	9,8	72	4
EP01931003	10	1,5	30	22	10	9,8	72	4
EP01931004	10	2	30	22	10	9,8	72	4
EP01931006	10	3	30	22	10	9,8	72	4
EP01931299	12	-	38	26	12	11,8	83	4
EP01931200	12	0,25	38	26	12	11,8	83	4
EP01931201	12	0,5	38	26	12	11,8	83	4
EP01931202	12	1	38	26	12	11,8	83	4
EP01931204	12	2	38	26	12	11,8	83	4
EP01931206	12	3	38	26	12	11,8	83	4
EP01931207	12	4	38	26	12	11,8	83	4
EP01931499	14	-	38	26	14	13,8	83	4
EP01931400	14	0,25	38	26	14	13,8	83	4
EP01931402	14	1	38	26	14	13,8	83	4
EP01931699	16	-	44	32	16	15,8	92	4
EP01931600	16	0,25	44	32	16	15,8	92	4
EP01931601	16	0,5	44	32	16	15,8	92	4
EP01931602	16	1	44	32	16	15,8	92	4
EP01931604	16	2	44	32	16	15,8	92	4
EP01931606	16	3	44	32	16	15,8	92	4
EP01931607	16	4	44	32	16	15,8	92	4
EP01932099	20	-	54	38	20	19,8	104	4

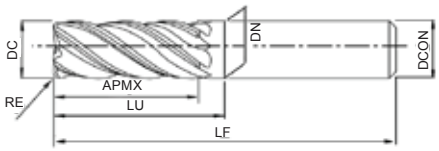
EPL-HP-4FL

INDEX

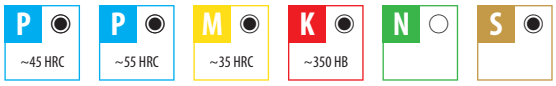
Milling | Solid carbide

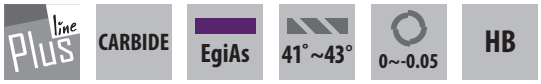






- Carbide end mill with EgiAs coating
- For general applications and exotic materials
- 4 flutes, variable helix and unequal spacing, corner radius
- Weldon shank



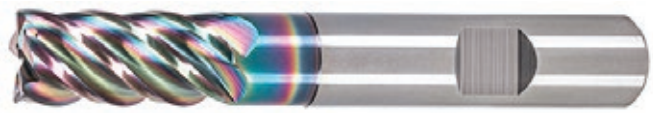


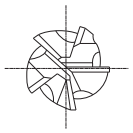
C.1021

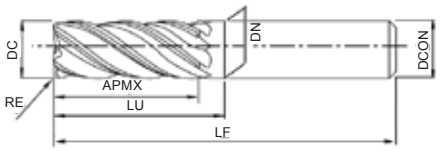
EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
EP01932000	20	0,25	54	38	20	19,8	104	4
EP01932001	20	0,5	54	38	20	19,8	104	4
EP01932002	20	1	54	38	20	19,8	104	4
EP01932004	20	2	54	38	20	19,8	104	4
EP01932006	20	3	54	38	20	19,8	104	4
EP01932007	20	4	54	38	20	19,8	104	4

EPL-HP-5FL

Milling | Solid carbide







- Carbide end mill with EgiAs coating
- For general applications and exotic materials
- 5 flutes, variable helix and unequal spacing, corner radius
- Weldon shank

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S

Plus line | CARBIDE | EgiAs | 41°~43° | 0~-0.05 | HB

C.1021

EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
EP01940699	6	-	20	13	6	5,8	57	5
EP01940600	6	0,25	20	13	6	5,8	57	5
EP01940601	6	0,5	20	13	6	5,8	57	5
EP01940602	6	1	20	13	6	5,8	57	5
EP01940899	8	-	25	19	8	7,8	63	5
EP01940800	8	0,25	25	19	8	7,8	63	5
EP01940801	8	0,5	25	19	8	7,8	63	5
EP01940802	8	1	25	19	8	7,8	63	5
EP01940803	8	1,5	25	19	8	7,8	63	5
EP01941099	10	-	30	22	10	9,8	72	5
EP01941000	10	0,25	30	22	10	9,8	72	5
EP01941001	10	0,5	30	22	10	9,8	72	5
EP01941002	10	1	30	22	10	9,8	72	5
EP01941003	10	1,5	30	22	10	9,8	72	5
EP01941004	10	2	30	22	10	9,8	72	5
EP01941006	10	3	30	22	10	9,8	72	5
EP01941299	12	-	38	26	12	11,8	83	5
EP01941200	12	0,25	38	26	12	11,8	83	5
EP01941201	12	0,5	38	26	12	11,8	83	5
EP01941202	12	1	38	26	12	11,8	83	5
EP01941204	12	2	38	26	12	11,8	83	5
EP01941206	12	3	38	26	12	11,8	83	5
EP01941207	12	4	38	26	12	11,8	83	5
EP01941699	16	-	44	32	16	15,8	92	5
EP01941600	16	0,25	44	32	16	15,8	92	5
EP01941601	16	0,5	44	32	16	15,8	92	5
EP01941602	16	1	44	32	16	15,8	92	5
EP01941604	16	2	44	32	16	15,8	92	5
EP01941606	16	3	44	32	16	15,8	92	5
EP01941607	16	4	44	32	16	15,8	92	5
EP01942099	20	-	54	38	20	19,8	104	5
EP01942000	20	0,25	54	38	20	19,8	104	5
EP01942001	20	0,5	54	38	20	19,8	104	5
EP01942002	20	1	54	38	20	19,8	104	5
EP01942004	20	2	54	38	20	19,8	104	5
EP01942006	20	3	54	38	20	19,8	104	5
EP01942007	20	4	54	38	20	19,8	104	5

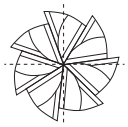
EPL-TI-7FL

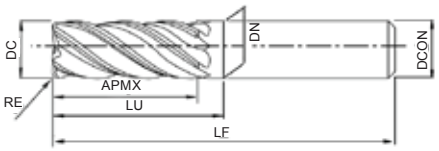
Milling | Solid carbide

INDEX

NEW







- Carbide end mills with AlCrN coating
- For Aerospace Alloys
- 7 flutes, centre cutting, square end and corner radius







EDP	DC	RE	LU	APMX	DCON	LF	ZEFP	DN
EP02141099	10	-	27	22	10	73	7	9,8
EP02141001	10	0,5	27	22	10	73	7	9,8
EP02141002	10	1	27	22	10	73	7	9,8
EP02141299	12	-	38	32	12	84	7	11,8
EP02141201	12	0,5	38	32	12	84	7	11,8
EP02141202	12	1	38	32	12	84	7	11,8
EP02141204	12	2	38	32	12	84	7	11,8
EP02141699	16	-	50	42	16	110	7	15,8
EP02141601	16	0,5	50	42	16	110	7	15,8
EP02141602	16	1	50	42	16	110	7	15,8
EP02141604	16	2	50	42	16	110	7	15,8
EP02141606	16	3	50	42	16	110	7	15,8
EP02141607	16	4	50	42	16	110	7	15,8
EP02142099	20	-	72	62	20	125	7	19,6
EP02142001	20	0,5	72	62	20	125	7	19,6
EP02142002	20	1	72	62	20	125	7	19,6
EP02142004	20	2	72	62	20	125	7	19,6
EP02142006	20	3	72	62	20	125	7	19,6
EP02142008	20	5	72	62	20	125	7	19,6

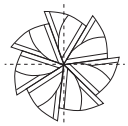
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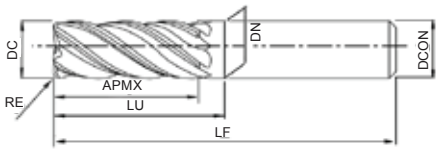
Milling | Solid carbide

INDEX

CHIPBREAKER NEW







- Carbide end mills with AlCrN coating
- For Aerospace Alloys
- 7 flutes, centre cutting, square end and corner radius
- With Chipbreaker







EDP	DC	RE	LU	APMX	DCON	LF	ZEFP	DN
EP02151099	10	-	27	22	10	73	7	9,8
EP02151001	10	0,5	27	22	10	73	7	9,8
EP02151002	10	1	27	22	10	73	7	9,8
EP02151299	12	-	38	32	12	84	7	11,8
EP02151201	12	0,5	38	32	12	84	7	11,8
EP02151202	12	1	38	32	12	84	7	11,8
EP02151204	12	2	38	32	12	84	7	11,8
EP02151601	16	-	50	42	16	110	7	15,8
EP02151602	16	0,5	50	42	16	110	7	15,8
EP02151604	16	1	50	42	16	110	7	15,8
EP02151606	16	2	50	42	16	110	7	15,8
EP02151607	16	3	50	42	16	110	7	15,8
EP02151699	16	4	50	42	16	110	7	15,8
EP02152099	20	-	72	62	20	125	7	19,6
EP02152001	20	0,5	72	62	20	125	7	19,6
EP02152002	20	1	72	62	20	125	7	19,6
EP02152004	20	2	72	62	20	125	7	19,6
EP02152006	20	3	72	62	20	125	7	19,6
EP02152008	20	5	72	62	20	125	7	19,6

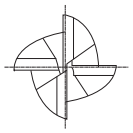


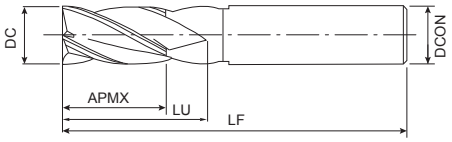
EPL-HI-EMS

INDEX

Milling | Solid carbide







- Carbide end mill with TiAlN coating
- For general applications
- 4 flutes, variable helix and unequal spacing

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S | H ~60 HRC

Plus line | CARBIDE | TiAlN | 35° | 38°

C.1022

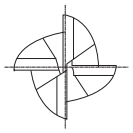
EDP	DC	LU	APMX	DCON	LF	ZEFP
EP00990400	4	-	11	6	57	4
EP00990500	5	-	13	6	57	4
EP00990600	6	20	13	6	57	4
EP00990800	8	25	19	8	63	4
EP00991000	10	30	22	10	72	4
EP01001000	10	60	40	10	100	4
EP00991200	12	38	26	12	83	4
EP01001200	12	65	45	12	150	4
EP00991600	16	45	32	16	92	4
EP01001600	16	100	65	16	150	4
EP00992000	20	60	38	20	104	4
EP01002000	20	100	65	20	150	4

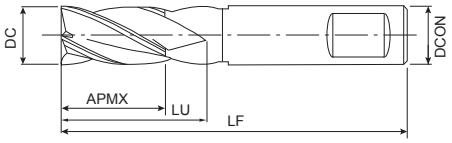
EPL-HI-WEMS

INDEX

Milling | Solid carbide







- Carbide end mill with TiAlN coating
- For general applications
- 4 flutes, variable helix and unequal spacing
- Weldon shank

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S | H ~60 HRC

Plus line | CARBIDE | TiAlN | 35° | 38° | HB

C.1022

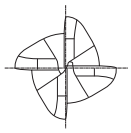
EDP	DC	LU	APMX	DCON	LF	ZEFP
EP01010400	4	-	11	6	57	4
EP01010500	5	-	13	6	57	4
EP01010600	6	20	13	6	57	4
EP01010800	8	25	19	8	63	4
EP01011000	10	30	22	10	72	4
EP01181000	10	60	40	10	100	4
EP01011200	12	38	26	12	83	4
EP01181200	12	65	45	12	150	4
EP01011600	16	44	32	16	92	4
EP01181600	16	100	65	16	150	4
EP01012000	20	54	38	20	104	4
EP01182000	20	100	65	20	150	4

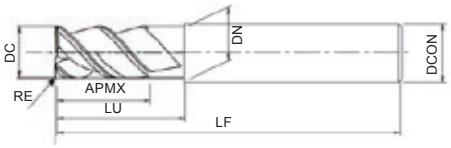


EPL-HI-CR-EMS

Milling | Solid carbide







- Carbide end mill with TiAlN coating
- For general applications
- 4 flutes, variable helix and unequal spacing, corner radius







EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
EP01760400	4	0,25	-	11	6	-	57	4
EP01760401	4	0,5	-	11	6	-	57	4
EP01760402	4	1	-	11	6	-	57	4
EP01760500	5	0,25	-	13	6	-	57	4
EP01760501	5	0,5	-	13	6	-	57	4
EP01760600	6	0,25	20	13	6	5,8	57	4
EP01760601	6	0,5	20	13	6	5,8	57	4
EP01760602	6	1	20	13	6	5,8	57	4
EP01760603	6	1,5	20	13	6	5,8	57	4
EP01760800	8	0,25	25	19	8	7,8	63	4
EP01760801	8	0,5	25	19	8	7,8	63	4
EP01760802	8	1	25	19	8	7,8	63	4
EP01760803	8	1,5	25	19	8	7,8	63	4
EP01761000	10	0,25	30	22	10	9,8	72	4
EP01761001	10	0,5	30	22	10	9,8	72	4
EP01761002	10	1	30	22	10	9,8	72	4
EP01761003	10	2	30	22	10	9,8	72	4
EP01761200	12	0,25	38	26	12	11,8	83	4
EP01761201	12	0,5	38	26	12	11,8	83	4
EP01761202	12	1	38	26	12	11,8	83	4
EP01761203	12	2	38	26	12	11,8	83	4
EP01761600	16	0,25	45	32	16	15,8	92	4
EP01761601	16	1	45	32	16	15,8	92	4
EP01761602	16	2	45	32	16	15,8	92	4

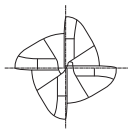


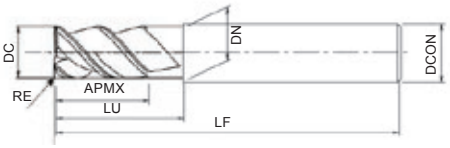
EPL-HI-CR-WEMS

INDEX

Milling | Solid carbide







- Carbide end mill with WXL coating
- For general applications
- 4 flutes, variable helix and unequal spacing, corner radius
- Weldon shank

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S | H ~60 HRC

Plus line | CARBIDE | WXL | 35° | 38° | HB

C.1022

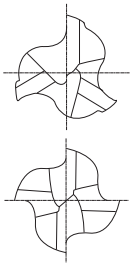
EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
EP01020400	4	0,25	-	11	6	-	57	4
EP01020401	4	0,5	-	11	6	-	57	4
EP01020402	4	1	-	11	6	-	57	4
EP01020500	5	0,25	-	13	6	-	57	4
EP01020501	5	0,5	-	13	6	-	57	4
EP01020502	5	1	-	13	6	-	57	4
EP01020600	6	0,25	20	13	6	5,8	57	4
EP01020601	6	0,5	20	13	6	5,8	57	4
EP01020602	6	1	20	13	6	5,8	57	4
EP01020603	6	1,5	20	13	6	5,8	57	4
EP01020800	8	0,25	25	19	8	7,8	63	4
EP01020801	8	0,5	25	19	8	7,8	63	4
EP01020802	8	1	25	19	8	7,8	63	4
EP01020803	8	1,5	25	19	8	7,8	63	4
EP01021000	10	0,25	30	22	10	9,8	72	4
EP01021001	10	0,5	30	22	10	9,8	72	4
EP01021002	10	1	30	22	10	9,8	72	4
EP01021003	10	1,5	30	22	10	9,8	72	4
EP01021004	10	2	30	22	10	9,8	72	4
EP01021200	12	0,25	38	26	12	11,8	83	4
EP01021201	12	0,5	38	26	12	11,8	83	4
EP01021202	12	1	38	26	12	11,8	83	4
EP01021203	12	2	38	26	12	11,8	83	4
EP01021600	16	0,25	44	32	16	15,8	92	4
EP01021601	16	1	44	32	16	15,8	92	4
EP01021602	16	2	44	32	16	15,8	92	4
EP01022000	20	1	54	38	20	19,8	104	4
EP01022001	20	2	54	38	20	19,8	104	4

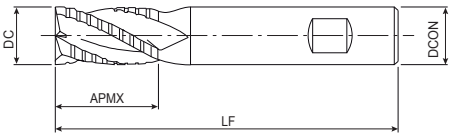
EPL-WRESF

INDEX

Milling | Solid carbide







- Carbide end mill with TiAlN coating
- For general applications
- 3-4 flutes, roughing
- Weldon shank

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N

Plus line | CARBIDE | TiAlN | 30° | HB

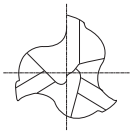
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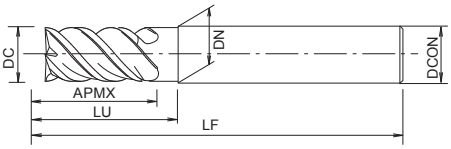
EDP	DC	APMX	DCON	LF	ZEFP
EP01200400	4	11	6	50	3
EP01200500	5	13	6	50	3
EP01200600	6	19	6	64	4
EP01200800	8	21	8	64	4
EP01201000	10	22	10	70	4
EP01201200	12	25	12	76	4
EP01201600	16	32	16	89	4
EP01202000	20	38	20	102	4
EP01202500	25	38	25	102	4

EPL-ETS

Milling | Solid carbide







- Carbide end mill with TiAlN coating
- For general applications
- 3 flutes, square

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S | H ~60 HRC

Plus line | CARBIDE | TiAlN | 33°~37° | 0~-0.02

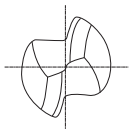
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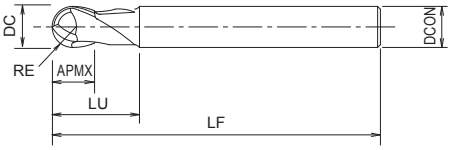
EDP	DC	LU	APMX	DCON	DN	LF	ZEFP
EP01860400	4	8,4	6	6	4	57	3
EP01860450	4,5	8,9	6,5	6	4,5	57	3
EP01860500	5	9,9	7,5	6	5	57	3
EP01860550	5,5	10,9	8,5	6	5,5	57	3
EP01860600	6	21	9	6	5,7	57	3
EP01860700	7	24	10,5	8	6,6	63	3
EP01860800	8	27	12	8	7,6	63	3
EP01860900	9	30	13,5	10	8,5	72	3
EP01861000	10	32	15	10	9,5	72	3
EP01861200	12	38	18	12	11,5	83	3
EP01861600	16	44	24	16	15	92	3

EPL-SB-EBD

Milling | Solid carbide







- Carbide end mill with TiAlN coating
- For general applications
- 2 flutes, ball nose

P ◉ ~45 HRC | P ○ ~55 HRC | M ○ ~35 HRC | K ◉ ~350 HB | N ○ | S ○ | H ○ ~60 HRC

Plus line | CARBIDE | TiAlN | 30°

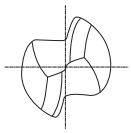
C.1024

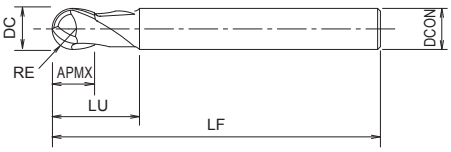
EDP	DC	RE	LU	APMX	DCON	LF	ZEFP
EP01190100	1	0,5	3	1,5	6	40	2
EP01190150	1,5	0,75	4	2	6	40	2
EP01190200	2	1	6	3	6	40	2
EP01190300	3	1,5	9	4	6	40	2
EP01190400	4	2	12	5	6	45	2
EP01190500	5	2,5	15	6	6	55	2
EP01190600	6	3	18	7	6	55	2
EP01190800	8	4	20	9	8	60	2
EP01191000	10	5	25	11	10	65	2
EP01191200	12	6	25	13	12	70	2
EP01191600	16	8	40	18	16	92	2
EP01192000	20	10	40	20	20	104	2

EPL-SB-LN-EBD

Milling | Solid carbide







- Carbide end mill with TiAlN coating
- For general applications
- 2 flutes, long neck, ball nose





C.1025

EDP	DC	RE	LU	APMX	DCON	LF	ZEFP
EP01770100	1	0,5	3	1,5	6	75	2
EP01770150	1,5	0,75	4,5	2	6	75	2
EP01770200	2	1	6	3	6	75	2
EP01770300	3	1,5	9	4	6	60	2
EP01770301	3	1,5	9	4	6	75	2
EP01770400	4	2	12	5	6	60	2
EP01770401	4	2	12	5	6	90	2
EP01770500	5	2,5	15	6	6	90	2
EP01770600	6	3	18	7	6	90	2
EP01770800	8	4	24	9	8	100	2
EP01771000	10	5	30	11	10	100	2
EP01771200	12	6	36	13	12	110	2
EP01771600	16	8	40	18	16	150	2
EP01772000	20	10	40	20	20	150	2

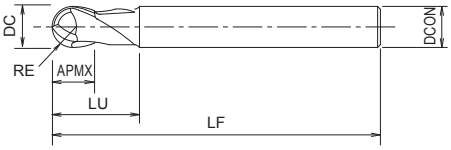


EPL-SB-EBM

Milling | Solid carbide







- Carbide end mill with TiAlN coating
- For general applications
- 4 flutes, ball nose





C.1026

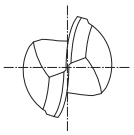
EDP	DC	RE	LU	APMX	DCON	LF	ZEFP
EP01160400	4	2	12	5	4	50	4
EP01160500	5	2,5	15	6	6	57	4
EP01160600	6	3	18	7	6	57	4
EP01160800	8	4	24	9	8	63	4
EP01161000	10	5	30	11	10	72	4
EP01161200	12	6	36	13	12	80	4

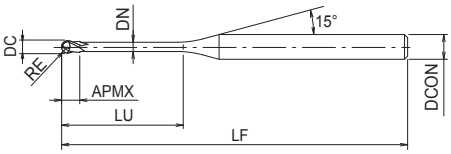
EPS-LN-EBD

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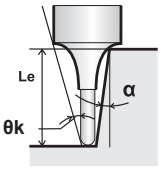
Milling | Solid carbide







- Carbide end mill with TiAlN coating
- For hardened steels up to 65 HRC
- 2 flutes, long neck, ball nose



P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S | H ~60 HRC | H ~65 HRC

Plus line | CARBIDE | TiAlN | 30° | SHRINK FIT | R ± 0.005

C.1027

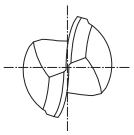
EDP	DC	RE	LU	APMX	DCON	DN	LF	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=2,5°)	Le(α=3°)	ZEFP
EP01951201	0,2	0,1	0,5	0,16	4	0,18	45	14,16	0,53	0,55	0,61	0,57	0,63	0,59	2
EP01951202	0,2	0,1	0,75	0,16	4	0,18	45	13,72	0,79	0,82	0,91	0,85	0,94	0,88	2
EP01951205	0,2	0,1	1	0,16	4	0,18	45	13,31	1,05	1,09	1,21	1,13	1,26	1,17	2
EP01951203	0,2	0,1	1,25	0,16	4	0,18	45	12,92	1,31	1,36	1,51	1,41	1,57	1,46	2
EP01951204	0,2	0,1	1,75	0,16	4	0,18	45	12,21	1,83	1,9	2,11	1,96	2,19	2,03	2
EP01951206	0,2	0,1	2	0,16	4	0,18	45	11,88	2,09	2,16	2,4	2,24	2,5	2,32	2
EP01950001	0,3	0,15	0,6	0,16	4	0,28	45	14,03	0,63	0,65	0,68	0,7	0,72	0,75	2
EP01950002	0,3	0,15	1	0,24	4	0,28	45	13,34	1,05	1,09	1,12	1,16	1,2	1,24	2
EP01950003	0,3	0,15	1,5	0,24	4	0,28	45	12,57	1,57	1,63	1,68	1,74	1,8	1,87	2
EP01950004	0,3	0,15	2	0,24	4	0,28	45	11,87	2,09	2,16	2,4	2,23	2,49	2,31	2
EP01950006	0,3	0,15	3	0,24	4	0,28	45	10,69	3,13	3,23	3,59	3,34	3,73	3,46	2
EP01950101	0,4	0,2	0,8	0,3	4	0,37	45	13,74	0,83	0,86	0,88	0,91	0,94	0,97	2
EP01950102	0,4	0,2	1	0,3	4	0,37	45	13,39	1,04	1,07	1,11	1,14	1,18	1,22	2
EP01950103	0,4	0,2	1,5	0,3	4	0,37	45	12,59	1,56	1,61	1,66	1,72	1,77	1,84	2
EP01950104	0,4	0,2	2	0,3	4	0,37	45	11,88	2,08	2,14	2,21	2,29	2,37	2,46	2
EP01950105	0,4	0,2	2,5	0,3	4	0,37	45	11,24	2,6	2,68	2,97	2,77	3,08	2,87	2
EP01950106	0,4	0,2	3	0,3	4	0,37	45	10,67	3,11	3,21	3,57	3,32	3,7	3,44	2
EP01950107	0,4	0,2	3,5	0,3	4	0,37	45	10,15	3,63	3,75	4,16	3,88	4,33	4,02	2
EP01950108	0,4	0,2	4	0,3	4	0,37	45	9,68	4,15	4,28	4,76	4,43	4,95	4,59	2
EP01950201	0,5	0,25	1	0,4	4	0,45	45	13,45	1,03	1,06	1,09	1,12	1,15	1,19	2
EP01950202	0,5	0,25	1,5	0,4	4	0,45	45	12,62	1,55	1,59	1,64	1,69	1,75	1,81	2
EP01950203	0,5	0,25	2	0,4	4	0,45	45	11,89	2,06	2,13	2,2	2,27	2,35	2,43	2
EP01950204	0,5	0,25	2,5	0,4	4	0,45	45	11,23	2,58	2,66	2,75	2,84	2,94	3,05	2
EP01950208	0,5	0,25	3	0,4	4	0,45	45	10,65	3,1	3,2	3,54	3,3	3,68	3,42	2
EP01950205	0,5	0,25	3,5	0,4	4	0,45	45	10,12	3,61	3,73	3,86	3,99	4,14	4,3	2
EP01950206	0,5	0,25	4	0,4	4	0,45	45	9,64	4,13	4,27	4,41	4,57	4,74	4,92	2
EP01950209	0,5	0,25	5	0,4	4	0,45	45	8,8	5,17	5,34	5,93	5,52	6,16	5,72	2
EP01950207	0,5	0,25	6	0,4	4	0,45	45	8,1	6,2	6,41	6,63	6,87	7,13	7,41	2
EP01950301	0,6	0,3	1,2	0,5	4	0,55	45	13,14	1,24	1,27	1,3	1,34	1,38	1,43	2
EP01950302	0,6	0,3	2	0,5	4	0,55	45	11,88	2,06	2,12	2,19	2,26	2,34	2,42	2
EP01950307	0,6	0,3	2,5	0,5	4	0,55	45	11,21	2,58	2,66	2,94	2,74	3,04	2,84	2
EP01950303	0,6	0,3	3	0,5	4	0,55	45	10,61	3,1	3,19	3,3	3,41	3,53	3,66	2
EP01950304	0,6	0,3	4	0,5	4	0,55	45	9,58	4,13	4,26	4,41	4,56	4,73	4,91	2
EP01950305	0,6	0,3	5	0,5	4	0,55	45	8,73	5,16	5,33	5,51	5,71	5,92	6,15	2
EP01950306	0,6	0,3	6	0,5	4	0,55	45	8,02	6,2	6,4	7,12	6,62	7,39	6,86	2
EP01950308	0,6	0,3	8	0,5	4	0,55	45	6,89	8,26	8,54	9,51	8,84	9,88	9,16	2
EP01950401	0,8	0,4	2	0,6	4	0,75	45	11,86	2,06	2,12	2,18	2,25	2,32	2,4	2
EP01950402	0,8	0,4	3	0,6	4	0,75	45	10,52	3,09	3,19	3,29	3,4	3,51	3,64	2
EP01950403	0,8	0,4	4	0,6	4	0,75	45	9,45	4,13	4,26	4,4	4,55	4,71	4,88	2
EP01950404	0,8	0,4	5	0,6	4	0,75	45	8,58	5,16	5,33	5,5	5,7	5,9	6,13	2
EP01950405	0,8	0,4	6	0,6	4	0,75	45	7,85	6,19	6,4	7,1	6,61	7,37	6,85	2
EP01950406	0,8	0,4	10	0,6	4	0,75	45	5,86	10,33	10,67	11,88	11,05	12,34	11,45	2
EP01950501	1	0,5	2	0,8	4	0,95	45	11,84	2,06	2,11	2,17	2,23	2,3	2,37	2
EP01950502	1	0,5	3	0,8	4	0,95	45	10,43	3,09	3,18	3,28	3,38	3,49	3,62	2
EP01950503	1	0,5	4	0,8	4	0,95	45	9,32	4,12	4,25	4,39	4,53	4,69	4,86	2
EP01950508	1	0,5	5	0,8	4	0,95	45	8,41	5,16	5,32	5,88	5,49	6,1	5,68	2

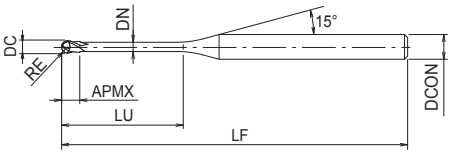
EPS-LN-EBD

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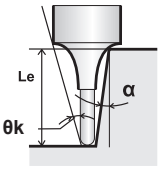
Milling | Solid carbide







- Carbide end mill with TiAlN coating
- For hardened steels up to 65 HRC
- 2 flutes, long neck, ball nose



P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S | H ~60 HRC | H ~65 HRC

Plus line | CARBIDE | TiAlN | 30° | SHRINK FIT | R ± 0.005

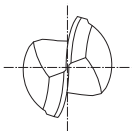
C.1027

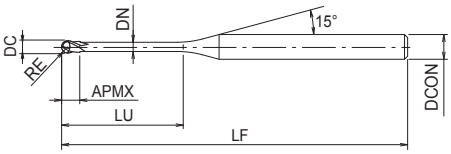
EDP	DC	RE	LU	APMX	DCON	DN	LF	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=2,5°)	Le(α=3°)	ZEFP
EP01950504	1	0,5	6	0,8	4	0,95	45	7,67	6,19	6,39	6,6	6,83	7,08	7,35	2
EP01950509	1	0,5	7	0,8	4	0,95	45	7,05	7,22	7,46	8,27	7,71	8,59	7,98	2
EP01950505	1	0,5	8	0,8	4	0,95	45	6,52	8,26	8,53	8,82	9,13	9,47	9,83	2
EP01950506	1	0,5	10	0,8	4	0,95	45	5,66	10,33	10,67	11,04	11,43	11,86	12,32	2
EP01950507	1	0,5	12	0,8	4	0,95	45	5,01	12,39	12,81	13,25	13,73	14,25	14,81	2
EP01950510	1	0,5	14	0,8	4	0,95	50	4,49	14,46	14,95	16,64	15,47	17,29	16,03	2
EP01950511	1	0,5	16	0,8	4	0,95	50	4,06	16,53	17,09	19,03	17,69	19,78	18,33	2
EP01951301	1,2	0,6	2,4	1	4	1,15	45	11,03	2,51	2,61	2,87	2,7	2,96	2,78	2
EP01951302	1,2	0,6	4	1	4	1,15	45	9,07	4,19	4,34	4,78	4,48	4,95	4,62	2
EP01951303	1,2	0,6	6	1	4	1,15	45	7,41	6,27	6,48	7,17	6,69	7,44	6,92	2
EP01951304	1,2	0,6	8	1	4	1,15	45	6,26	8,35	8,62	9,56	8,91	9,93	9,22	2
EP01950601	1,5	0,75	3	1,2	4	1,45	45	10,01	3,13	3,25	3,35	3,45	3,56	3,67	2
EP01950602	1,5	0,75	4	1,2	4	1,45	45	8,8	4,18	4,33	4,46	4,6	4,75	4,92	2
EP01950603	1,5	0,75	6	1,2	4	1,45	45	7,08	6,27	6,47	6,68	6,9	7,14	7,4	2
EP01950604	1,5	0,75	8	1,2	4	1,45	45	5,92	8,34	8,61	8,9	9,2	9,53	9,89	2
EP01950606	1,5	0,75	10	1,2	4	1,45	45	5,09	10,41	10,75	11,92	11,11	12,38	11,5	2
EP01950605	1,5	0,75	12	1,2	4	1,45	45	4,46	12,48	12,89	13,33	13,8	14,31	14,86	2
EP01950607	1,5	0,75	16	1,2	4	1,45	50	3,57	16,62	17,17	19,09	17,76	19,83	18,4	2
EP01950608	1,5	0,75	20	1,2	4	1,45	55	2,98	20,75	21,45	23,87	22,19	-	23	2
EP01951401	1,6	0,8	8	1,3	4	1,55	45	5,8	8,34	8,61	9,52	8,89	9,88	9,19	2
EP01951402	1,6	0,8	12	1,3	4	1,55	45	4,34	12,48	12,89	14,3	13,32	14,85	13,79	2
EP01950701	2	1	4	1,6	4	1,95	45	7,87	4,18	4,33	4,46	4,6	4,75	4,92	2
EP01950702	2	1	6	1,6	4	1,95	45	6,19	6,27	6,47	6,68	6,9	7,14	7,4	2
EP01950703	2	1	8	1,6	4	1,95	45	5,1	8,34	8,61	8,9	9,2	9,53	9,89	2
EP01950704	2	1	10	1,6	4	1,95	45	4,33	10,41	10,75	11,11	11,5	11,92	12,38	2
EP01950705	2	1	12	1,6	4	1,95	45	3,77	12,48	12,89	13,33	13,8	14,31	14,86	2
EP01950706	2	1	14	1,6	4	1,95	50	3,33	14,55	15,03	15,55	16,1	16,7	17,35	2
EP01950707	2	1	16	1,6	4	1,95	50	2,98	16,62	17,17	17,76	18,4	19,09	19,83	2
EP01950708	2	1	20	1,6	4	1,95	55	2,47	21,05	21,78	-	22,54	-	23,34	2
EP01950709	2	1	25	1,6	4	1,95	65	2,03	26,24	27,13	-	28,08	-	29,09	2
EP01950710	2	1	30	1,6	4	1,95	70	1,73	31,42	32,48	-	33,62	-	-	2
EP01950801	2,5	1,25	10	2	4	2,35	45	3,63	10,46	10,85	11,21	11,59	11,99	12,43	2
EP01950802	2,5	1,25	20	2	4	2,35	55	1,97	20,87	21,56	-	22,3	-	-	2
EP01950901	3	1,5	6	2,4	6	2,85	50	8,17	6,25	6,49	6,72	6,95	7,17	7,4	2
EP01950902	3	1,5	8	2,4	6	2,85	50	6,88	8,35	8,67	8,97	9,25	9,55	9,88	2
EP01950903	3	1,5	10	2,4	6	2,85	50	5,94	10,44	10,83	11,19	11,55	11,94	12,37	2
EP01950904	3	1,5	12	2,4	6	2,85	55	5,22	12,53	12,98	13,4	13,85	14,33	14,86	2
EP01950908	3	1,5	14	2,4	6	2,85	55	4,66	14,62	15,13	16,72	15,62	17,34	16,15	2
EP01950905	3	1,5	15	2,4	6	2,85	55	4,42	15,66	16,2	16,73	17,3	17,92	18,59	2
EP01950906	3	1,5	16	2,4	6	2,85	55	4,21	16,7	17,26	17,84	18,45	19,11	19,83	2
EP01950907	3	1,5	20	2,4	6	2,85	60	3,52	20,86	21,54	22,27	23,05	23,89	24,8	2
EP01950909	3	1,5	25	2,4	6	2,85	65	2,92	26,04	26,89	29,86	27,81	-	28,8	2
EP01950910	3	1,5	30	2,4	6	2,85	70	2,5	31,2	32,24	-	33,35	-	34,55	2
EP01951501	3,5	1,75	20	2,8	6	3,35	60	3,08	20,85	21,53	23,84	22,24	24,74	23,01	2
EP01951001	4	2	8	3,2	6	3,85	55	5,67	8,33	8,63	8,91	9,18	9,46	9,77	2
EP01951002	4	2	10	3,2	6	3,85	60	4,74	10,42	10,79	11,13	11,48	11,85	12,25	2

EPS-LN-EBD

Milling | Solid carbide

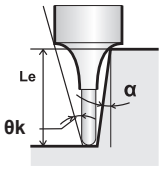






- Carbide end mill with TiAlN coating
- For hardened steels up to 65 HRC
- 2 flutes, long neck, ball nose









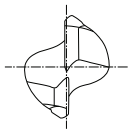
EDP	DC	RE	LU	APMX	DCON	DN	LF	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=2,5°)	Le(α=3°)	ZEFP
EP01951003	4	2	12	3,2	6	3,85	60	4,07	12,51	12,95	13,35	13,78	14,24	14,74	2
EP01951006	4	2	15	3,2	6	3,85	60	3,36	15,64	16,16	17,82	16,67	18,47	17,23	2
EP01951004	4	2	16	3,2	6	3,85	60	3,18	16,68	17,23	17,78	18,38	19,02	19,71	2
EP01951005	4	2	20	3,2	6	3,85	65	2,6	20,84	21,51	22,22	22,98	23,8	-	2
EP01951007	4	2	25	3,2	6	3,85	70	2,12	26,02	26,86	-	27,76	-	28,72	2
EP01951601	5	2,5	20	4	6	4,85	70	1,46	20,82	21,47	-	-	-	-	2
EP01951602	5	2,5	40	4	6	4,85	90	0,72	41,51	-	-	-	-	-	2
EP01951101	6	3	12	4,8	6	5,85	60	-	-	-	-	-	-	-	2
EP01951102	6	3	20	4,8	6	5,85	70	-	-	-	-	-	-	-	2
EP01951103	6	3	25	4,8	6	5,85	70	-	-	-	-	-	-	-	2
EP01951104	6	3	30	4,8	6	5,85	80	-	-	-	-	-	-	-	2

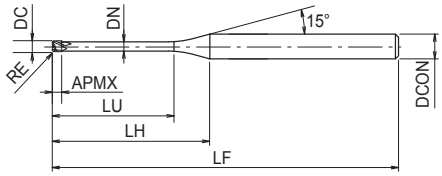


EPS-CPR

Milling | Solid carbide







- Carbide end mill with TiAlN coating
- For hardened steels up to 65 HRC
- 2 flutes, long neck, corner radius

P ~45 HRC | P ~55 HRC | M ~35 HRC | H ~60 HRC | H ~65 HRC

Plus line | CARBIDE | TiAlN | 30° | SHRINK FIT | R ± 0.005 | D<0.5 0~-0.01 | D≥0.5 0~-0.015

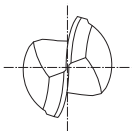
C.1029

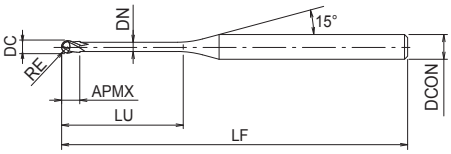
EDP	DC	RE	LU	APMX	DCON	DN	LF	LH	ZEFP
EP01960001	1	0,05	4	0,8	4	0,94	50	9,69	2
EP01960002	1	0,1	4	0,8	4	0,94	50	9,69	2
EP01960003	1	0,1	6	0,8	4	0,94	50	11,69	2
EP01960004	1	0,2	6	0,8	4	0,94	50	11,69	2
EP01960005	1	0,3	4	0,8	4	0,94	50	9,69	2
EP01960101	1,5	0,2	6	1,2	4	1,43	50	10,75	2
EP01960102	1,5	0,2	10	1,2	4	1,43	50	14,75	2
EP01960103	1,5	0,2	16	1,2	4	1,43	50	20,75	2
EP01960104	1,5	0,3	6	1,2	4	1,43	50	10,75	2
EP01960201	2	0,1	8	1,6	4	1,92	50	11,82	2
EP01960202	2	0,2	10	1,6	4	1,92	50	13,82	2
EP01960203	2	0,2	12	1,6	4	1,92	50	15,82	2
EP01960204	2	0,3	8	1,6	4	1,92	50	11,82	2
EP01960205	2	0,5	8	1,6	4	1,92	50	11,82	2
EP01960206	2	0,5	12	1,6	4	1,92	50	15,82	2
EP01960301	3	0,2	8	2,5	6	2,85	60	13,87	2
EP01960302	3	0,3	12	2,5	6	2,85	60	17,87	2
EP01960303	3	0,3	16	2,5	6	2,85	60	21,87	2
EP01960401	4	0,2	16	4	6	3,84	60	20,01	4
EP01960402	4	0,2	20	4	6	3,84	60	24,01	4
EP01960403	4	0,5	16	4	6	3,84	60	20,01	4

EPL-LN-EBD

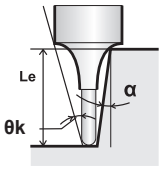
Milling | Solid carbide







- Carbide end mill with TiAlN coating
- For general applications
- 2 flutes, long neck, ball nose



P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S | H ~60 HRC

Plus line | CARBIDE | TiAlN | 30° | SHRINK FIT | R ± 0.005 | C.1030

EDP	DC	RE	LU	APMX	DCON	DN	LF	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=2,5°)	Le(α=3°)	ZEFP
EP48165001	0,3	0,15	0,5	0,24	4	0,28	45	14,22	0,52	0,54	0,56	0,58	0,6	0,62	2
EP48165002	0,3	0,15	1	0,24	4	0,28	45	13,34	1,05	1,09	1,12	1,16	1,2	1,24	2
EP48165003	0,4	0,2	1	0,3	4	0,37	45	13,39	1,04	1,07	1,11	1,14	1,18	1,22	2
EP48165004	0,4	0,2	2	0,3	4	0,37	45	11,88	2,08	2,14	2,21	2,29	2,37	2,46	2
EP48165005	0,5	0,25	1	0,4	4	0,45	45	13,45	1,03	1,06	1,09	1,12	1,15	1,19	2
EP48165006	0,5	0,25	2	0,4	4	0,45	45	11,89	2,06	2,13	2,2	2,27	2,35	2,43	2
EP48165007	0,5	0,25	3	0,4	4	0,45	45	10,65	3,1	3,2	3,3	3,42	3,54	3,68	2
EP48165008	0,5	0,25	4	0,5	4	0,45	45	9,64	4,13	4,27	4,41	4,57	4,74	4,92	2
EP48165009	0,6	0,3	1	0,5	4	0,55	45	13,49	1,03	1,05	1,08	1,11	1,14	1,18	2
EP48165010	0,6	0,3	2	0,5	4	0,55	45	11,88	2,06	2,12	2,19	2,26	2,34	2,42	2
EP48165011	0,6	0,3	3	0,5	4	0,55	45	10,61	3,1	3,19	3,3	3,41	3,53	3,66	2
EP48165012	0,6	0,3	4	0,5	4	0,55	45	9,58	4,13	4,26	4,41	4,56	4,73	4,91	2
EP48165013	0,6	0,3	6	0,5	4	0,55	45	8,02	6,2	6,4	6,62	6,86	7,12	7,39	2
EP48165014	0,8	0,4	2	0,6	4	0,75	45	11,86	2,06	2,12	2,18	2,25	2,32	2,4	2
EP48165015	0,8	0,4	4	0,6	4	0,75	45	9,45	4,13	4,26	4,4	4,55	4,71	4,88	2
EP48165016	0,8	0,4	6	0,6	4	0,75	45	7,85	6,19	6,4	6,61	6,85	7,1	7,37	2
EP48165017	1	0,5	2,5	0,8	4	0,95	45	11,09	2,57	2,64	2,72	2,81	2,9	3	2
EP48165018	1	0,5	3	0,8	4	0,95	45	10,43	3,09	3,18	3,28	3,38	3,49	3,62	2
EP48165019	1	0,5	4	0,8	4	0,95	45	9,32	4,12	4,25	4,39	4,53	4,69	4,86	2
EP48165020	1	0,5	5	0,8	4	0,95	45	8,41	5,16	5,32	5,49	5,68	5,88	6,1	2
EP48165021	1	0,5	6	0,8	4	0,95	45	7,67	6,19	6,39	6,6	6,83	7,08	7,35	2
EP48165022	1	0,5	8	0,8	4	0,95	45	6,52	8,26	8,53	8,82	9,13	9,47	9,83	2
EP48165023	1	0,5	10	0,8	4	0,95	45	5,66	10,33	10,67	11,04	11,43	11,86	12,32	2
EP48165024	1	0,5	12	0,8	4	0,95	45	5,01	12,39	12,81	13,25	13,73	14,25	14,81	2
EP48165025	1,5	0,75	4	1,2	4	1,45	45	8,8	4,18	4,33	4,46	4,6	4,75	4,92	2
EP48165026	1,5	0,75	8	1,2	4	1,45	45	5,92	8,34	8,61	8,9	9,2	9,53	9,89	2
EP48165027	2	1	6	1,6	4	1,95	45	6,19	6,36	6,67	6,96	7,23	7,49	7,76	2
EP48165028	2	1	8	1,6	4	1,95	45	5,1	8,48	8,87	9,22	9,55	9,88	10,24	2
EP48165029	2	1	10	1,6	4	1,95	45	4,33	10,59	11,05	11,45	11,85	12,27	12,73	2
EP48165030	2	1	12	1,6	4	1,95	45	3,77	12,69	13,21	13,67	14,15	14,66	15,22	2
EP48165031	2	1	14	1,6	4	1,95	50	3,33	14,78	15,36	15,89	16,45	17,05	17,7	2
EP48165032	2	1	16	1,6	4	1,95	50	2,98	16,88	17,51	18,1	18,75	19,44	-	2
EP48165033	2	1	20	1,6	4	1,95	55	2,47	21,05	21,78	22,54	23,34	-	-	2
EP48165034	2	1	25	1,6	4	1,95	65	2,03	26,24	27,13	28,08	29,09	-	-	2
EP48165035	3	1,5	8	2,4	6	2,85	50	6,88	8,35	8,67	8,97	9,25	9,55	9,88	2
EP48165036	3	1,5	10	2,4	6	2,85	50	5,94	10,44	10,83	11,19	11,55	11,94	12,37	2
EP48165037	3	1,5	16	2,4	6	2,85	55	4,21	16,7	17,26	17,84	18,45	19,11	19,83	2
EP48165038	3	1,5	20	2,4	6	2,85	60	3,52	20,86	21,54	22,27	23,05	23,89	24,8	2

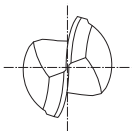


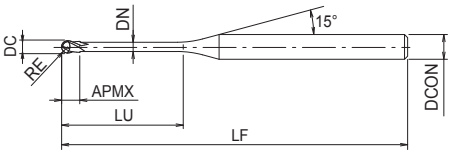
EPL-LN-EBD

INDEX

Milling | Solid carbide

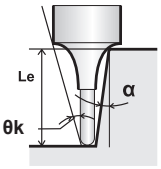






- Carbide end mill with TiAlN coating
- For general applications
- 2 flutes, long neck, ball nose







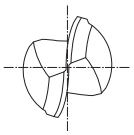


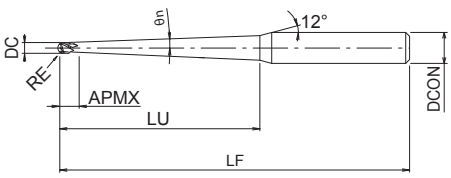
EDP	DC	RE	LU	APMX	DCON	DN	LF	θk	Le(α=0,5°)	Le(α=1°)	Le(α=1,5°)	Le(α=2°)	Le(α=2,5°)	Le(α=3°)	ZEFP
EP48165039	4	2	10	3,2	6	3,85	60	4,74	10,42	10,79	11,13	11,48	11,85	12,25	2
EP48165040	4	2	16	3,2	6	3,85	60	3,18	16,68	17,23	17,78	18,38	19,02	19,71	2
EP48165041	4	2	20	3,2	6	3,85	65	2,6	20,84	21,51	22,22	22,98	23,8	-	2
EP48165042	4	2	25	3,2	6	3,85	70	2,12	26,02	26,86	27,76	28,72	-	-	2
EP48165043	4	2	30	3,2	6	3,85	80	1,79	31,19	32,21	33,3	-	-	-	2
EP48165044	6	3	10	6	6	5,85	60	-	-	-	-	-	-	-	2
EP48165045	6	3	12	6	6	5,85	60	-	-	-	-	-	-	-	2
EP48165046	6	3	20	6	6	5,85	70	-	-	-	-	-	-	-	2
EP48165047	6	3	30	6	6	5,85	80	-	-	-	-	-	-	-	2

EPL-PC-EBD

Milling | Solid carbide







- Carbide end mill with TiAlN coating
- For general applications
- 2 flutes, pencil neck, ball nose

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S | H ~60 HRC

Plus line | CARBIDE | TiAlN

C.1032

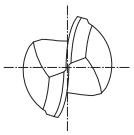
EDP	DC	RE	θn	LU	APMX	DCON	LF	ZEFP
W0900958	1	0,5	0,9	10	3	6	55	2
W0900959	1	0,5	0,9	15	3	6	60	2
W0900960	1	0,5	0,9	20	3	6	65	2
W0900962	1,5	0,75	0,9	20	4	6	65	2
W0900988	1,5	0,75	1,4	20	4	6	65	2
W0900963	1,5	0,75	0,9	30	4	6	70	2
W0900964	2	1	0,9	20	6	6	65	2
W0900989	2	1	1,4	20	6	6	65	2
W0900965	2	1	0,9	30	6	6	70	2
W0900990	2	1	1,4	30	6	6	70	2
W0900991	2	1	1,4	40	6	6	80	2
W0900967	3	1,5	0,9	20	8	6	65	2
W0900992	3	1,5	1,4	20	8	6	65	2
W0900968	3	1,5	0,9	30	8	6	70	2
W0900993	3	1,5	1,4	30	8	6	70	2
W0900969	3	1,5	0,9	40	8	6	80	2
W0900994	3	1,5	1,4	40	8	6	80	2
W0900971	4	2	0,9	30	10	8	90	2
W0900972	4	2	0,9	40	10	8	100	2
W0900995	4	2	1,4	40	10	8	100	2
W0900973	4	2	0,9	50	10	8	120	2
W0900996	4	2	1,4	50	10	8	120	2
W0900974	4	2	0,9	60	10	8	120	2
W0900997	4	2	1,4	60	10	8	120	2
W0900975	4	2	0,9	70	10	8	130	2
W0900978	6	3	0,9	50	12	10	120	2
W0900979	6	3	0,9	60	12	10	120	2
W0900998	6	3	1,4	60	12	10	120	2
W0900980	6	3	0,9	70	12	10	130	2
W0900981	6	3	0,9	80	12	10	130	2
W0900984	8	4	0,9	60	20	10	150	2
W0900999	8	4	1,4	60	20	12	150	2
W0900985	8	4	0,9	80	20	10	150	2
W0901000	8	4	1,4	80	20	12	150	2

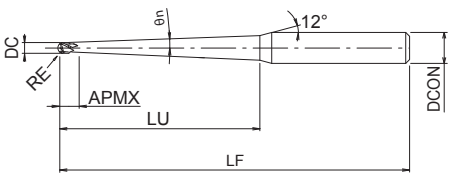
EPL-PC-EBD-DIA

INDEX

Milling | Solid carbide







- Carbide end mill with diamond coating
- For graphite milling
- 2 flutes, pencil neck, ball nose

GRAPHITE

Plus line | CARBIDE | DIA

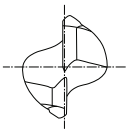
C.1031

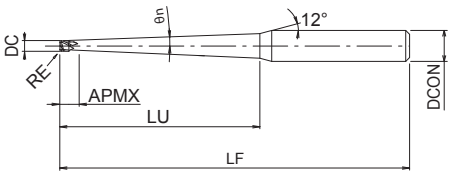
EDP	DC	RE	θn	LU	APMX	DCON	LF	ZEFP
W0900961	1	0,5	0,9	35	3	6	80	2
W0900966	2	1	0,9	50	6	6	90	2
W0900970	3	1,5	0,9	60	8	6	100	2
W0900976	4	2	0,9	80	10	8	130	2
W0900977	4	2	0,9	110	10	8	160	2
W0900982	6	3	0,9	100	12	10	160	2
W0900983	6	3	0,9	150	12	12	220	2
W0900986	8	4	0,9	100	20	12	170	2
W0900987	8	4	0,9	150	20	12	220	2

EPL-CPR

Milling | Solid carbide







- Carbide end mill with TiAlN coating
- For general applications
- 2 flutes, long neck, corner radius

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | S | H ~60 HRC | H ~65 HRC

Plus line | CARBIDE | TiAlN

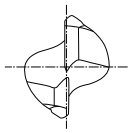
C.1033

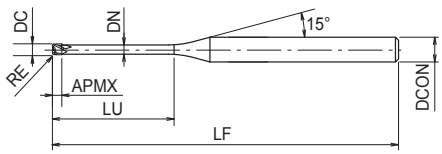
EDP	DC	RE	θn	LU	APMX	DCON	LF	ZEFP
W0901001	2	0,5	0,9	20	6	6	65	2
W0901002	2	0,5	0,9	30	6	6	70	2
W0901003	3	0,5	0,9	20	8	6	65	2
W0901034	3	0,5	1,4	20	8	6	65	2
W0901004	3	0,5	0,9	30	8	6	70	2
W0901035	3	0,5	1,4	30	8	6	70	2
W0901005	3	0,5	0,9	40	8	6	80	2
W0901006	3	1	0,9	20	8	6	65	2
W0901036	3	1	1,4	20	8	6	65	2
W0901007	3	1	0,9	30	8	6	70	2
W0901037	3	1	1,4	30	8	6	70	2
W0901008	3	1	0,9	40	8	6	80	2
W0901038	3	1	1,4	40	8	6	80	2
W0901009	4	0,5	0,9	30	10	8	90	2
W0901039	4	0,5	1,4	30	10	8	100	2
W0901010	4	0,5	0,9	40	10	8	100	2
W0901040	4	0,5	1,4	40	10	8	100	2
W0901011	4	0,5	0,9	50	10	8	120	2
W0901012	4	1	0,9	30	10	8	90	2
W0901041	4	1	1,4	30	10	8	100	2
W0901013	4	1	0,9	40	10	8	100	2
W0901042	4	1	1,4	40	10	8	100	2
W0901014	4	1	0,9	50	10	8	120	2
W0901015	4	1	0,9	60	10	8	120	2
W0901018	6	0,5	0,9	50	12	10	120	2
W0901019	6	0,5	0,9	60	12	10	120	2
W0901020	6	0,5	0,9	70	12	10	130	2
W0901021	6	1	0,9	50	12	10	120	2
W0901022	6	1	0,9	60	12	10	120	2
W0901023	6	1	0,9	70	12	10	130	2
W0901024	6	1	0,9	80	12	10	130	2
W0901027	8	0,5	0,9	60	20	10	150	2
W0901028	8	0,5	0,9	80	20	10	150	2
W0901029	8	1	0,9	60	20	10	150	2
W0901030	8	1	0,9	80	20	10	150	2
W0901033	8	2	0,9	80	20	10	150	2

EPL-CPR

Milling | Solid carbide







- Carbide end mill with TiAlN coating
- For general applications
- 2 flutes, long neck, corner radius

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | S | H ~60 HRC | H ~65 HRC

Plus line | CARBIDE | TiAlN

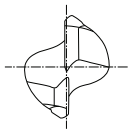
C.1033

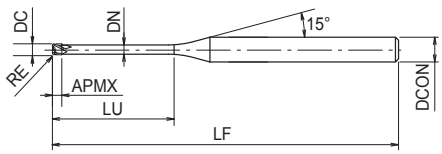
EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
EP48166001	1	0,1	4	0,8	4	0,95	50	2
EP48166002	1	0,1	6	0,8	4	0,95	50	2
EP48166003	1	0,1	8	0,8	4	0,95	50	2
EP48166004	1	0,2	4	0,8	4	0,95	50	2
EP48166005	1	0,2	6	0,8	4	0,95	50	2
EP48166006	1	0,2	8	0,8	4	0,95	50	2
EP48166007	1	0,2	10	0,8	4	0,95	50	2
EP48166008	1	0,3	4	0,8	4	0,95	50	2
EP48166009	1	0,3	6	0,8	4	0,95	50	2
EP48166010	1	0,3	8	0,8	4	0,95	50	2
EP48166011	1	0,3	10	0,8	4	0,95	50	2
EP48166012	2	0,2	6	1,6	4	1,95	50	2
EP48166013	2	0,2	8	1,6	4	1,95	50	2
EP48166014	2	0,2	10	1,6	4	1,95	50	2
EP48166015	2	0,2	12	1,6	4	1,95	50	2
EP48166016	2	0,2	16	1,6	4	1,95	50	2
EP48166017	2	0,5	6	1,6	4	1,95	50	2
EP48166018	2	0,5	8	1,6	4	1,95	50	2
EP48166019	2	0,5	10	1,6	4	1,95	50	2
EP48166020	2	0,5	12	1,6	4	1,95	50	2
EP48166021	2	0,5	16	1,6	4	1,95	50	2
EP48166022	3	0,2	6	2,5	6	2,85	60	2
EP48166023	3	0,2	8	2,5	6	2,85	60	2
EP48166024	3	0,2	10	2,5	6	2,85	60	2
EP48166025	3	0,2	12	2,5	6	2,85	60	2
EP48166026	3	0,2	16	2,5	6	2,85	60	2
EP48166027	3	0,5	6	2,5	6	2,85	60	2
EP48166028	3	0,5	8	2,5	6	2,85	60	2
EP48166029	3	0,5	10	2,5	6	2,85	60	2
EP48166030	3	0,5	12	2,5	6	2,85	60	2
EP48166031	3	0,5	16	2,5	6	2,85	60	2
EP48166032	4	0,5	12	4	6	3,85	60	4
EP48166033	4	0,5	16	4	6	3,85	60	4
EP48166034	4	0,5	20	4	6	3,85	60	4
EP48166035	4	1	10	4	6	3,85	60	4
EP48166036	4	1	12	4	6	3,85	60	4
EP48166037	4	1	16	4	6	3,85	60	4
EP48166038	4	1	20	4	6	3,85	60	4
EP48166039	6	0,5	12	6	6	5,85	70	4
EP48166040	6	0,5	16	6	6	5,85	70	4
EP48166041	6	0,5	20	6	6	5,85	70	4
EP48166042	6	0,5	25	6	6	5,85	70	4

EPL-CPR

Milling | Solid carbide







- Carbide end mill with TiAlN coating
- For general applications
- 2 flutes, long neck, corner radius

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | S | H ~60 HRC | H ~65 HRC

Plus line | CARBIDE | TiAlN

C.1033

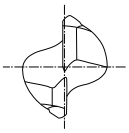
EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
EP48166043	6	1	12	6	6	5,85	70	4
EP48166044	6	1	16	6	6	5,85	70	4
EP48166045	6	1	20	6	6	5,85	70	4
EP48166046	6	1	25	6	6	5,85	70	4

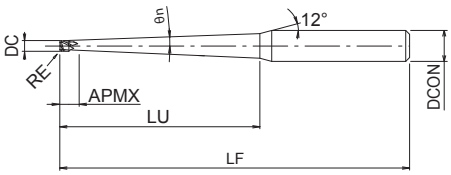
EPL-CPR-DIA

Milling | Solid carbide

WHILE STOCK LASTS







- Carbide end mill with diamond coating
- For graphite milling
- 2 flutes, long neck, corner radius

GRAPHITE

Plus line | CARBIDE | DIA

C.1033

EDP	DC	RE	θn	LU	APMX	DCON	LF	ZEFP
W0901016	4	1	0,9	80	10	8	130	2
W0901017	4	1	0,9	110	10	8	160	2
W0901025	6	1	0,9	100	12	10	160	2
W0901026	6	1	0,9	150	12	12	220	2
W0901031	8	1	0,9	100	20	12	170	2
W0901032	8	1	0,9	150	20	12	220	2

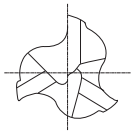
EPA-AL-3FL

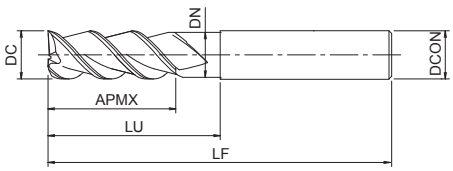
Milling | Solid carbide

INDEX

WHILE STOCK LASTS







- Carbide end mill with ALC coating
- For aluminium and copper alloys
- 3 flutes, long length of cut

N

Plus line | CARBIDE | ALC | 40° | h6 | D=3 -0,004~-0,006 | 6≥D>3 -0,006~-0,006 | 10≥D≥8 -0,007~-0,006 | 16≥D≥12 -0,009~-0,006 | D≥20 -0,011~-0,006 | 45° | C.1035

EDP	DC	LU	APMX	DCON	DN	LF	ZEFP	CHW
EP020003	3	12	9	6	2,9	57	3	0,05
EP020004	4	16	11	6	3,8	57	3	0,05
EP020005	5	18	13	6	4,8	57	3	0,10
EP020006	6	20	13	6	5,8	57	3	0,10
EP020008	8	25	19	8	7,8	63	3	0,10
EP020010	10	32	22	10	9,8	72	3	0,10
EP020012	12	38	26	12	11,8	83	3	0,20
EP020016	16	50	32	16	15,8	92	3	0,20
EP020020	20	62	38	20	19,8	104	3	0,20

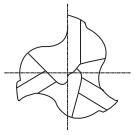


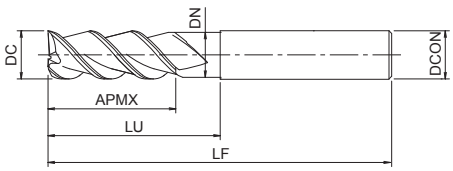
EPA-AL-3FS

Milling | Solid carbide

WHILE STOCK LASTS







- Carbide end mill with ALC coating
- For aluminium and copper alloys
- 3 flutes, short length of cut

N

Plus line | CARBIDE | ALC | 40° | h6 | D=3 -0,004~-0,006 | 6≥D>3 -0,006~-0,006 | 10≥D≥8 -0,007~-0,006 | 16≥D≥12 -0,009~-0,006 | D≥20 -0,011~-0,006 | 45° | C.1035

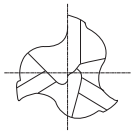
EDP	DC	LU	APMX	DCON	DN	LF	ZEFP	CHW
EP019903	3	7	4	6	2,8	50	3	0,05
EP019904	4	8	5	6	3,8	54	3	0,05
EP019905	5	9	6	6	4,8	54	3	0,10
EP019906	6	15	7	6	5,8	54	3	0,10
EP019908	8	17	9	8	7,8	55	3	0,10
EP019910	10	20	11	10	9,8	60	3	0,10
EP019912	12	24	12	12	11,8	70	3	0,20
EP019916	16	28	16	16	15,8	80	3	0,20
EP019920	20	32	20	20	19,8	82	3	0,20

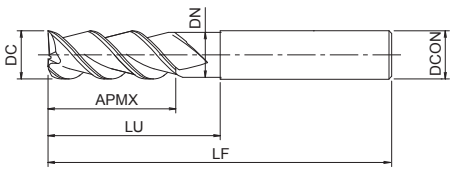
EPN-AL-3FL

Milling | Solid carbide

WHILE STOCK LASTS







- Carbide end mill, bright finish
- For aluminium and copper alloys
- 3 flutes, long length of cut







EDP	DC	LU	APMX	DCON	DN	LF	ZEFP	CHW
EP019803	3	12	9	6	2,9	57	3	0,05
EP019804	4	16	11	6	3,8	57	3	0,05
EP019805	5	18	13	6	4,8	57	3	0,10
EP019806	6	20	13	6	5,8	57	3	0,10
EP019808	8	25	19	8	7,8	63	3	0,10
EP019810	10	32	22	10	9,8	72	3	0,10
EP019812	12	38	26	12	11,8	83	3	0,20
EP019816	16	50	32	16	15,8	92	3	0,20
EP019820	20	62	38	20	19,8	104	3	0,20

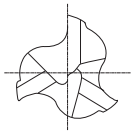


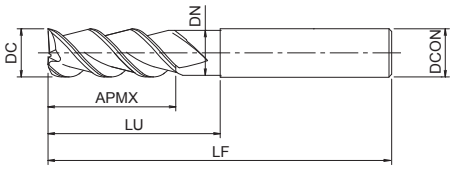
EPN-AL-3FS

Milling | Solid carbide

WHILE STOCK LASTS







- Carbide end mill, bright finish
- For aluminium and copper alloys
- 3 flutes, short length of cut

N

Plus line | CARBIDE | 40° | h6 | h6 | 45°

C.1035

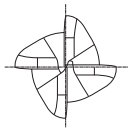
EDP	DC	LU	APMX	DCON	DN	LF	ZEFP	CHW
EP019703	3	7	4	6	2,8	50	3	0,05
EP019704	4	8	5	6	3,8	54	3	0,05
EP019705	5	9	6	6	4,8	54	3	0,10
EP019706	6	15	7	6	5,8	54	3	0,10
EP019708	8	17	9	8	7,8	55	3	0,10
EP019710	10	20	11	10	9,8	60	3	0,10
EP019712	12	24	12	12	11,8	70	3	0,20
EP019716	16	28	16	16	15,8	80	3	0,20
EP019720	20	32	20	20	19,8	82	3	0,20

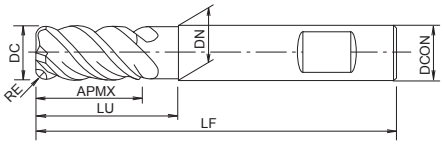
HYP-CR-HI-WEMS

INDEX

Milling | Solid carbide







- Carbide end mill with TiAlN coating
- For general applications
- 4 flutes, variable helix and unequal spacing, corner radius
- Weldon shank

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S | H ~60 HRC

HYPRO | CARBIDE | TiAlN | 35°~38° | HB

C.1036

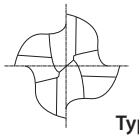
EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
4832004011	4	0,5	-	11	6	-	57	4
4832005011	5	0,5	-	13	6	-	57	4
4832006011	6	0,5	20	13	6	5,8	57	4
4832006012	6	1	20	13	6	5,8	57	4
4832006013	6	1,5	20	13	6	5,8	57	4
4832006014	6	2	20	13	6	5,8	57	4
4832008011	8	0,5	25	19	8	7,8	63	4
4832008012	8	1	25	19	8	7,8	63	4
4832008013	8	1,5	25	19	8	7,8	63	4
4832008014	8	2	25	19	8	7,8	63	4
4832010011	10	0,5	30	22	10	9,8	72	4
4832010012	10	1	30	22	10	9,8	72	4
4832010013	10	1,5	30	22	10	9,8	72	4
4832010014	10	2	30	22	10	9,8	72	4
4832010016	10	3	30	22	10	9,8	72	4
4832012011	12	0,5	38	26	12	11,8	83	4
4832012012	12	1	38	26	12	11,8	83	4
4832012013	12	1,5	38	26	12	11,8	83	4
4832012014	12	2	38	26	12	11,8	83	4
4832012016	12	3	38	26	12	11,8	83	4
4832016011	16	0,5	44	32	16	15,8	92	4
4832016012	16	1	44	32	16	15,8	92	4
4832016014	16	2	44	32	16	15,8	92	4
4832016016	16	3	44	32	16	15,8	92	4
4832016018	16	4	44	32	16	15,8	92	4
4832020012	20	1	54	38	20	19,8	104	4
4832020014	20	2	54	38	20	19,8	104	4
4832020016	20	3	54	38	20	19,8	104	4
4832020018	20	4	54	38	20	19,8	104	4
4832020020	20	5	54	38	20	19,8	104	4

HYP-HI-(W)EMS

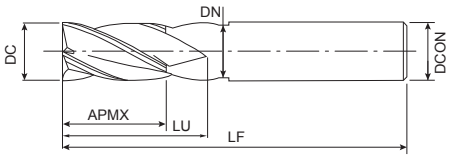
INDEX

Milling | Solid carbide

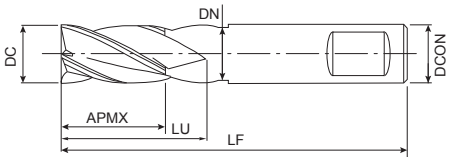




Type 1



Type 2



- Carbide end mill with TiAlN coating
- For general applications
- 4 flutes, variable helix and unequal spacing
- Also with Weldon shank





C.1036

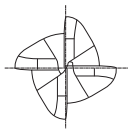
EDP	DC	LU	APMX	DCON	DN	LF	ZEFP	Type
48320040	4	-	11	6	-	57	4	1
483200401	4	-	11	6	-	57	4	2
48320050	5	-	13	6	-	57	4	1
483200501	5	-	13	6	-	57	4	2
48320060	6	20	13	6	5,8	57	4	1
483200601	6	20	13	6	5,8	57	4	2
48320080	8	25	19	8	7,8	63	4	1
483200801	8	25	19	8	7,8	63	4	2
48320100	10	30	22	10	9,8	72	4	1
483201001	10	30	22	10	9,8	72	4	2
48320120	12	38	26	12	11,8	83	4	1
483201201	12	38	26	12	11,8	83	4	2
48320160	16	45	32	16	15,8	92	4	1
483201601	16	45	32	16	15,8	92	4	2
483202001	20	54	38	20	19,8	104	4	2
48320200	20	54	38	20	19,8	104	4	1

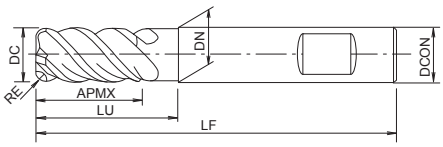
HYP-CR-HD-WEMS

INDEX

Milling | Solid carbide







- Carbide end mill with TiAlN coating
- For general applications
- 4 flutes, variable helix and unequal spacing, corner radius
- Weldon shank

P ~45 HRC | P ~55 HRC | M ~35 HRC | K ~350 HB | N | S | H ~60 HRC

HYPRO | CARBIDE | TiAlN | 35°~38° | HB

C.1036

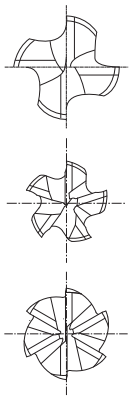
EDP	DC	RE	LU	APMX	DCON	DN	LF	ZEFP
4833006010	6	0,25	20	13	6	5,8	57	4
4833008010	8	0,25	25	19	8	7,8	63	4
4833010010	10	0,25	30	22	10	9,8	72	4
4833012010	12	0,25	38	26	12	11,8	83	4
4833016010	16	0,25	44	32	16	15,8	92	4
4833020010	20	0,25	54	38	20	19,8	104	4

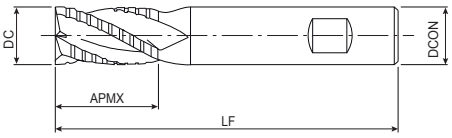
HYP-HP-WRESF

INDEX

Milling | Solid carbide







- Carbide end mill with TiAlN coating
- For general applications
- Multi flute, for roughing
- Weldon shank







EDP	DC	APMX	DCON	LF	ZEFP
48624060	6	19	6	64	4
48624080	8	21	8	64	4
48624100	10	22	10	70	4
48624120	12	25	12	76	4
48625160	16	32	16	89	5
48626200	20	38	20	102	6
48626250	25	38	25	102	6

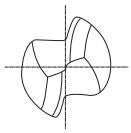


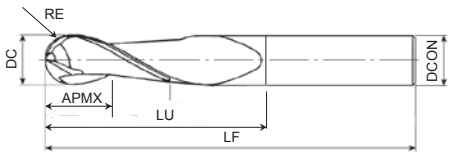
HYP-SB-EBD

INDEX

Milling | Solid carbide







- Carbide end mill with TiAlN coating
- For general applications
- 2 flutes, ball nose







EDP	DC	RE	LU	APMX	DCON	LF	ZEFP
48350030	3	1,5	9	4	6	57	2
48350040	4	2	12	5	6	57	2
48350050	5	2,5	15	6	6	57	2
48350060	6	3	18	7	6	57	2
48350080	8	4	20	9	8	63	2
48350100	10	5	25	11	10	72	2
48351200	12	6	25	13	12	83	2

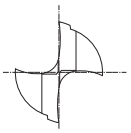


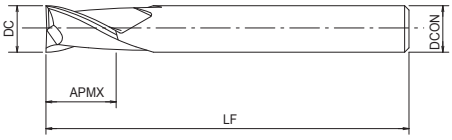
HYP-ZDS

INDEX

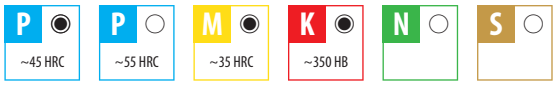
Milling | Solid carbide







- Carbide end mill with TiAlN coating
- For general applications
- For counterboring





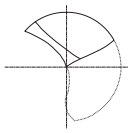


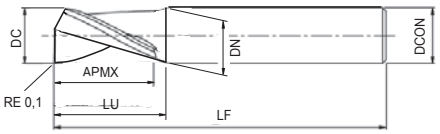
EDP	DC	APMX	DCON	LF	ZEFP
48370040	4	11	6	50	2
48370050	5	13	6	60	2
48370060	6	13	6	60	2
48370070	7	16	8	70	2
48370080	8	19	8	70	2
48370090	9	19	10	80	2
48370100	10	22	10	80	2

HYP-F1

Milling | Solid carbide







- Carbide end mill, bright finish
- For aluminium milling
- 1 flute

N

HYPRO CARBIDE 15°

C.1038

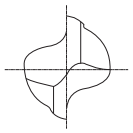
EDP	DC	LU	APMX	DCON	DN	LF	ZEFP
48360030	3	5	4	6	-	40	1
48360040	4	6	5	6	-	50	1
48360050	5	8	7	6	-	50	1
48360060	6	15	8	6	5,4	50	1
48360080	8	20	11	8	7	60	1
48360100	10	25	13	10	9	70	1
48360120	12	30	15	12	11	70	1

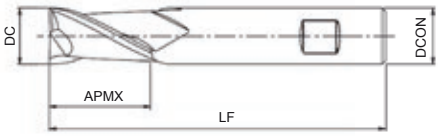
V-XPM-WEDS

Milling | Powder metal

WHILE STOCK LASTS







- Powder metal end mill with TiCN coating
- 2 flutes square
- Short length of cut
- Weldon shank

XPM | V | 32° | DIN 327 | HB

C.1041

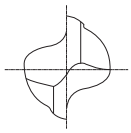
EDP	DC	APMX	DCON	LF	ZEFP
99025901	2	4	6	48	2
99025902	2,5	5	6	49	2
99025903	3	5	6	49	2
99025904	3,5	6	6	50	2
99025906	4	7	6	51	2
99025907	4,5	7	6	51	2
99025909	5	8	6	52	2
99025910	5,5	8	6	52	2
99025912	6	8	6	52	2
99025913	6,5	10	10	60	2
99025915	7	10	10	60	2
99025916	7,5	10	10	60	2
99025918	8	11	10	61	2
99025919	8,5	11	10	61	2
99025921	9	11	10	61	2
99025922	9,5	11	10	61	2
99025924	10	13	10	63	2
99025925	10,5	13	12	70	2
99025926	11	13	12	70	2
99025927	11,5	13	12	70	2
99025929	12	16	12	73	2
99025930	12,5	16	12	73	2
99025932	13	16	12	73	2
99025935	14	16	12	73	2
99025937	15	16	12	73	2
99025940	16	19	16	79	2
99025942	17	19	16	79	2
99025945	18	19	16	79	2
99025947	19	19	16	79	2
99025950	20	22	20	88	2
99025952	22	22	20	88	2
99025954	24	26	25	102	2
99025955	25	26	25	102	2
99025960	30	26	25	102	2

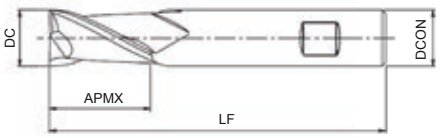
V-WEDS

Milling | HSS-Co

WHILE STOCK LASTS







- HSS-Co end mill with TiCN coating
- 2 flutes square
- Short length of cut
- Weldon shank

HSS-Co | V | 30° | DIN 327 | HB

C.1041

EDP	DC	APMX	DCON	LF	ZEFP
2002801660	1	3	6	46	2
2002800010	1,5	3	6	47	2
2002801670	1,8	4	6	48	2
2001801180	2	4	6	48	2
2002800020	2,5	5	6	49	2
2003800030	2,8	5	6	49	2
2001801190	3	5	6	49	2
2002800030	3,5	6	6	50	2
2003800040	3,8	7	6	51	2
2001801200	4	7	6	51	2
2002800040	4,5	7	6	51	2
2002801240	4,8	8	6	52	2
2001801210	5	8	6	52	2
2002800050	5,5	8	6	52	2
2003800050	5,75	8	6	52	2
2001801220	6	8	6	52	2
2002800060	6,5	10	10	60	2
2003800060	6,75	10	10	60	2
2002800070	7	10	10	60	2
2002800080	7,5	10	10	60	2
2002802010	7,75	11	10	61	2
2001801230	8	11	10	61	2
2002800090	8,5	11	10	61	2
2003800070	8,7	11	10	61	2
2001801240	9	11	10	61	2
2003800080	9,5	11	10	61	2
2003800090	9,7	13	10	63	2
2001801250	10	13	10	63	2
2002800100	10,5	13	12	70	2
2002800110	11	13	12	70	2
2003800100	11,5	13	12	70	2
2003800110	11,7	16	12	73	2
2001801260	12	16	12	73	2
2002800120	12,5	16	12	73	2
2003800120	12,7	16	12	73	2
2002800130	13	16	12	73	2
2003800130	13,7	16	12	73	2
2001801270	14	16	12	73	2
2002800140	15	16	12	73	2
2003800140	15,7	19	16	79	2
2001801280	16	19	16	79	2
2002800150	17	19	16	79	2
2003800150	17,7	19	16	79	2
2001801290	18	19	16	79	2
2002800160	19	19	16	79	2
2003800160	19,7	22	20	88	2

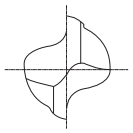


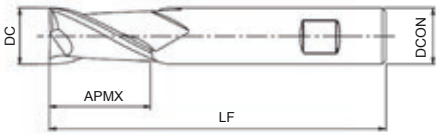
V-WEDS

Milling | HSS-Co

WHILE STOCK LASTS







- HSS-Co end mill with TiCN coating
- 2 flutes square
- Short length of cut
- Weldon shank

HSS-Co | V | 30° | DIN 327 | HB | C.1041

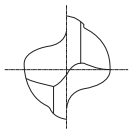
EDP	DC	APMX	DCON	LF	ZEFP
2001801300	20	22	20	88	2
2002801250	21	22	20	88	2
2002800170	22	22	20	88	2
2003800170	23	22	20	88	2
2002800180	24	26	25	102	2
2002800190	25	26	25	102	2
2003800180	26	26	25	102	2
2002801850	27	26	25	102	2
2002800200	28	26	25	102	2
2002800210	30	26	25	102	2
2002802230	32	32	32	112	2
2002802170	35	32	32	112	2
2002802090	40	38	32	118	2

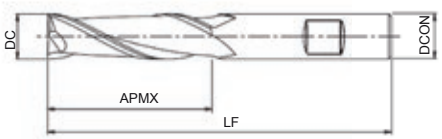
V-XPM-WEDL

Milling | Powder metal

WHILE STOCK LASTS







- Powder metal end mill with TiCN coating
- 2 flutes square
- Long length of cut
- Weldon shank

XPM | V | 32° | DIN 844 | HB

EDP	DC	APMX	DCON	LF	ZEFP
99125903	3	8	6	56	2
99125906	4	11	6	63	2
99125909	5	13	6	68	2
99125912	6	13	6	68	2
99125918	8	19	10	88	2
99125924	10	22	10	95	2
99125929	12	26	12	110	2
99125935	14	26	12	110	2
99125940	16	32	16	123	2
99125945	18	32	16	123	2
99125950	20	38	20	141	2
99125952	22	38	20	141	2
99125955	25	45	25	166	2
99125958	28	45	25	166	2
99125960	30	45	25	186	2

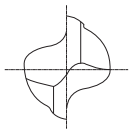


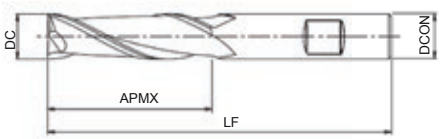
V-WEDL

Milling | HSS-Co

WHILE STOCK LASTS







- HSS-Co end mill with TiCN coating
- 2 flutes square
- Long length of cut
- Weldon shank

HSS-Co | V | 30° | DIN 844 | HB

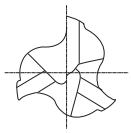
EDP	DC	APMX	DCON	LF	ZEFP
2003804860	1,5	7	6	54	2
2002801680	2	7	6	54	2
2003800240	2,5	8	6	56	2
2003800250	3	8	6	56	2
2003800260	3,5	10	6	59	2
2002801360	4	11	6	63	2
2003800270	4,5	11	6	63	2
2002800590	5	13	6	68	2
2002801690	5,5	13	6	68	2
2002800600	6	13	6	68	2
2002801700	6,5	16	10	80	2
2002801710	7	16	10	80	2
2003800280	7,5	16	10	80	2
2002800610	8	19	10	88	2
2003800290	8,5	19	10	88	2
2002801720	9	19	10	88	2
2003800300	9,5	19	10	88	2
2002801730	10	22	10	95	2
2002801740	11	22	12	102	2
2002800620	12	26	12	110	2
2003800310	13	26	12	110	2
2002800630	14	26	12	110	2
2003800320	15	26	12	110	2
2002801970	16	32	16	123	2
2003800330	17	32	16	123	2
2003800340	18	32	16	123	2
2003800350	19	32	16	123	2
2002800640	20	38	20	141	2
2003800380	25	45	25	166	2
2003800400	28	45	25	166	2
2003800410	30	45	25	186	2

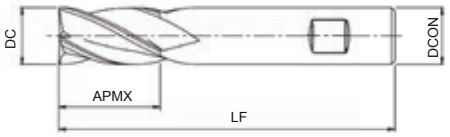
V-XPM-WETS

Milling | Powder metal

WHILE STOCK LASTS







- Powder metal end mill with TiCN coating
- 3 flutes square
- Short length of cut
- Weldon shank

XPM | V | 30° | DIN 327 | HB

C.1041

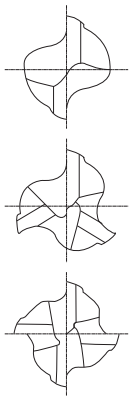
EDP	DC	APMX	DCON	LF	ZEFP
99425903	3	5	6	49	3
99425906	4	7	6	51	3
99425909	5	8	6	52	3
99425912	6	8	6	52	3
99425915	7	10	10	60	3
99425918	8	11	10	61	3
99425924	10	13	10	63	3
99425929	12	16	12	73	3
99425935	14	16	12	73	3
99425937	15	16	12	73	3
99425940	16	19	16	79	3
99425945	18	19	16	79	3
99425950	20	22	20	88	3
99425952	22	22	20	88	3
99425954	24	26	25	102	3
99425955	25	26	25	102	3
99425960	30	26	25	102	3

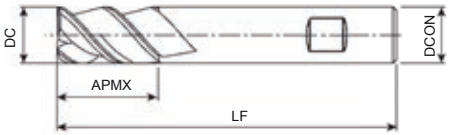
V-XPM-WEHS

Milling | Powder metal

WHILE STOCK LASTS







- Powder metal end mill with TiCN coating
- Multi flute square with 50° helix
- Short length of cut
- Weldon shank

XPM | V | 50° | DIN 844 | HB

C.1045

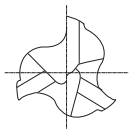
EDP	DC	APMX	DCON	LF	ZEFP
97125901	2	7	6	51	2
97125903	3	8	6	52	2
97125906	4	11	6	55	2
97125909	5	13	6	57	2
97125912	6	13	6	57	3
97125915	7	16	10	66	3
97125918	8	19	10	69	3
97125921	9	19	10	69	3
97125924	10	22	10	72	3
97125926	11	22	12	79	3
97125929	12	26	12	83	3
97125932	13	26	12	83	3
97125935	14	26	12	83	3
97125937	15	26	12	83	3
97125940	16	32	16	92	3
97125945	18	32	16	92	3
97125950	20	38	20	104	3
97125952	22	38	20	104	4
97125954	24	45	25	121	4
97125955	25	45	25	121	4
97125958	28	45	25	121	4
97125960	30	45	25	121	4

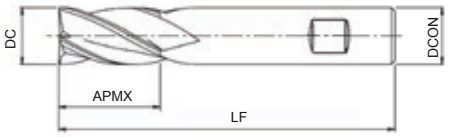
V-WETS

Milling | HSS-Co

WHILE STOCK LASTS







- HSS-Co end mill with TiCN coating
- 3 flutes square
- Short length of cut
- Weldon shank

HSS-Co | V | 30° | DIN 327 | HB

C.1041

EDP	DC	APMX	DCON	LF	ZEFP
2002800220	1,5	3	6	47	3
2002800230	2	4	6	48	3
2002800240	2,5	5	6	49	3
2001801480	3	5	6	49	3
2002801260	3,5	6	6	50	3
2001801490	4	7	6	51	3
2002801270	4,5	7	6	51	3
2001801500	5	8	6	52	3
2002800250	5,5	8	6	52	3
2001801510	6	8	6	52	3
2002800260	6,5	10	10	60	3
2001801520	7	10	10	60	3
2002800270	7,5	10	10	60	3
2001801530	8	11	10	61	3
2002801280	8,5	11	10	61	3
2002800280	9	11	10	61	3
2003800470	9,5	11	10	61	3
2001801540	10	13	10	63	3
2002800290	10,5	13	12	70	3
2002800300	11	13	12	70	3
2003800480	11,5	13	12	70	3
2001801550	12	16	12	73	3
2003800490	12,5	16	12	73	3
2002800310	13	16	12	73	3
2001801560	14	16	12	73	3
2002800320	15	16	12	73	3
2001801570	16	19	16	79	3
2002800330	17	19	16	79	3
2001801580	18	19	16	79	3
2003804870	19	19	16	79	3
2001801590	20	22	20	88	3
2003800510	21	22	20	88	3
2002801290	22	22	20	88	3
2003804850	23	22	20	88	3
2002801300	25	26	25	102	3
2003800540	26	26	25	102	3
2003800560	28	26	25	102	3
2002800340	30	26	25	102	3

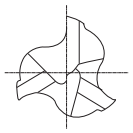


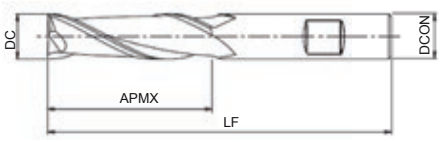
V-XPM-WETL

Milling | Powder metal

WHILE STOCK LASTS







- Powder metal end mill with TiCN coating
- 3 flutes square
- Long length of cut
- Weldon shank

XPM | V | 30° | DIN 844 | HB

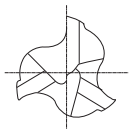
EDP	DC	APMX	DCON	LF	ZEFP
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99625906	4	19	6	63	3
99625909	5	24	6	68	3
99625912	6	24	6	68	3
99625918	8	38	10	88	3
99625924	10	45	10	95	3
99625929	12	53	12	110	3
99625935	14	53	12	110	3
99625940	16	63	16	123	3
99625945	18	63	16	123	3
99625950	20	75	20	141	3
99625952	22	75	20	141	3
99625955	25	90	25	166	3
99625958	28	90	25	166	3
99625960	30	90	25	166	3

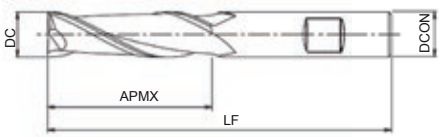
V-WETL

Milling | HSS-Co

WHILE STOCK LASTS







- HSS-Co end mill with TiCN coating
- 3 flutes square
- Long length of cut
- Weldon shank

HSS-Co | V | 30° | DIN 844 | HB

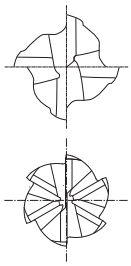
EDP	DC	APMX	DCON	LF	ZEFP
2003800640	3	12	6	56	3
2003800650	3,5	15	6	59	3
2003800660	4	19	6	63	3
2003800670	4,5	19	6	63	3
2002802100	5	24	6	68	3
2003800680	5,5	24	6	68	3
2002801750	6	24	6	68	3
2003800690	6,5	30	10	80	3
2003800700	7	30	10	80	3
2003800710	7,5	38	10	80	3
2002801760	8	38	10	88	3
2002801770	9	38	10	88	3
2002800720	10	45	10	95	3
2002802110	11	45	12	102	3
2003800720	12	53	12	110	3
2002801550	13	53	12	110	3
2002801330	14	53	12	110	3
2003800730	15	53	12	110	3
2002801340	16	63	16	123	3
2003800740	17	63	16	123	3
2003800750	18	63	16	123	3
2003800760	19	63	16	123	3
2002801350	20	75	20	141	3
2002802050	30	90	25	166	3

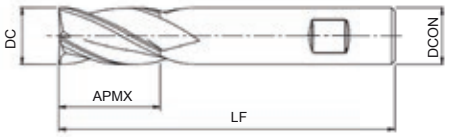
V-XPM-WEMS

Milling | Powder metal

WHILE STOCK LASTS







- Powder metal end mill with TiCN coating
- Multi flute square
- Short length of cut
- Weldon shank

XPM | V | 32° | DIN 844 | HB

C.1042

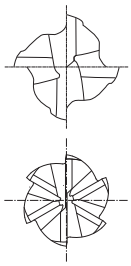
EDP	DC	APMX	DCON	LF	ZEFP
98025903	3	8	6	52	4
98025906	4	11	6	55	4
98025909	5	13	6	57	4
98025912	6	13	6	57	4
98025915	7	16	10	66	4
98025918	8	19	10	69	4
98025924	10	22	10	72	4
98025929	12	26	12	83	4
98025935	14	26	12	83	4
98025937	15	26	12	83	4
98025940	16	32	16	92	4
98025945	18	32	16	92	4
98025950	20	38	20	104	4
98025952	22	38	20	104	6
98025954	24	45	25	121	6
98025955	25	45	25	121	6
98025960	30	45	25	121	6

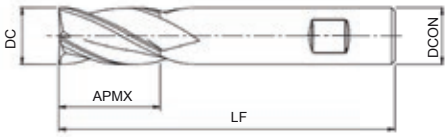
V-WEMS

Milling | HSS-Co

WHILE STOCK LASTS







- HSS-Co end mill with TiCN coating
- Multi flute square
- Short length of cut
- Weldon shank

HSS-Co | V | 30° | DIN 844 | HB

C.1042

EDP	DC	APMX	DCON	LF	ZEFP
2003800010	1,5	7	6	51	4
2001801310	2	7	6	51	4
2002800350	2,5	8	6	52	4
2002800360	3	8	6	52	4
2002800370	3,5	10	6	54	4
2001801320	4	11	6	55	4
2002800380	4,5	11	6	55	4
2001801330	5	13	6	57	4
2002800390	5,5	13	6	57	4
2001801340	6	13	6	57	4
2003800790	6,5	16	10	66	4
2002800400	7	16	10	66	4
2003800800	7,5	16	10	66	4
2001801350	8	19	10	69	4
2003800810	8,5	19	10	69	4
2001801360	9	19	10	69	4
2003800820	9,5	19	10	69	4
2001801370	10	22	10	72	4
2003800830	10,5	22	12	79	4
2002800410	11	22	12	79	4
2003800840	11,5	26	12	83	4
2001801380	12	26	12	83	4
2002800420	13	26	12	83	4
2001801390	14	26	12	83	4
2002800430	15	26	12	83	4
2001801400	16	32	16	92	4
2002800440	17	32	16	92	4
2001801410	18	32	16	92	4
2002800450	19	32	16	92	4
2001801420	20	38	20	104	4
2003800850	21	38	20	104	4
2001801430	22	38	20	104	6
2003800860	23	38	20	104	6
2002802240	24	45	25	121	6
2001801440	25	45	25	121	6
2002800460	26	45	25	121	6
2002800470	28	45	25	121	6
2001801450	30	45	25	121	6
2001801460	32	53	32	133	6
2003800890	36	53	32	133	6
2001801470	40	63	32	143	6

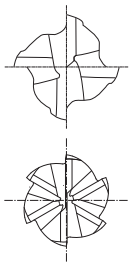


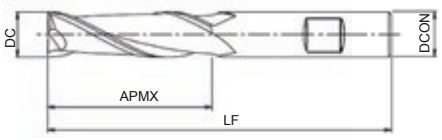
V-XPM-WEML

Milling | Powder metal

WHILE STOCK LASTS







- Powder metal end mill with TiCN coating
- Multi flute square
- Long length of cut
- Weldon shank

XPM | V | 32° | DIN 844 | HB

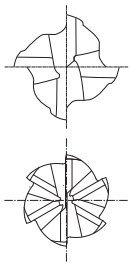
EDP	DC	APMX	DCON	LF	ZEFP
98125903	3	12	6	56	4
98125906	4	19	6	63	4
98125909	5	24	6	68	4
98125912	6	24	6	68	4
98125918	8	38	10	88	4
98125924	10	45	10	95	4
98125929	12	53	12	110	4
98125935	14	53	12	110	4
98125940	16	63	16	123	4
98125945	18	63	16	123	4
98125950	20	75	20	141	4
98125952	22	75	20	141	6
98125955	25	90	25	166	6
98125958	28	90	25	166	6
98125960	30	90	25	166	6

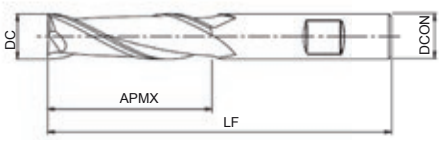
V-WEML

Milling | HSS-Co

WHILE STOCK LASTS







- HSS-Co end mill with TiCN coating
- Multi flute square
- Long length of cut
- Weldon shank

HSS-Co | V | 30° | DIN 844 | HB

EDP	DC	APMX	DCON	LF	ZEFP
2002801640	2	10	6	54	4
2002801650	2,5	12	6	56	4
2003804880	3	12	6	56	4
2003804890	3,5	15	6	63	4
2003804900	4	19	6	63	4
2003804910	4,5	19	6	63	4
2002800650	5	24	6	68	4
2003804920	5,5	24	6	68	4
2003804930	6	24	6	68	4
2003804940	6,5	30	10	80	4
2003804950	7	30	10	80	4
2003804960	7,5	30	10	80	4
2002800660	8	38	10	88	4
2003804970	8,5	38	10	88	4
2003804980	9	38	10	88	4
2003804990	9,5	38	10	88	4
2002800670	10	45	10	95	4
2003805000	11	45	12	102	4
2002801600	12	53	12	110	4
2003805010	13	53	12	110	4
2003805020	14	53	12	110	4
2003805030	15	53	12	110	4
2002802210	16	63	16	123	4
2003805040	17	63	16	123	4
2003805050	18	63	16	123	4
2003805060	19	63	16	123	4
2002800680	20	75	20	141	4
2003805070	22	75	20	141	6
2003805080	24	90	25	166	6
2002800690	25	90	25	166	6
2003805100	28	90	25	166	6
2002800700	30	90	25	166	6
2002800710	32	106	32	186	6
2003805110	35	106	32	186	6
2003805120	36	106	32	186	6
2002801580	40	125	32	205	6



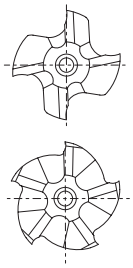
SI-WH-WRESF

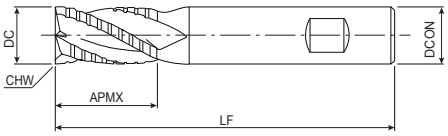
Milling | Powder metal

INDEX

WHILE STOCK LASTS







- Powder metal end mill with WXL coating
- Roughing fine pitch, multi flute square
- Short length of cut, variable helix and unequal spacing
- Weldon shank

CPM | WXL | 25°~31,5° | DIN 844 | HB

C.1042

EDP	DC	APMX	DCON	LF	ZEFP	CHW
48147006	6	13	6	57	4	0,50
48147008	8	19	10	69	4	0,50
48147010	10	22	10	72	4	0,50
48147012	12	26	12	83	4	0,60
48147016	16	32	16	92	4	0,60
48147020	20	38	20	104	4	0,60
48147025	25	45	25	121	5	0,80

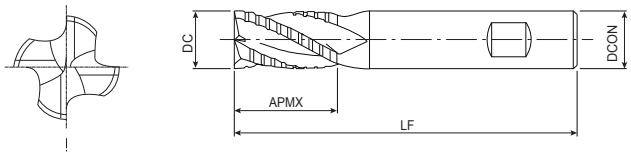
V-XPM-WRESF

Milling | Powder metal

INDEX

WHILE STOCK LASTS





- Powder metal end mill with TiCN coating
- Roughing multi flute square
- Short length of cut
- Weldon shank

XPM | V | DIN 844 | HB

C.1043

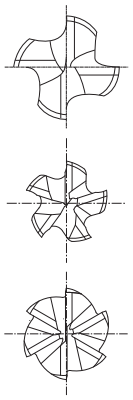
EDP	DC	APMX	DCON	LF	ZEFP
97825912	6	13	6	57	4
97825915	7	16	10	66	4
97825918	8	19	10	69	4
97825924	10	22	10	72	4
97825929	12	26	12	83	4
97825932	13	26	12	83	4
97825935	14	26	12	83	4
97825937	15	26	12	83	4
97825940	16	32	16	92	4
97825945	18	32	16	92	4
97825950	20	38	20	104	4
97825952	22	38	20	104	5
97825955	25	45	25	121	5
97825958	28	45	25	121	5
97825960	30	45	25	121	6
97825961	32	53	32	133	6

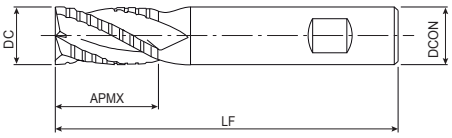
V-WRESF

Milling | HSS-Co

WHILE STOCK LASTS







- HSS-Co end mill with TiCN coating
- Roughing fine pitch, multi flute square
- Short length of cut
- Weldon shank

HSS-Co | V | 30° | DIN 844 | HB

C.1043

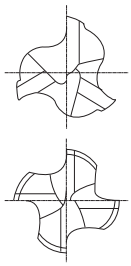
EDP	DC	APMX	DCON	LF	ZEFP
2001801720	6	13	6	57	4
2002800540	7	16	10	66	4
2001801730	8	19	10	69	4
2002801200	9	19	10	69	4
2001801740	10	22	10	72	4
2002800550	11	22	12	79	4
2001801750	12	26	12	83	4
2002800560	13	26	12	83	4
2001801760	14	26	12	83	4
2002801210	15	26	12	83	4
2001801770	16	32	16	92	4
2002801220	18	32	16	92	4
2001801780	20	38	20	104	4
2001801790	22	38	20	104	5
2001801800	24	45	25	121	5
2001801810	25	45	25	121	5
2002801610	26	45	25	121	5
2002802020	28	45	25	121	5
2001801820	30	45	25	121	6
2001801830	32	53	32	133	6
2003801040	35	53	32	133	6
2001801840	40	63	32	143	6

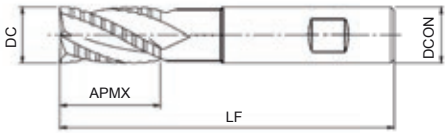
VP-RESF-SP

Milling | Powder metal

WHILE STOCK LASTS







- Powder metal end mill with TiCN coating
- Roughing multi flute square
- Short length of cut
- Weldon shank

XPM | V | HB

C.1044

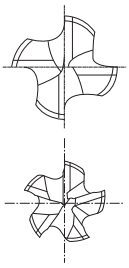
EDP	DC	APMX	DCON	LF	ZEFP
48101060	6	6	6	51	3
48101080	8	8	10	59	3
48101100	10	10	10	63	3
48101120	12	12	12	72	3
48101160	16	16	16	83	3
48101200	20	20	20	93	3
48101250	25	25	25	109	4

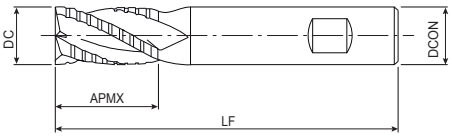
VP-RELF

Milling | Powder metal

WHILE STOCK LASTS







- Powder metal end mill with TiCN coating
- Roughing multi flute square
- Long length of cut
- Weldon shank

XPM | V | HB

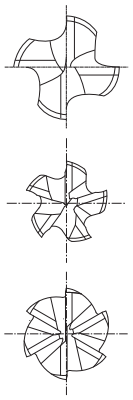
EDP	DC	APMX	DCON	LF	ZEFP
48102100	10	45	10	95	4
48102120	12	53	12	110	4
48102160	16	63	16	123	4
48102200	20	75	20	141	4
48102250	25	90	25	166	5

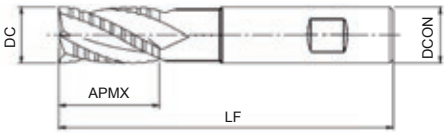
V-WREES

Milling | HSS-Co

WHILE STOCK LASTS







- HSS-Co end mill with TiCN coating
- Roughing multi flute square
- Short length of cut
- Weldon shank

HSS-Co | V | 30° | DIN 844 | HB

C.1043

EDP	DC	APMX	DCON	LF	ZEFP
2001801600	6	13	6	57	4
2002800480	7	16	10	66	4
2001801610	8	19	10	69	4
2002800490	9	19	10	69	4
2001801620	10	22	10	72	4
2002800500	11	22	12	79	4
2001801630	12	26	12	83	4
2002801180	13	26	12	83	4
2001801640	14	26	12	83	4
2002800510	15	26	12	83	4
2002801190	16	32	16	92	4
2002800520	18	32	16	92	4
2001801650	20	38	20	104	4
2002800530	22	38	20	104	5
2001801660	24	45	25	121	5
2001801670	25	45	25	121	5
2002801540	26	45	25	121	5
2001801680	28	45	25	121	5
2001801690	30	45	25	121	6
2001801700	32	53	32	133	6
2003800980	35	53	32	133	6
2003800990	36	53	32	133	6
2001801710	40	63	32	143	6

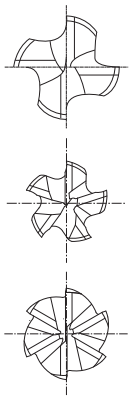


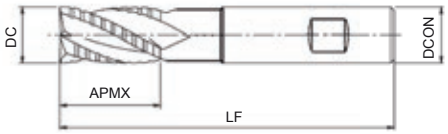
V-WREEL

Milling | HSS-Co

WHILE STOCK LASTS







- HSS-Co end mill with TiCN coating
- Roughing multi flute square
- Long length of cut
- Weldon shank

HSS-Co | V | 30° | DIN 844 | HB

EDP	DC	APMX	DCON	LF	ZEFP
2002801780	8	38	10	88	4
2002802130	10	45	10	95	4
2002801790	12	53	12	110	4
2002801800	14	53	12	110	4
2003805430	15	53	12	110	4
2003805440	16	63	16	123	4
2003805450	18	63	16	123	4
2002801810	20	75	20	141	4
2003805460	22	75	20	141	5
2003805470	24	90	25	166	5
2002800730	25	90	25	166	5
2003805480	26	90	25	166	5
2003805490	28	90	25	166	5
2002801820	30	90	25	166	6
2002801560	32	106	32	186	6
2003805500	36	106	32	186	6
2002801570	40	125	32	205	6

MILLING INDEXABLES



DESIGNATION SYSTEMS FOR BODY

Milling | Indexables

PHC	12	R	050	SS	42	-	4	S

Abbreviation

PHC = High feed cutter

Direction of cut

R = Right hand
L = Left hand

Mounting diameter

Unit in mm
Hole diameter
42 = 42mm

Insert size

Cutting edge length
12 = 12mm

Cutting diameter

Effective cutter diameter
050 = 50mm

Number of flutes

4 = 4 flutes

Mounting type

A = Bore type (inch)

M = Bore type (metric)

SS = Straight Shank (metric)

WS = Weldon Shank (inch)

SA = Straight Shank (inch)

MT = Morse Taper Shank

SF = Screw Fit Type

FS = Flat Shank

Shank type

S = Short

L = Long

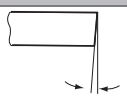
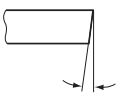
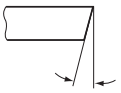
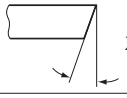
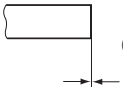
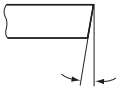
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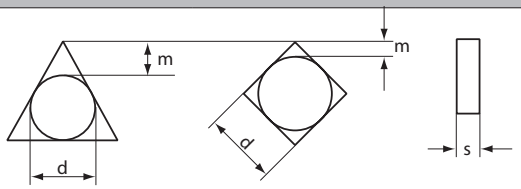
DESIGNATION SYSTEMS FOR INSERTS

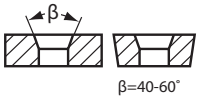
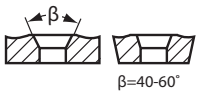
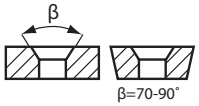
Milling | Indexables

Z	D	K	T

Shape		
C	80° diamond apex	
D	55° diamond apex	
O	octagon	
R	round	
S	square	
T	triangle	
V	35° diamond apex	
W	axonometric hexagon	
Z	other shapes	-

Clearance angle	
A	 3°
C	 7°
D	 15°
E	 20°
N	 0°
P	 11°
X	Special dimension

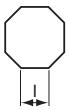
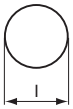
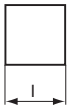
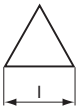
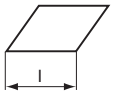
Tolerance			
			
Symbol	**dia d (mm)** Inscribed circle tolerance	**m (mm)** Corner height tolerance	**s (mm)** Thickness tolerance
A	±0.025	±0.005	±0.025
C	±0.025	±0.013	±0.025
E	±0.025	±0.025	±0.025
H	±0.013	±0.013	±0.025
K*	±0.05 ~ ±0.15	±0.013	±0.025
M*	±0.05 ~ ±0.15	±0.08 ~ ±0.18	±0.13
N*	±0.05 ~ ±0.15	±0.08 ~ ±0.18	±0.025

Feature of inserts			
Symbol	**Shape of hole**	**Chipbreaker**	**Shape**
W	40° - 60° Partial cylindrical hole	No breaker	 β=40-60°
T		One side	 β=40-60°
B	70° - 90° Partial cylindrical hole	No breaker	 β=70-90°
N	-	No breaker	
R	-	One side	

DESIGNATION SYSTEMS FOR INSERTS

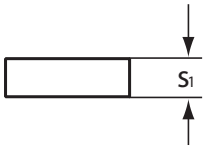
Milling | Indexables

15	05	08	S	R	-	GM

Length of the cutting edge	
O	
R	
S	
T	
Z	

Corner radius	
Symbol	**Corner radius**
02	0.2
04	0.4
08	0.8
12	1.2
16	1.6
24	2.4

Cutting direction	
Symbol	**Cutting direction**
R	Right hand
L	Left hand
N	Neutral

Thickness of insert	
	
Symbol	**S1 (mm) Thickness**
02	2.38
03	3.18
T3	3.97
04	4.76
05	5.56
06	6.35

Type of cutting edge	
Symbol	**Appearance**
F	 **Sharpe edge**
E	 **Round honing**
T	 **Chamfer honing**
S	 **Combination honing**

Type of chipbreaker	
Symbol	**Material**
GL	Stainless steel
GM	Steel, stainless steel, cast iron
GR	Steel - Cast Iron
NM	Non ferrous materials, sharp cutting edge
SM	Difficult materials, sharp cutting edge
DM	Steel, stainless steel, cast iron general purpose chipbreaker
HR	Hardened steel
DN	Non ferrous
DR	Cast Iron



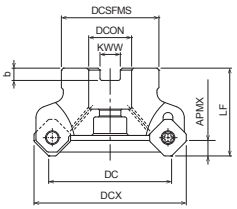
ISO 13399 LEGEND

ISO code	Description
ae	Maximum depth plunging
AN	Clearance angle major
APMX	Depth of cut maximum
b	Keyway depth
BD	Body diameter
BHTA	Body half taper angle
BS	Wiper edge length
CBDP	Connection bore depth
CHW	Corner chamfer width
CRKS	Connection retention knob thread size
CS	Head connexion C
DC	Cutting diameter
DCB	Connection bore diameter
DCF	Cutting diameter face contact
DCN	Cutting diameter minimum
DCON	Connection diameter
DCONWS	Connection diameter workpiece side
DCSFMS	Contact surface diameter machine side
DCX	Cutting diameter maximum
DN	Neck diameter
DRVS	Drive size
FHA	Flute helix angle
IC	Inscribed circle diameter
KAPR	Tool cutting edge angle
KCH	Corner chamfer angle
KWW	Keyway width
L	Cutting edge length
LB	Body length
LC	Length at widest point
LCF	Length chip flute
LE	Cutting edge effective length
LF	Functional length
LH	Head length
LPR	Protruding length
LS	Shank length
LU	Usable length
NOF	Flute count
OAL	Overall length
PHD	Premachined hole diameter
RE	Corner radius
RE2	Secondary radius
RE3	Tertiary radius
S	Insert thickness
SIG	Point angle
ULDR	Usable length diameter ratio
W1	Insert width
ZEFP	Peripheral effective cutting edge count

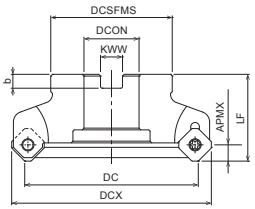
PAS

Milling | Indexable | 45 degrees



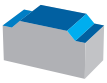


Type 1



Type 2

- 45° face milling cutter
- Double sided 8 corners inserts
- Bore type
- 50 -125 mm



C.868
C.1050

EDP	Designation	DC	DCX	LF	APMX	DCON	DCSFMS	KWW	b	ZEFP	Type	Specification
7802000	PAS15R050M224	50	65	45	6,5	22	45	10,4	6,3	4	1	With coolant
7802001	PAS15R063M225	63	78	45	6,5	22	50	10,4	6,3	5	1	With coolant
47802002	PAS15R080M276	80	95	50	6,5	27	60	12,4	7	6	1	With coolant
47802003	PAS15R100M327	100	115	50	6,5	32	70	14,4	8	7	2	Without coolant
47802004	PAS15R125M408	125	140	63	6,5	40	90	16,4	9	8	2	Without coolant

Accessories and spare parts

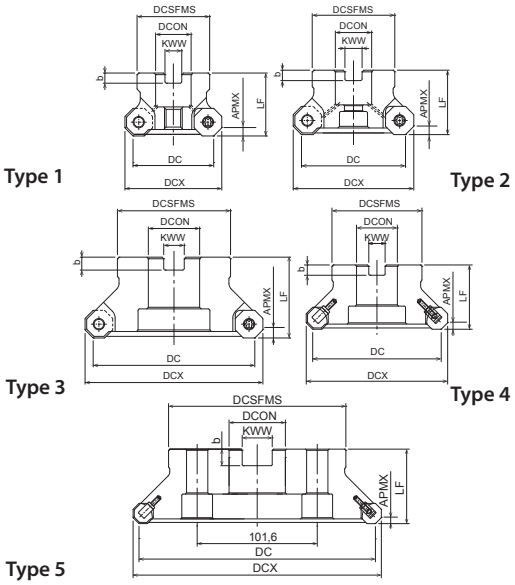
EDP	Designation	Specification
7808131	FS45513P (Torx 20IP)	Clamping screw
7808000	20IP-T (Torx 20IP)	Wrench

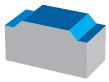
PAO

Milling | Indexable | 45 degrees



- 45° face milling cutter
- Double sided 16 corners inserts
- Bore type
- 50 -200 mm





C.869
C.1050

EDP	Designation	DC	DCX	LF	APMX	DCON	DCSFMS	KWW	b	ZEFP	Type	Specification
7802020	PAO06R050M225	50	60,2	40	3,5	22	45	10,4	6,3	5	1	With coolant
7802021	PAO06R063M227	63	73,2	40	3,5	22	50	10,4	6,3	7	2	With coolant
7802085	PAO06R080M278	80	90,2	50	3,5	27	60	12,4	7	8	2	With coolant
7802086	PAO06R100M3210	100	110,2	50	3,5	32	70	14,4	8	10	3	Without coolant
7802087	PAO06R125M4012	125	135,2	63	3,5	40	90	16,4	9	12	3	Without coolant
7802088	PAO06R100M32W14	100	110,2	50	3,5	32	70	14,4	8	14	4	Without coolant
7802090	PAO06R125M40W17	125	135,2	63	3,5	40	90	16,4	9	17	4	Without coolant
7802092	PAO06R160M40W20	160	170,2	63	3,5	40	100	16,4	9	20	4	Without coolant
7802094	PAO06R200M60W25	200	210,2	63	3,5	60	150	25,7	14	25	5	Without coolant

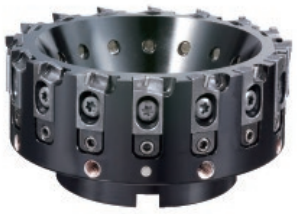
Accessories and spare parts

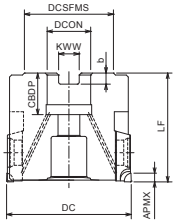
Applicable cutter DC	EDP	Designation	Specification
50	7808151	PS1031 (M10x31)	Power screw
50 - 125	7808130	FS50614 (Torx 20)	Clamping screw
50 - 125	7808209	T20-D (Torx 20)	Wrench
100 - 200 (Wedge)	7808141	W12F-06N (M6)	Wedge
100 - 200 (Wedge)	7808140	WS0621T (M6x21)	Clamping screw (wedge)
100 - 200 (Wedge)	7808208	T15-D (Torx 15)	Wrench



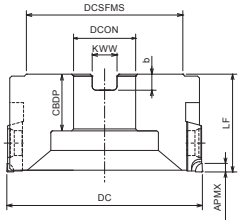
PFAL

Milling | Indexable | 90 degrees



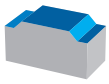


Type 1



Type 2

- Face milling finishing cutter for aluminium
- PCD blades
- Bore type
- 50 -160 mm



C.870 C.1050

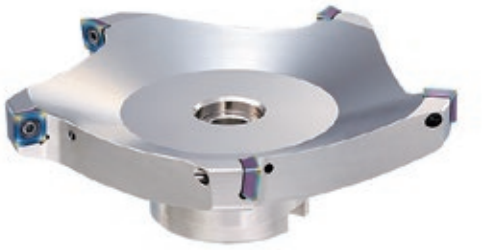
EDP	Designation	DC	LF	DCON	DCSFMS	KWW	b	CBDP	ZEFP	Type
7803600	PFAL04R050M165	50	55	16	40	8,4	5,6	20	5	1
7803601	PFAL04R063M226	63	55	22	45	10,4	6,3	21	6	1
7803602	PFAL04R063M228	63	55	22	45	10,4	6,3	21	8	1
7803604	PFAL04R080M278	80	50	27	70	12,4	7	28	8	2
7803606	PFAL04R080M2710	80	50	27	70	12,4	7	28	10	2
7803608	PFAL04R100M278	100	50	27	80	12,4	7	28	8	2
7803610	PFAL04R100M328	100	50	32	80	14,4	8,2	28	8	2
7803612	PFAL04R100M2712	100	50	27	80	12,4	7	28	12	2
7803614	PFAL04R100M3212	100	50	32	80	14,4	8,2	28	12	2
7803616	PFAL04R125M2710	125	50	27	80	12,4	7	28	10	2
7803618	PFAL04R125M4010	125	63	40	85	16,4	9,2	30	10	2
7803620	PFAL04R125M2716	125	50	27	80	12,4	7	28	16	2
7803622	PFAL04R125M4016	125	63	40	85	16,4	9,2	30	16	2
7803624	PFAL04R160M2712	160	50	27	80	12,4	7	28	12	2
7803625	PFAL04R160M4012	160	63	40	85	16,4	9,2	30	12	2
7803630	PFAL04R160M2720	160	50	27	80	12,4	7	28	20	2
7803627	PFAL04R160M4020	160	63	40	85	16,4	9,2	30	20	2

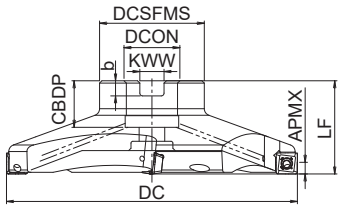
Accessories and spare parts

EDP	Designation	Specification
7808143	W12-06	Wedge
7808125	FS60620 (Torx 25)	Clamping screw
7808142	WS0617	Clamping screw (wedge)
7808231	3MM-L	L-wrench (wedge)
7808211	T25-T (Torx 25)	Wrench

PFDC

Milling | Indexable





- Face milling disk cutter
- Economical 4-corner insert with 90° cutting angle
- Bore type coolant hole
- 80 - 125 mm



C.871
C.1051

EDP	Designation	DC	LF	APMX	DCON	RPMX (min^{-1})	(Kg)	DCSFMS	KWW	b	CBDP	ZEFP
7835101	PFDC09R080M22-4	80	40	5	22	10.000	0,5	45	10,4	6,5	20	4
7835102	PFDC09R080M25.4-4	80	45	5	25,4	10.000	0,6	50	9,5	6	23	4
7835103	PFDC09R100M22-4	100	40	5	22	10.000	0,7	45	10,4	6,5	20	4
7835104	PFDC09R100M25.4-4	100	45	5	25,4	10.000	0,83	50	9,5	6	23	4
7835105	PFDC09R125M22-5	125	40	5	22	10.000	1	45	10,4	6,5	20	5
7835106	PFDC09R125M25.4-5	125	45	5	25,4	10.000	1,07	50	9,5	6	23	5

For balancing purposes, a hole may be present on the flute of the cutter

Accessories and spare parts

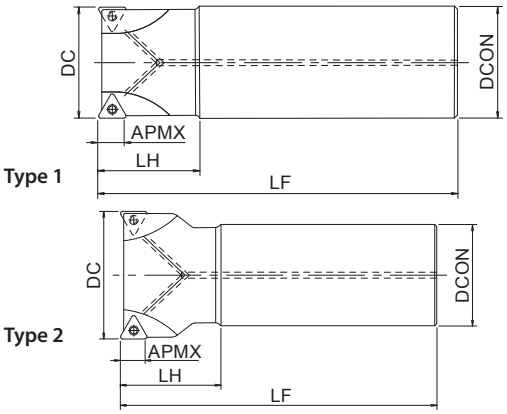
Applicable cutter DC	EDP	Designation	Specification
80 - 125	7808110	FS30573 (Torx 8)	Clamping screw
80 - 125	7808205	T8-D (Torx 8)	Wrench

PSTW SS

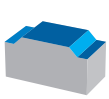
Milling | Indexable | 90 degrees

INDEX

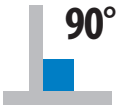




- 90° shoulder cutter
- Double sided 6 corners inserts
- Cylindrical type, with internal coolant
- 25 - 40 mm







C.872 C.1051

EDP	Designation	DC	LF	LH	APMX	DCON	Applicable inserts type	ZEFP	Type
7803014	PSTW09R025SS25-2S	25	120	35	9	25	TN...U0904004	2	1
7803015	PSTW09R025SS25-2L	25	170	70	9	25	TN...U0904004	2	1
7803016	PSTW09R025SS25-3S	25	120	35	9	25	TN...U0904004	3	1
7803017	PSTW09R026SS25-2L	26	170	35	9	25	TN...U0904004	2	2
7803018	PSTW09R028SS25-2L	28	170	35	9	25	TN...U0904004	2	2
7803019	PSTW09R028SS25-3S	28	120	35	9	25	TN...U0904004	3	2
7803020	PSTW09R030SS32-2L	30	190	90	9	32	TN...U0904004	2	1
7803021	PSTW09R030SS32-3S	30	130	45	9	32	TN...U0904004	3	1
7803022	PSTW09R032SS32-3S	32	130	45	9	32	TN...U0904004	3	1
7803023	PSTW09R032SS32-3L	32	190	45	9	32	TN...U0904004	3	1
7803024	PSTW09R032SS32-4S	32	125	40	9	32	TN...U0904004	4	1
7803025	PSTW09R033SS32-3L	33	190	35	9	32	TN...U0904004	3	2
7803026	PSTW09R035SS32-3L	35	190	35	9	32	TN...U0904004	3	2
7803027	PSTW09R035SS32-4S	35	130	35	9	32	TN...U0904004	4	2
7803028	PSTW09R040SS32-4S	40	140	50	9	32	TN...U0904004	4	2
7803029	PSTW09R040SS32-4L	40	190	45	9	32	TN...U0904004	4	2
7803030	PSTW09R040SS32-5S	40	140	50	9	32	TN...U0904004	5	2

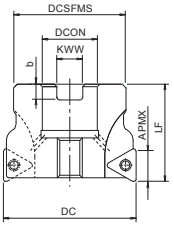
Accessories and spare parts

Applicable cutter DC	EDP	Designation	Specification
25 - 40	7808097	FS30668 (Torx 8)	Clamping screw
25 - 40	7808205	T8-D (Torx 8)	Wrench

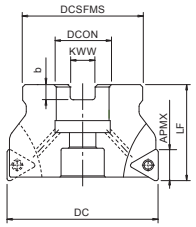
PSTW

Milling | Indexable | 90 degrees



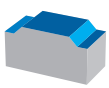


Type 1

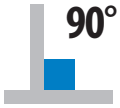


Type 2

- 90° shoulder cutter
- Double sided 6 corners inserts
- Bore type
- 40 - 125 mm







C.872 C.1051

EDP	Designation	DC	LF	APMX	DCON	DCSFMS	KWW	b	Type	ZEFP	Specification
7803031	PSTW09R040M16-4	40	40	9	16	38	8,4	5,6	2	4	With coolant hole
7803032	PSTW09R040M16-5	40	40	9	16	38	8,4	5,6	2	5	With coolant hole
7803100	PSTW12R050M22-3	50	40	12	22	45	10,4	6,3	1	3	With coolant hole
7803033	PSTW09R050M22-4	50	40	9	22	45	10,4	6,3	2	4	With coolant hole
7803101	PSTW12R050M22-4	50	40	12	22	45	10,4	6,3	1	4	With coolant hole
7803034	PSTW09R050M22-6	50	40	9	22	45	10,4	6,3	2	6	With coolant hole
7803102	PSTW12R063M22-3	63	40	12	22	50	10,4	6,3	2	3	With coolant hole
7803035	PSTW09R063M22-5	63	40	9	22	50	10,4	6,3	2	5	With coolant hole
7803103	PSTW12R063M22-5	63	40	12	22	50	10,4	6,3	2	5	With coolant hole
7803036	PSTW09R063M22-7	63	40	9	22	50	10,4	6,3	2	7	With coolant hole
7803110	PSTW12R080M27-5	80	50	12	27	60	12,4	7	2	5	With coolant hole
7803111	PSTW12R080M27-6	80	50	12	27	60	12,4	7	2	6	With coolant hole
7803112	PSTW12R100M32-5	100	50	12	32	70	14,4	8	2	5	With coolant hole
7803113	PSTW12R100M32-7	100	50	12	32	70	14,4	8	2	7	With coolant hole
7803114	PSTW12R125M40-7	125	63	12	40	90	16,4	9	2	7	With coolant hole
7803115	PSTW12R125M40-9	125	63	12	40	90	16,4	9	2	9	With coolant hole

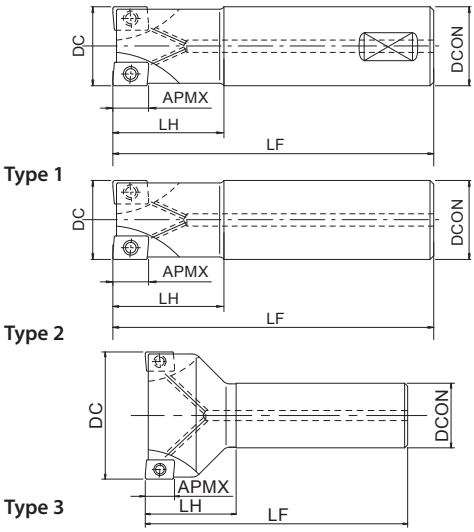
Accessories and spare parts

Applicable cutter DC	Insert	EDP	Designation	Specification
50 (Type 1)	TN*U12	7808151	PS1031 (M10x31)	Power screw
40 - 63	TN*U09	7808097	FS30668 (Torx 8)	Clamping screw
40 - 63	TN*U09	7808205	T8-D (Torx 8)	Wrench
50 - 125	TN*U12	7808129	FS40511 (Torx 15)	Clamping screw
50 - 125	TN*U12	7808208	T15-D (Torx 15)	Wrench

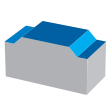
PSE WS / PSE SS

Milling | Indexable | 90 degrees

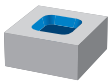
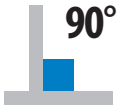




- 90° shoulder cutter
- 2 corners inserts with bottom notch
- Cylindrical type, with internal coolant
- 10 - 63 mm





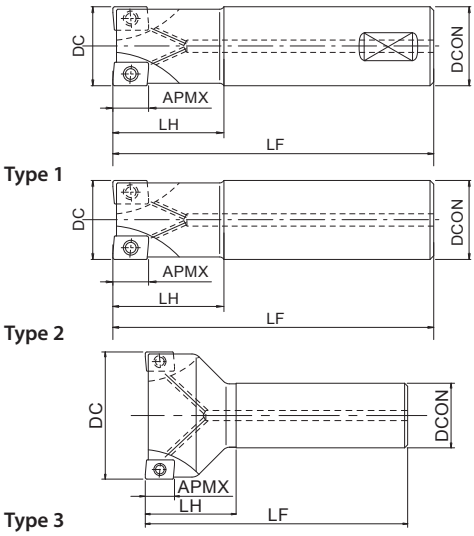
C.875 C.1052

EDP	Designation	DC	LF	LH	APMX	DCON	Applicable inserts type	ZEFP	Type
7803810	PSE07R010SS10-2S	10	50	12	6	10	ZDT07	2	2
7803811	PSE07R012SS12-3S	12	50	12	6	12	ZDT07	3	2
7803813	PSE07R016SS16-3S	16	90	25	6	16	ZDT07	3	2
7803814	PSE07R016SS16-4S	16	90	25	6	16	ZDT07	4	2
7803817	PSE07R020SS20-4S	20	100	30	6	20	ZDT07	4	2
7803820	PSE07R025SS25-5S	25	120	35	6	25	ZDT07	5	2
47801100	PSE11R016WS16-2S	16	75	25	10	16	ZDT11	2	1
7801100	PSE11R016SS16-2S	16	90	25	10	16	ZDT11	2	2
7801121	PSE11R016SS16-2L	16	150	50	10	16	ZDT11	2	2
7801116	PSE11R018SS16-2S	18	90	25	10	16	ZDT11	2	3
7801122	PSE11R018SS16-2L	18	150	25	10	16	ZDT11	2	3
47801115	PSE11R020WS20-3S	20	80	25	10	20	ZDT11	3	1
7801101	PSE11R020SS20-2S	20	100	30	10	20	ZDT11	2	2
7801115	PSE11R020SS20-3S	20	100	30	10	20	ZDT11	3	2
7801123	PSE11R020SS20-3L	20	160	60	10	20	ZDT11	3	2
7801117	PSE11R022SS20-3S	22	110	30	10	20	ZDT11	3	3
7801124	PSE11R022SS20-3L	22	160	30	10	20	ZDT11	3	3
47801104	PSE11R025WS25-4S	25	90	35	10	25	ZDT11	4	1
7801102	PSE11R025SS25-3S	25	120	35	10	25	ZDT11	3	2
7801104	PSE11R025SS25-4S	25	120	35	10	25	ZDT11	4	2
7801125	PSE11R025SS25-3L	25	170	70	10	25	ZDT11	3	2
7801118	PSE11R028SS25-4S	28	120	35	10	25	ZDT11	4	3
7801126	PSE11R028SS25-3L	28	170	35	10	25	ZDT11	3	3
7801119	PSE11R030SS32-4S	30	130	45	10	32	ZDT11	4	2
7801127	PSE11R030SS32-3L	30	190	90	10	32	ZDT11	3	2
47801105	PSE11R032WS32-5S	32	105	40	10	32	ZDT11	5	1
7801105	PSE11R032SS32-5S	32	125	40	10	32	ZDT11	5	2
7801103	PSE11R032SS32-3S	32	130	45	10	32	ZDT11	3	2
7801128	PSE11R032SS32-3L	32	190	90	10	32	ZDT11	3	2
7801120	PSE11R035SS32-5S	35	130	35	10	32	ZDT11	5	3
7801129	PSE11R035SS32-3L	35	190	35	10	32	ZDT11	3	3
47801106	PSE15R025WS25-2S	25	100	32	14	25	ZDT15	2	1
7801106	PSE15R025SS25-2S	25	120	35	14	25	ZDT15	2	2
7801133	PSE15R025SS25-2L	25	170	70	14	25	ZDT15	2	2
7801130	PSE15R028SS25-2S	28	120	35	14	25	ZDT15	2	3
7801134	PSE15R028SS25-2L	28	170	35	14	25	ZDT15	2	3
7801131	PSE15R030SS32-3S	30	130	45	14	32	ZDT15	3	2
7801135	PSE15R030SS32-3L	30	190	90	14	32	ZDT15	3	2
47801111	PSE15R032WS32-3S	32	125	40	14	32	ZDT15	3	1
7801107	PSE15R032SS32-2S	32	130	45	14	32	ZDT15	2	2
7801111	PSE15R032SS32-3S	32	130	45	14	32	ZDT15	3	2
7801136	PSE15R032SS32-3L	32	190	90	14	32	ZDT15	3	2
7801132	PSE15R035SS32-3S	35	130	35	14	32	ZDT15	3	3
7801137	PSE15R035SS32-3L	35	190	45	14	32	ZDT15	3	3
7801108	PSE15R040SS32-3S	40	140	50	14	32	ZDT15	3	3

PSE WS / PSE SS

Milling | Indexable | 90 degrees





- 90° shoulder cutter
- 2 corners inserts with bottom notch
- Cylindrical type, with internal coolant
- 16 - 63 mm



C.875 C.1052

EDP	Designation	DC	LF	LH	APMX	DCON	Applicable inserts type	ZEFP	Type
7801112	PSE15R040SS32-4S	40	50	14	ZDT15	32	140	4	3
7801138	PSE15R040SS32-3L	40	45	14	ZDT15	32	190	3	3
7801109	PSE15R050SS32-3S	50	45	14	ZDT15	32	130	3	3
7801113	PSE15R050SS32-5S	50	45	14	ZDT15	32	130	5	3
7801110	PSE15R063SS32-4S	63	45	14	ZDT15	32	130	4	3
7801114	PSE15R063SS32-6S	63	45	14	ZDT15	32	130	6	3

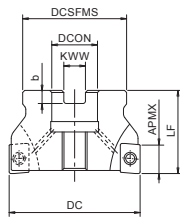
Accessories and spare parts

Applicable cutter DC	EDP	Designation	Specification
PSE SS/SF 10 - 12 (ZDKT07)	7808098	FS18634P (Torx 6IP)	Clamping screw
PSE SS 16 - 26 (ZDKT07)	7808099	FS18637P (Torx 6IP)	Clamping screw
PSE SF 16 - 32 (ZDKT07)	7808099	FS18637P (Torx 6IP)	Clamping screw
PSE SS 10 - 26 (ZDKT07)	7808223	6IP-D (Torx 6IP)	Wrench
PSE SF 10 - 32 (ZDKT07)	7808223	6IP-D (Torx 6IP)	Wrench
16 - 40 (ZD-T11)	7808107	FS25656P (Torx 8IP)	Clamping screw
16 - 40 (ZD-T11)	7808225	8IP-D (Torx 8IP)	Wrench
25 - 63 (ZDKT15)	7808115	FS35686P (Torx 15IP)	Clamping screw
25 - 63 (ZDKT15)	7808228	15IP-D (Torx 15IP)	Wrench

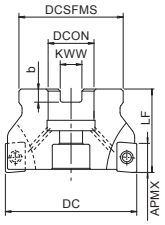
PSE

Milling | Indexable | 90 degrees



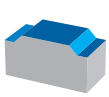


Type 1

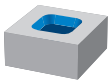
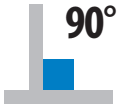


Type 2

- 90° shoulder cutter
- 2 corners inserts with bottom notch
- Bore type
- 40 - 100 mm





C.875 C.1052

EDP	Designation	DC	LF	APMX	DCON	DCSFMS	KWW	b	Applicable inserts type	ZEFP	Type
7801000	PSE11R040M16-4	40	40	10	16	38	8,4	5,6	ZDT11	4	1
7801004	PSE11R040M16-6	40	40	10	16	38	8,4	5,6	ZDT11	6	1
7801001	PSE11R050M22-5	50	40	10	22	45	10,4	6,3	ZDT11	5	1
7801005	PSE11R050M22-7	50	40	10	22	45	10,4	6,3	ZDT11	7	1
7801002	PSE11R063M22-6	63	40	10	22	50	10,4	6,3	ZDT11	6	2
7801006	PSE11R063M22-8	63	40	10	22	50	10,4	6,3	ZDT11	8	2
7801003	PSE11R080M27-7	80	50	10	27	60	12,4	7	ZDT11	7	2
7801007	PSE11R080M27-10	80	50	10	27	60	12,4	7	ZDT11	10	2
7801008	PSE15R040M16-3	40	40	14	16	38	8,4	5,6	ZDT15	3	1
7801014	PSE15R040M16-4	40	40	14	16	38	8,4	5,6	ZDT15	4	1
7801009	PSE15R050M22-3	50	40	14	22	45	10,4	6,3	ZDT15	3	1
7801015	PSE15R050M22-5	50	40	14	22	45	10,4	6,3	ZDT15	5	1
7801010	PSE15R063M22-4	63	40	14	22	50	10,4	6,3	ZDT15	4	2
7801016	PSE15R063M22-6	63	40	14	22	50	10,4	6,3	ZDT15	6	2
7801011	PSE15R080M27-5	80	50	14	27	60	12,4	7	ZDT15	5	2
7801017	PSE15R080M27-8	80	50	14	27	60	12,4	7	ZDT15	8	2
7801012	PSE15R100M32-7	100	50	14	32	70	14,4	8	ZDT15	7	2
7801018	PSE15R100M32-10	100	50	14	32	70	14,4	8	ZDT15	10	2

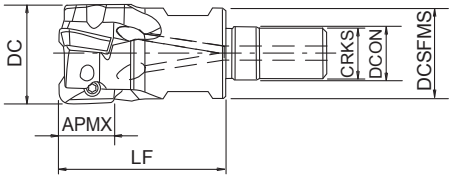
Accessories and spare parts

Applicable cutter DC	EDP	Designation	Specification
40	7808150	PS0830 (M8x30)	Power screw
50	7808151	PS1031 (M10x31)	Power screw
40 - 80 (ZD-T11)	7808109	FS25673P (Torx 8IP)	Clamping screw
40 - 80 (ZD-T11)	7808225	8IP-D (Torx 8IP)	Wrench
40 - 125 (ZDKT15)	7808115	FS35686P (Torx 15IP)	Clamping screw
40 - 125 (ZDKT15)	7808228	15IP-D (Torx 15IP)	Wrench

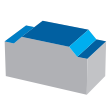
PSE

Milling | Indexable | 90 degrees

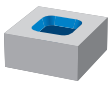
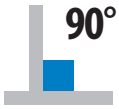




- 90° shoulder cutter
- 2 corners inserts with bottom notch
- Screw fit type
- 10 - 40 mm





C.866 C.875 C.1052

EDP	Designation	DC	APMX	DCON	DCSFMS	LF	CRKS	Wrench size	Applicable inserts type	ZEFP
7803822	PSE07R010SF6-2	10	6	6,5	9	26	6	7	ZD...T07...	2
7803823	PSE07R012SF6-3	12	6	6,5	11	26	6	7	ZD...T07...	3
7803824	PSE07R016SF8-4	16	6	8,5	15	27	8	10	ZD...T07...	4
7803825	PSE07R020SF10-4	20	6	10,5	18	33	10	14	ZD...T07...	4
7803826	PSE07R025SF12-5	25	6	12,5	23	35	12	17	ZD...T07...	5
7803827	PSE07R032SF16-6	32	6	17	17	35	16	22	ZD...T07...	6
7801600	PSE11R016SF8-2	16	10	8,5	14,5	27	8	10	ZD...T11...	2
7801601	PSE11R020SF10-3	20	10	10,5	18	33	10	14	ZD...T11...	3
7801602	PSE11R025SF12-4	25	10	12,5	23	35	12	17	ZD...T11...	4
7801603	PSE11R028SF12-4	28	10	12,5	23	35	12	17	ZD...T11...	4
7801604	PSE11R032SF16-5	32	10	17	28	40	16	22	ZD...T11...	5
7801605	PSE11R035SF16-5	35	10	17	28	40	16	22	ZD...T11...	5
7801606	PSE11R040SF16-6	40	10	17	28	40	16	22	ZD...T11...	6
7801607	PSE15R025SF12-2	25	14	12,5	23	35	12	17	ZD...T15...	2
7801608	PSE15R028SF12-2	28	14	12,5	23	35	12	17	ZD...T15...	2
7801609	PSE15R032SF16-3	32	14	17	28	40	16	22	ZD...T15...	3
7801610	PSE15R035SF16-3	35	14	17	28	40	16	22	ZD...T15...	3
7801611	PSE15R040SF16-4	40	14	17	28	40	16	22	ZD...T15...	4

Accessories and spare parts

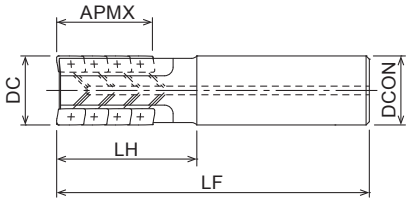
Applicable cutter DC	EDP	Designation	Specification
PSE SS/SF 10 - 12 (ZDKT07)	7808098	FS18634P (Torx 6IP)	Clamping screw
PSE SS 16 - 26 (ZDKT07)	7808099	FS18637P (Torx 6IP)	Clamping screw
PSE SF 16 - 32 (ZDKT07)	7808099	FS18637P (Torx 6IP)	Clamping screw
PSE SS 10 - 26 (ZDKT07)	7808223	6IP-D (Torx 6IP)	Wrench
PSE SF 10 - 32 (ZDKT07)	7808223	6IP-D (Torx 6IP)	Wrench
16 - 40 (ZD-T11)	7808107	FS25656P (Torx 8IP)	Clamping screw
16 - 40 (ZD-T11)	7808225	8IP-D (Torx 8IP)	Wrench
25 - 40 (ZDKT15)	7808115	FS35686P (Torx 15IP)	Clamping screw
25 - 40 (ZDKT15)	7808228	15IP-D (Torx 15IP)	Wrench

PSEL SS

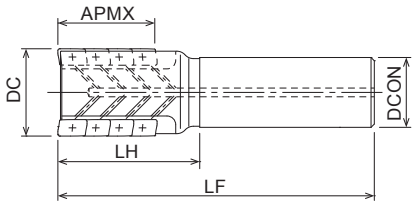
Milling | Indexable | 90 degrees



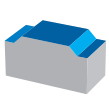
Type 1



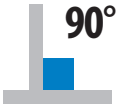
Type 2



- 90° shoulder cutter with long length of cut
- 2 corners inserts with bottom notch
- Cylindrical type, with internal coolant
- 25 - 50 mm







C.873 C.1053

EDP	Designation	DC	LF	LH	APMX	DCON	Inserts per flute	Inserts total	Applicable inserts type	ZEFP	Type
7802900	PSEL11R025SS25227	25	125	50	27	25	3	6	ZDT11	2	1
7802901	PSEL11R032SS32237	32	140	60	37	32	4	8	ZDT11	2	1
7802902	PSEL11R032SS32345	32	140	60	45,5	32	5	15	ZDT11	3	1
7802903	PSEL11R040SS42337	40	140	60	37	42	4	12	ZDT11	3	1
7802904	PSEL11R040SS42445	40	140	60	45,5	42	5	20	ZDT11	4	1
7802905	PSEL15R040SS42238	40	140	60	38	42	3	6	ZDT15	2	1
7802906	PSEL15R050SS42350	50	144	64	50,5	42	4	12	ZDT15	3	2

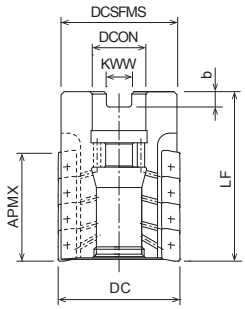
Accessories and spare parts

Applicable cutter DC	EDP	Designation	Specification
25 (ZD-T11)	7808107	FS25656P (Torx 8IP)	Clamping screw
25 (ZD-T11)	7808225	8IP-D (Torx 8IP)	Wrench
32 - 40 (ZD-T11)	7808109	FS25673P (Torx 8IP)	Clamping screw
32 - 40 (ZD-T11)	7808225	8IP-D (Torx 8IP)	Wrench
40 - 50 (ZDKT15)	7808115	FS35686P (Torx 15IP)	Clamping screw
40 - 50 (ZDKT15)	7808228	15IP-D (Torx 15IP)	Wrench

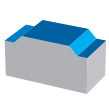
PSEL

Milling | Indexable | 90 degrees

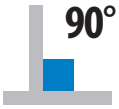




- 90° shoulder cutter with long length of cut
- 2 corners inserts with bottom notch
- Bore type
- 50 - 80 mm







C.873
C.1053

EDP	Designation	DC	LF	APMX	DCON	DCSFMS	KWW	b	ZEFP	Inserts per flute	Inserts total	Applicable inserts type
7802850	PSEL15R050M22350	50	74	50,5	22	45	10,4	6,3	3	4	12	ZDKT150
7802851	PSEL15R063M27350	63	74	50,5	27	60	12,4	7	3	4	12	ZDKT150
7802852	PSEL15R080M32463	80	88	63	32	76	14,4	8	4	5	20	ZDKT150

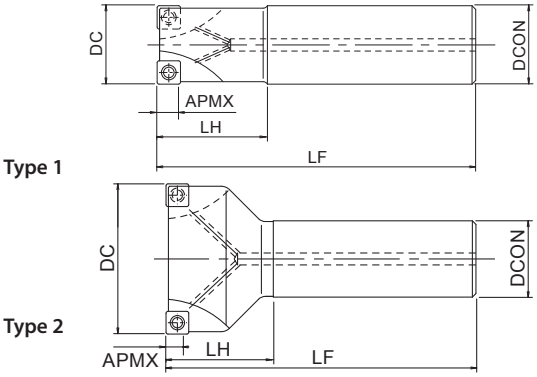
Accessories and spare parts

Applicable cutter DC	EDP	Designation	Specification
50 - 80 (ZDKT15)	7808115	FS35686P (Torx 15IP)	Clamping screw
50 - 80 (ZDKT15)	7808228	15IP-D (Torx 15IP)	Wrench
50	7808132	OCB-M20-08	Coolant cap bolt
63	7808133	OCB-M24-10	Coolant cap bolt
80	7808134	OCB-M30-14	Coolant cap bolt

PSF SS

Milling | Indexable | 90 degrees





- Shoulder cutter
- 4 corners inserts
- Cylindrical type, with internal coolant
- 25 - 40 mm



C.877 C.1053

EDP	Designation	DC	LF	LH	APMX	DCON	ZEFP	Type
7803001	PSF09R025SS253S	25	120	35	5	25	3	1
7803002	PSF09R032SS324S	32	130	45	5	32	4	1
7803003	PSF09R040SS325S	40	140	50	5	32	5	2

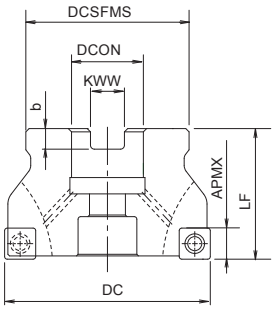
Accessories and spare parts

Applicable cutter DC	EDP	Designation	Specification
25 - 40	7808110	FS30573 (Torx 8)	Clamping screw
25 - 40	7808205	T8-D (Torx 8)	Wrench

PSF

Milling | Indexable | 90 degrees





- Shoulder cutter
- 4 corners inserts
- Bore type
- 50 - 80 mm



C.877
C.1053

EDP	Designation	DC	LF	APMX	DCON	DCSFMS	KWW	b	ZEFP
7803011	PSF09R050M226	50	40	5	22	45	10,4	6,3	6
7803012	PSF09R063M227	63	40	5	22	50	10,4	6,3	7
47803013	PSF09R080M279	80	50	5	27	60	12,4	7	9

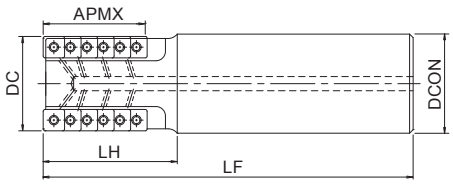
Accessories and spare parts

Applicable cutter DC	EDP	Designation	Specification
50 - 80	7808110	FS30573 (Torx 8)	Clamping screw
50 - 80	7808205	T8-D (Torx 8)	Wrench

PSFL SS

Milling | Indexable | 90 degrees





- 90° shoulder cutter with long length of cut
- 4 corners inserts with bottom notch
- Cylindrical type, with internal coolant
- 32 - 40 mm



C.877 C.1054

EDP	Designation	DC	LF	LH	APMX	DCON	Inserts per flute	Inserts total	Applicable inserts type	ZEFP
7803700	PSFL09R032SS32236	32	140	60	36	32	5	10	SD*T09	2
7803701	PSFL09R040SS42343	40	140	60	43	42	6	18	SD*T09	3

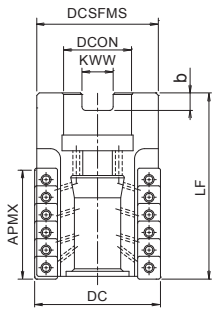
Accessories and spare parts

Applicable cutter DC	EDP	Designation	Specification
32 - 40	7808110	FS30573 (Torx 8)	Clamping screw
32 - 40	7808205	T8-D (Torx 8)	Wrench

PSFL

Milling | Indexable | 90 degrees





- 90° shoulder cutter with long length of cut
- 4 corners inserts with bottom notch
- Bore type
- 50 - 100 mm



C.877 C.1054

EDP	Designation	DC	LF	APMX	DCON	DCSFMS	KWW	b	Inserts per flute	Inserts total	Applicable inserts type	ZEFP
7803702	PSFL09R050M22450	50	75	50	22	48,5	10,4	6,3	7	28	SD*T09	4
7803703	PSFL09R050M22478	50	100	78	22	48,5	10,4	6,3	11	44	SD*T09	4
7803704	PSFL09R050M27450	50	75	50	27	48,5	12,4	7	7	28	SD*T09	4
7803705	PSFL09R050M27478	50	100	78	27	48,5	12,4	7	11	44	SD*T09	4
7803706	PSFL12R063M27460	63	85	60	27	60,5	12,4	7	6	24	SD*T12	4
7803707	PSFL12R063M274100	63	125	100	27	60,5	12,4	7	10	40	SD*T12	4
7803708	PSFL12R080M32570	80	95	70	32	77,3	14,4	8	7	35	SD*T12	5
7803709	PSFL12R080M325110	80	143	110	32	77,3	14,4	8	11	55	SD*T12	5
7803710	PSFL12R100M326120	100	153	120	32	97	16,4	9	12	72	SD*T12	6

Accessories and spare parts

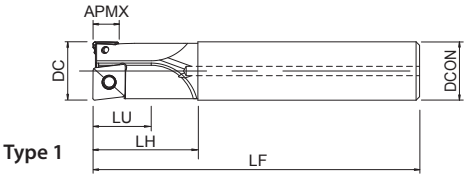
Applicable cutter DC	EDP	Designation	Specification
50	7808110	FS30573 (Torx 8)	Clamping screw
50	7808205	T8-D (Torx 8)	Wrench
63 - 100	7808129	FS40511 (Torx 15)	Clamping screw
63 - 100	7808208	T15-D (Torx 15)	Wrench
50	7808132	OCB-M20-08	Coolant cap bolt
63	7808133	OCB-M24-10	Coolant cap bolt
80 - 100	7808134	OCB-M30-14	Coolant cap bolt

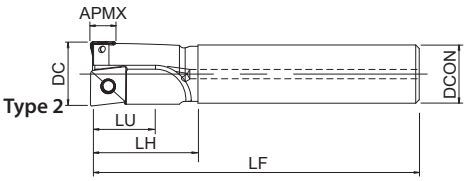
PMD SS

Milling | Indexable | 90 degrees

INDEX







- 90° multi-function cutter
- 2 types of inserts (PSE & PZAG)
- Cylindrical type, with internal coolant
- 16 - 32 mm















EDP	Designation	DC	LF	LH	APMX	DCON	LU	NOF	Applicable center inserts type	Peripheral inserts	ZEFP	Type
7803419	PMD07R016SS16-1S	16	100	30	6	16	16	2	ZPNT080304EN	ZDKT070304...	1	1
7803420	PMD07R016SS16-1L	16	150	50	6	16	16	2	ZPNT080304EN	ZDKT070304...	1	1
7803421	PMD07R018SS16-1S	18	100	30	6	16	18	2	ZPNT090404EN	ZDKT070304...	1	2
7803422	PMD07R018SS16-1L	18	150	30	6	16	18	2	ZPNT090404EN	ZDKT070304...	1	2
7803410	PMD11R020SS20-1S	20	130	35	10	20	20	2	ZPNT100408EN	ZDKT11T308...	1	1
7803413	PMD11R020SS20-1L	20	185	60	10	20	20	2	ZPNT100408EN	ZDKT11T308...	1	1
7803411	PMD11R025SS25-1S	25	140	45	10	25	25	2	ZPNT130508EN	ZDKT11T308...	1	1
7803414	PMD11R025SS25-1L	25	220	75	10	25	25	2	ZPNT130508EN	ZDKT11T308...	1	1
7803412	PMD11R032SS32-1S	32	150	50	10	32	28	2	ZPNT170608EN	ZDKT11T308...	1	1
7803415	PMD11R032SS32-1L	32	230	90	10	32	28	2	ZPNT170608EN	ZDKT11T308...	1	1

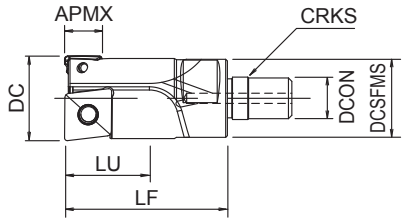
Accessories and spare parts

Applicable cutter DC	EDP	Designation	Insert	Torque	Specification
16	7808135	FS30570P (Torx 9IP)	ZPNT08	2,2 N.m	Clamping screw
18	7808135	FS30570P (Torx 9IP)	ZPNT09	2,2 N.m	Clamping screw
20	7808137	FS35586P (Torx 15IP)	ZPNT10	3,2 N.m	Clamping screw
16-18	7808099	FS18637P (Torx 6Ip)	ZDKT07	0,5 N.m	Clamping screw
20 -32	7808107	FS25656P (Torx 8IP)	ZDKT11	1,6 N.m	Clamping screw
20	7808115	FS35686P (Torx 15IP)	ZPNT10	3,2 N.m	Clamping screw
25	7808114	FS45510P (Torx 20IP)	ZPNT13	5,0 N.m	Clamping screw
32	7808114	FS45510P	ZPNT17	5,0 N.m	Clamping screw
20 - 32	7808225	8IP-D (Torx 8IP)	ZDKT11	-	Wrench
16	7808226	9IP-D (Torx 9IP)	ZPNT08	-	Wrench
18	7808226	9IP-D (Torx 9IP)	ZPNT09	-	Wrench
20	7808228	15IP-D (Torx 15IP)	ZPNT10	-	Wrench
25	7808229	20IP-D (Torx 20IP)	ZPNT13	-	Wrench
32	7808229	20IP-D (Torx 20IP)	ZPNT17	-	Wrench
16 - 18	7808223	6IP-D (Torx 6IP)	ZDKT07	-	Wrench

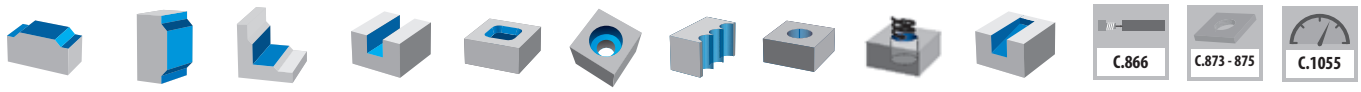
PMD

Milling | Indexable | 90 degrees





- 90° multi-function cutter
- 2 types of inserts (PSE & PZAG)
- Screw fit type
- 16 - 32 mm



EDP	Designation	DC	LF	APMX	DCON	DCSFMS	DN	LU	NOF	CRKS	Wrench size	Applicable center inserts type	Peripheral inserts	ZEFP
7803423	PMD07R016SF8-1	16	40	6	8,5	14,5	15,4	16	2	8	10	ZPNT080304EN	ZDKT070304...	1
7803424	PMD07R018SF8-1	18	40	6	8,5	14,5	17	18	2	8	10	ZPNT090404EN	ZDKT070304...	1
7803416	PMD11R020SF10-1	20	48	10	10,5	18	18	20	2	10	14	ZPNT100408EN	ZDKT11T308…	1
7803417	PMD11R025SF12-1	25	48	10	12,5	23	22	25	2	12	17	ZPNT130508EN	ZDKT11T308…	1
7803418	PMD11R032SF16-1	32	58	10	17	28	27	28	2	16	22	ZPNT170608EN	ZDKT11T308…	1

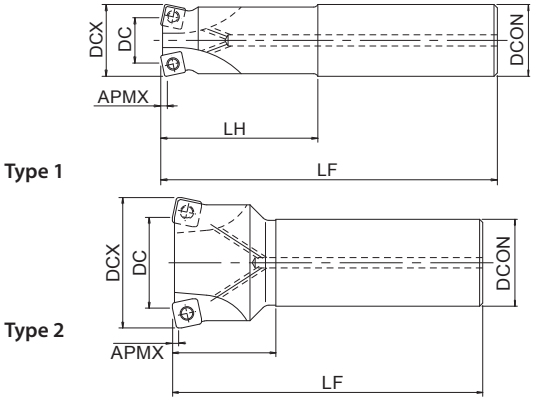
Accessories and spare parts

Applicable cutter DC	EDP	Designation	Insert	Torque	Specification
16	7808135	FS30570P (Torx 9IP)	ZPNT08	2,2 N.m	Clamping screw
18	7808135	FS30570P (Torx 9IP)	ZPNT09	2,2 N.m	Clamping screw
20	7808137	FS35586P (Torx 15IP)	ZPNT10	3,2 N.m	Clamping screw
16-18	7808099	FS18637P (Torx 6Ip)	ZDKT07	0,5 N.m	Clamping screw
20 -32	7808107	FS25656P (Torx 8IP)	ZDKT11	1,6 N.m	Clamping screw
20	7808115	FS35686P (Torx 15IP)	ZPNT10	3,2 N.m	Clamping screw
25	7808114	FS45510P (Torx 20IP)	ZPNT13	5,0 N.m	Clamping screw
32	7808114	FS45510P	ZPNT17	5,0 N.m	Clamping screw
20 - 32	7808225	8IP-D (Torx 8IP)	ZDKT11	-	Wrench
16	7808226	9IP-D (Torx 9IP)	ZPNT08	-	Wrench
18	7808226	9IP-D (Torx 9IP)	ZPNT09	-	Wrench
20	7808228	15IP-D (Torx 15IP)	ZPNT10	-	Wrench
25	7808229	20IP-D (Torx 20IP)	ZPNT13	-	Wrench
32	7808229	20IP-D (Torx 20IP)	ZPNT17	-	Wrench
16 - 18	7808223	6IP-D (Torx 6IP)	ZDKT07	-	Wrench

PHC SS

Milling | Indexable | 90 degrees





- High feed radius cutter for long over hang
- 4 corners high feed inserts
- Cylindrical type, with internal coolant
- 16 - 40 mm



C.879 C.1056

EDP	Designation	DC	DCX	LF	LH	APMX	DCON	Applicable inserts type	ZEFP	Type
7800750	PHC07R016SS16-2S	7,4	16	100	30	0,8	16	SPMT07	2	1
7800755	PHC07R016SS16-2L	7,4	16	150	50	0,8	16	SPMT07	2	1
7800757	PHC07R018SS16-2L	9,4	18	150	25	0,8	16	SPMT07	2	2
7800751	PHC07R020SS20-3S	11,4	20	130	50	0,8	20	SPMT07	3	1
7800758	PHC07R020SS20-3L	11,4	20	160	80	0,8	20	SPMT07	3	1
7800760	PHC07R022SS20-3L	13,4	22	160	30	0,8	20	SPMT07	3	2
7800752	PHC07R025SS25-4S	16,4	25	140	60	0,8	25	SPMT07	4	1
7800761	PHC07R025SS25-4L	16,4	25	200	100	0,8	25	SPMT07	4	1
7800753	PHC07R030SS32-4S	21,4	30	150	70	0,8	32	SPMT07	4	1
7800764	PHC07R030SS32-4L	21,4	30	200	120	0,8	32	SPMT07	4	1
7800754	PHC07R032SS32-5S	23,4	32	150	70	0,8	32	SPMT07	5	1
7800765	PHC07R032SS32-5L	23,4	32	200	120	0,8	32	SPMT07	5	1
7800767	PHC07R035SS32-5L	26,4	35	200	50	0,8	32	SPMT07	5	2
7800700	PHC09R025SS25-2S	13,2	25	140	60	1	25	SDMT09	2	1
7800701	PHC09R025SS25-3S	13,2	25	140	60	1	25	SDMT09	3	1
7800704	PHC09R025SS25-2L	13,2	25	200	120	1	25	SDMT09	2	1
7800705	PHC09R025SS25-3L	13,2	25	200	120	1	25	SDMT09	3	1
7800716	PHC09R028SS25-3S	16,2	28	140	40	1	25	SDMT09	3	2
7800720	PHC09R028SS25-3L	16,2	28	200	40	1	25	SDMT09	3	2
7800717	PHC09R030SS32-3S	18,2	30	150	70	1	32	SDMT09	3	1
7800721	PHC09R030SS32-3L	18,2	30	200	120	1	32	SDMT09	3	1
7800702	PHC09R032SS32-3S	20,2	32	150	70	1	32	SDMT09	3	1
7800706	PHC09R032SS32-3L	20,2	32	200	120	1	32	SDMT09	3	1
7800718	PHC09R035SS32-3S	23,2	35	150	50	1	32	SDMT09	3	2
7800722	PHC09R035SS32-3L	23,2	35	200	50	1	32	SDMT09	3	2
7800703	PHC09R040SS32-4S	28,2	40	150	50	1	32	SDMT09	4	2
7800730	PHC12R030SS32-2S	13,4	30	150	70	2	32	SXMT12	2	1
7800708	PHC12R032SS32-2S	15,4	32	150	70	2	32	SXMT12	2	1
7800731	PHC12R035SS32-3S	18,4	35	150	50	2	32	SXMT12	3	2
7800709	PHC12R040SS32-3S	23,4	40	150	50	2	32	SXMT12	3	2

Accessories and spare parts

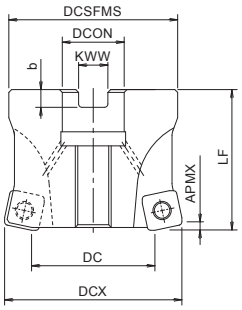
Applicable cutter DC	EDP	Designation	Specification
16 - 35 (SPMT07)	7808105	FS25550 (Torx 8)	Clamping screw
16 - 35 (SPMT07)	7808205	T8-D (Torx 8)	Wrench
25 - 35 (SDMT09)	7808111	FS35572 (Torx 15)	Clamping screw
25 - 35 (SDMT09)	7808208	T15-D (Torx 15)	Wrench
40 (SDMT09)	7808112	FS35586 (Torx 15)	Clamping screw
40 (SDMT09)	7808208	T15-D (Torx 15)	Wrench
30 - 40 (SXMT12)	7808113	FS45510 (Torx 20)	Clamping screw
30 - 40 (SXMT12)	7808209	T20-D (Torx 20)	Wrench

PHC

Milling | Indexable

BORE





- High feed radius cutter
- 4 corners high feed inserts
- Bore type
- 40 - 100 mm



C.879 C.1056

EDP	Designation	DC	DCX	LF	APMX	DCON	DCSFMS	KWW	b	Applicable inserts type	ZEFP	Type
7800600	PHC09R040M16-4	28,2	40	40	1	16	38	8,4	5,6	SDMT09…	4	1
7800601	PHC09R050M22-5	38,2	50	50	1	22	47	10,4	6,3	SDMT09…	5	2
7800602	PHC09R052M22-5	40,2	52	50	1	22	47	10,4	6,3	SDMT09…	5	2
7800603	PHC09R063M22-6	51,2	63	50	1	22	60	10,4	6,3	SDMT09…	6	2
7800604	PHC09R066M22-7	54,2	66	50	1	22	60	10,4	6,3	SDMT09…	7	2
7800607	PHC12R040M16-3	23,4	40	40	2	16	38	8,4	5,6	SXMT12…	3	1
7800608	PHC12R050M22-4	33,4	50	50	2	22	47	10,4	6,3	SXMT12…	4	2
7800609	PHC12R052M22-4	35,4	52	50	2	22	47	10,4	6,3	SXMT12…	4	2
7800610	PHC12R063M22-5	46,4	63	50	2	22	60	10,4	6,3	SXMT12…	5	2
7800611	PHC12R066M22-6	49,4	66	50	2	22	60	10,4	6,3	SXMT12…	6	2
7800612	PHC12R080M27-7	63,4	80	50	2	27	76	12,4	7	SXMT12…	7	2
7800613	PHC12R100M32-8	83,4	100	63	2	32	96	14,4	8	SXMT12…	8	2

Accessories and spare parts

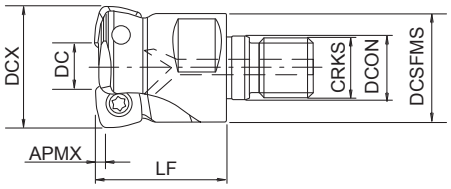
Applicable cutter DC	EDP	Designation	Specification
40	7808150	PS0830 (M8x30)	Power screw
40 - 63 (SDMT09)	7808112	FS35586 (Torx 15)	Clamping screw
40 - 63 (SDMT09)	7808208	T15-D (Torx 15)	Wrench
40 - 100 (SXMT12)	7808113	FS45510 (Torx 20)	Clamping screw
40 - 100 (SXMT12)	7808209	T20-D (Torx 20)	Wrench

PHC

Milling | Indexable

SCREW FIT





- High feed radius cutter
- 4 corners high feed inserts
- Screw fit type
- 16 - 40 mm



C.866 C.879 C.1056

EDP	Designation	DC	DCX	LF	APMX	DCON	DCSFMS	CRKS	Wrench size	Applicable inserts type	ZEFP
7801520	PHC07R016SF8-2	7,4	16	27	0,8	8,5	14,5	8	10	SPMT07…	2
7801523	PHC07R020SF10-3	11,4	20	33	0,8	10,5	18	10	14	SPMT07…	3
7801525	PHC07R022SF10-3	13,4	22	33	0,8	10,5	18	10	14	SPMT07…	3
7801526	PHC07R025SF12-4	16,4	25	35	0,8	12,5	23	12	17	SPMT07…	4
7801529	PHC07R030SF16-4	21,4	30	40	0,8	17	28	16	22	SPMT07…	4
7801530	PHC07R032SF16-5	23,4	32	40	0,8	17	28	16	22	SPMT07…	5
7801532	PHC07R035SF16-5	26,4	35	40	0,8	17	28	16	22	SPMT07…	5
7801500	PHC09R025SF12-3	13,2	25	35	1	12,5	23	12	17	SDMT09…	3
7801501	PHC09R028SF12-3	16,2	28	35	1	12,5	23	12	17	SDMT09…	3
7801502	PHC09R030SF16-3	18,2	30	40	1	17	28	16	22	SDMT09…	3
7801503	PHC09R032SF16-3	20,2	32	40	1	17	28	16	22	SDMT09…	3
7801504	PHC09R035SF16-3	23,2	35	40	1	17	28	16	22	SDMT09…	3
7801505	PHC09R040SF16-4	28,2	40	40	1	17	28	16	22	SDMT09…	4
7801506	PHC12R030SF16-2	13,4	30	40	2	17	28	16	22	SXMT12…	2
7801507	PHC12R032SF16-2	15,4	32	40	2	17	28	16	22	SXMT12…	2
7801508	PHC12R035SF16-3	18,4	35	40	2	17	28	16	22	SXMT12…	3
7801509	PHC12R040SF16-3	23,4	40	40	2	17	28	16	22	SXMT12…	3

Accessories and spare parts

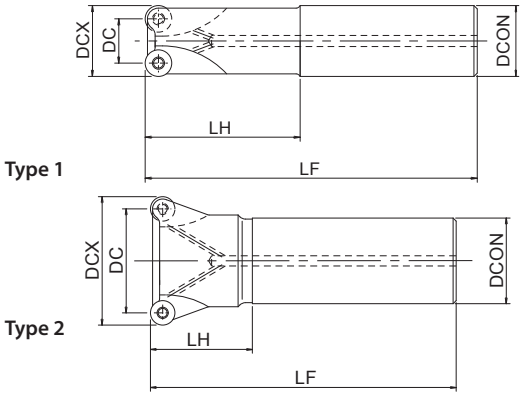
Applicable cutter DC	EDP	Designation	Specification
16 - 35 (SPMT07)	7808105	FS25550 (Torx 8)	Clamping screw
16 - 35 (SPMT07)	7808205	T8-D (Torx 8)	Wrench
25 - 35 (SDMT09)	7808111	FS35572 (Torx 15)	Clamping screw
25 - 35 (SDMT09)	7808208	T15-D (Torx 15)	Wrench
40 (SDMT09)	7808112	FS35586 (Torx 15)	Clamping screw
40 (SDMT09)	7808208	T15-D (Torx 15)	Wrench
30 - 40 (SXMT12)	7808113	FS45510 (Torx 20)	Clamping screw
30 - 40 (SXMT12)	7808209	T20-D (Torx 20)	Wrench

PRC SS

Milling | Indexable

INDEX





- Radius cutter
- Round inserts
- Cylindrical type, with internal coolant
- 20 - 63 mm



C.880 C.1057

EDP	Designation	DC	DCX	LF	LH	DCON	Applicable inserts type	ZEFP	Type
7800300	PRC10R020SS20-2S	10	20	130	50	20	RP10	2	1
7800303	PRC10R020SS20-2L	10	20	180	80	20	RP10	2	1
7800301	PRC10R025SS25-3S	15	25	140	60	25	RP10	3	1
7800304	PRC10R025SS25-3L	15	25	200	120	25	RP10	3	1
7800302	PRC10R032SS32-4S	22	32	150	70	32	RP10	4	1
7800305	PRC10R032SS32-4L	22	32	200	120	32	RP10	4	1
7800318	PRC12R030SS32-2S	18	30	150	70	32	RP12	2	1
7800319	PRC12R030SS32-2L	18	30	200	120	32	RP12	2	1
7800306	PRC12R032SS32-2S	20	32	150	70	32	RP12	2	1
7800309	PRC12R032SS32-2L	20	32	200	120	32	RP12	2	1
7800320	PRC12R032SS32-3S	20	32	150	70	32	RP12	3	1
7800321	PRC12R032SS32-3L	20	32	200	120	32	RP12	3	1
7800307	PRC12R040SS32-3S	28	40	150	50	32	RP12	3	2
7800310	PRC12R040SS32-3L	28	40	250	50	32	RP12	3	2
7800308	PRC12R050SS42-4S	38	50	150	50	42	RP12	4	2
7800311	PRC12R050SS42-4L	38	50	250	50	42	RP12	4	2
7800312	PRC16R040SS32-2S	24	40	150	50	32	RP16	2	2
7800315	PRC16R040SS32-2L	24	40	250	50	32	RP16	2	2
7800313	PRC16R050SS42-3S	34	50	150	50	42	RP16	3	2
7800316	PRC16R050SS42-3L	34	50	250	50	42	RP16	3	2
7800314	PRC16R063SS42-4S	47	63	150	50	42	RP16	4	2
7800317	PRC16R063SS42-4L	47	63	250	50	42	RP16	4	2

Accessories and spare parts

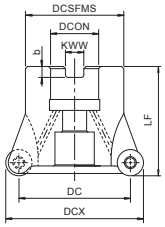
Applicable cutter DC	EDP	Designation	Specification
20 - 40 (RPH-10)	7808116	FS30573A (Torx 10)	Clamping screw
20 - 40 (RPH-10)	7808207	T10-D (Torx 10)	Wrench
32 - 50 (RPH-12)	7808112	FS35586 (Torx 15)	Clamping screw
32 - 50 (RPH-12)	7808208	T15-D (Torx 15)	Wrench
40 - 63 (RPH-16)	7808113	FS45510 (Torx 20)	Clamping screw
40 - 63 (RPH-16)	7808209	T20-D (Torx 20)	Wrench

PRC

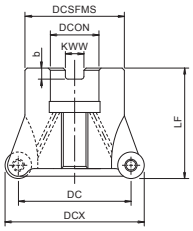
Milling | Indexable

BORE





Type 1



Type 2

- Radius cutter
- Round inserts
- Bore type
- 50 - 100 mm



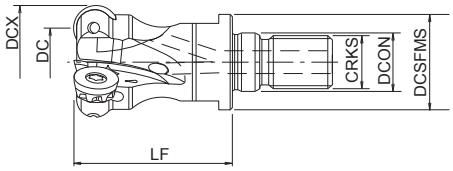
C.880 C.1057

EDP	Designation	DC	DCX	LF	DCON	DCSFMS	KWW	b	Applicable inserts type	ZEFP	Type
7800200	PRC12R050M22-4	38	50	40	22	45	10,4	6,3	RP12	4	2
7800204	PRC12R050M22-5	38	50	40	22	45	10,4	6,3	RP12	5	2
7800201	PRC12R063M22-4	51	63	40	22	50	10,4	6,3	RP12	4	2
7800206	PRC12R063M22-6	51	63	40	22	50	10,4	6,3	RP12	6	2
7800202	PRC12R080M27-5	68	80	50	27	60	12,4	7	RP12	5	2
7800207	PRC12R080M27-8	68	80	50	27	60	12,4	7	RP12	8	2
7800203	PRC12R100M32-6	88	100	50	32	70	14,4	8	RP12	6	2
7800208	PRC12R100M32-10	88	100	50	32	70	14,4	8	RP12	10	2
7800213	PRC16R050M22-3	34	50	40	22	45	10,4	6,3	RP16	3	1
7800214	PRC16R063M22-5	47	63	40	22	50	10,4	6,3	RP16	5	2
7800216	PRC16R080M27-6	64	80	50	27	60	12,4	7	RP16	6	2
7800217	PRC16R100M32-7	84	100	50	32	70	14,4	8	RP16	7	2

Accessories and spare parts

Applicable cutter DC	EDP	Designation	Specification
50	7808151	PS1031 (M10x31)	Power screw
50 - 100 (RPH-12)	7808112	FS35586 (Torx 15)	Clamping screw
50 - 100 (RPH-12)	7808208	T15-D (Torx 15)	Wrench
50 - 100 (RPH-16)	7808113	FS45510 (Torx 20)	Clamping screw
50 - 100 (RPH-16)	7808209	T20-D (Torx 20)	Wrench





- Radius cutter
- Round inserts
- Screw fit type
- 20 - 40 mm



C.866 C.880 C.1057

EDP	Designation	DC	DCX	LF	DCON	DCSFMS	CRKS	Wrench size	Applicable inserts type	ZEFP
7801700	PRC10R020SF10-2	10	20	33	10,5	18	10	14	RP...10...	2
7801701	PRC10R025SF12-3	15	25	35	12,5	23	12	17	RP...10...	3
7801702	PRC10R030SF16-3	20	30	40	17	28	16	22	RP...10...	3
7801703	PRC10R032SF16-4	22	32	40	17	28	16	22	RP...10...	4
7801704	PRC10R040SF16-4	30	40	40	17	28	16	22	RP...10...	4
7801705	PRC12R030SF16-2	18	30	40	17	28	16	22	RP...12...	2
7801706	PRC12R032SF16-3	20	32	40	17	28	16	22	RP...12...	3
7801707	PRC12R040SF16-3	28	40	40	17	28	16	22	RP...12...	3

Accessories and spare parts

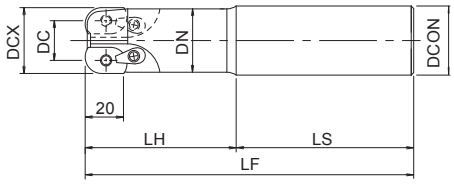
Applicable cutter DC	EDP	Designation	Specification
20 - 40 (RPH-10)	7808116	FS30573A (Torx 10)	Clamping screw
20 - 40 (RPH-10)	7808207	T10-D (Torx 10)	Wrench
32 - 40 (RPH-12)	7808112	FS35586 (Torx 15)	Clamping screw
32 - 40 (RPH-12)	7808208	T15-D (Torx 15)	Wrench



PDR SS

Milling | Indexable





- High feed radius cutter, deep depth of cut
- 2 corners inserts
- Cylindrical type
- 40 - 50 mm



C.881 C.1058

EDP	Designation	DC	DCX	LF	LH	APMX	DCON	DN	LS	ZEFP
7800000	PDR20R040SS42-2S	20	40	150	50	20	42	38,9	100	2
7800009	PDR20R040SS42-2L	20	40	250	150	20	42	38,9	100	2
7800004	PDR20R050SS42-3S	30	50	150	50	20	42	48,5	100	3
7800013	PDR20R050SS42-3L	30	50	250	150	20	42	48,5	100	3

Accessories and spare parts

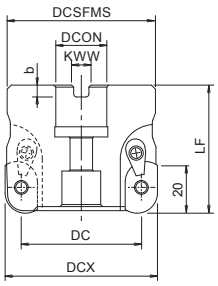
Applicable cutter DC	EDP	Designation	Specification
50 - 40	7808001	CSPB-5 (Torx 20IP)	Clamping screw
50 - 40	7808000	20IP-T (Torx 20IP)	Wrench
50 - 40	7808002	CSY-20	Clamping set

PDR

Milling | Indexable

BORE





- High feed radius cutter, deep depth of cut
- 2 corners inserts
- Bore type
- 63 - 125 mm



C.881 C.1058

EDP	Designation	DC	DCX	LF	APMX	DCON	DCSFMS	KWW	b	ZEFP
7800057	PDR20R063M22-3	43	63	63	20	22	60	10,4	6,3	3
7800058	PDR20R063M22-4	43	63	63	20	22	60	10,4	6,3	4
7800059	PDR20R080M27-4	60	80	63	20	27	76	12,4	7	4
7800060	PDR20R080M27-5	60	80	63	20	27	76	12,4	7	5
7800061	PDR20R100M32-5	80	100	63	20	32	96	14,4	8	5
7800062	PDR20R100M32-6	80	100	63	20	32	96	14,4	8	6
7800063	PDR20R125M40-6	105	125	63	20	40	100	16,4	9	6

Accessories and spare parts

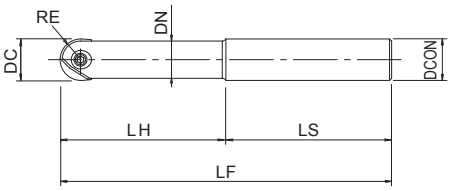
Applicable cutter DC	EDP	Designation	Specification
63 - 125	7808001	CSPB-5 (Torx 20IP)	Clamping screw
63 - 125	7808000	20IP-T (Torx 20IP)	Wrench
63 - 125	7808002	CSY-20	Clamping set

PFB

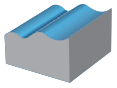
Milling | Indexable

INDEX





- Finishing ball nose cutter
- Excellent sharpness
- Cylindrical type
- 6 - 32 mm

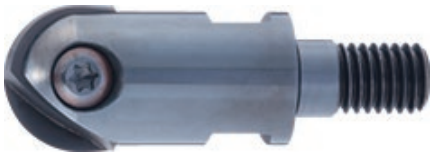


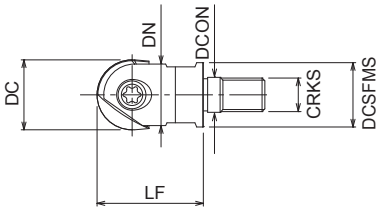
C.882 C.1059

EDP	Designation	DC	RE	LF	LH	DCON	DN	LS	ULDR	Seat size	ZEFP	Specification
7801429	PFB-R060SS06-S80CS	6	3	80	15	6	5,4	65	2,5	1	2	Carbide
7801439	PFB-R060SS06-L100CS	6	3	100	30	6	5,4	70	5	1	2	Carbide
7801419	PFB-R060SS06-LL120CS	6	3	120	42	6	5,4	78	7	1	2	Carbide
7801430	PFB-R080SS08-S100CS	8	4	100	20	8	7	80	2,5	2	2	Carbide
7801440	PFB-R080SS08-L120CS	8	4	120	40	8	7	80	5	2	2	Carbide
7801420	PFB-R080SS08-LL140CS	8	4	140	56	8	7	84	7	2	2	Carbide
7801431	PFB-R100SS10-S100CS	10	5	100	25	10	9	75	2,5	3	2	Carbide
7801441	PFB-R100SS10-L130CS	10	5	130	50	10	9	80	5	3	2	Carbide
7801421	PFB-R100SS10-LL150CS	10	5	150	70	10	9	80	7	3	2	Carbide
7801432	PFB-R120SS12-S110CS	12	6	110	30	12	11	80	2,5	4	2	Carbide
7801442	PFB-R120SS12-L140CS	12	6	140	60	12	11	80	5	4	2	Carbide
7801422	PFB-R120SS12-LL160CS	12	6	160	84	12	11	76	7	4	2	Carbide
7801433	PFB-R160SS16-S140CS	16	8	140	40	16	14	100	2,5	5	2	Carbide
7801443	PFB-R160SS16-L160CS	16	8	160	72	16	14	88	4,5	5	2	Carbide
7801423	PFB-R160SS16-LL200CS	16	8	200	96	16	14	104	6	5	2	Carbide
7801434	PFB-R200SS20-S160CS	20	10	160	50	20	18	110	2,5	6	2	Carbide
7801444	PFB-R200SS20-L180CS	20	10	180	90	20	18	90	4,5	6	2	Carbide
7801424	PFB-R200SS20-LL240CS	20	10	240	120	20	18	120	6	6	2	Carbide
7801435	PFB-R250SS25-S160CS	25	12,5	160	62,5	25	22	97,5	2,5	7	2	Carbide
7801445	PFB-R250SS25-L200CS	25	12,5	200	100	25	22	100	4	7	2	Carbide
7801425	PFB-R250SS25-LL260CS	25	12,5	260	137,5	25	22	122,5	5,5	7	2	Carbide
7801436	PFB-R300SS32-S170CS	30	15	170	75	32	27	95	2,5	8	2	Carbide
7801446	PFB-R300SS32-L220CS	30	15	220	120	32	27	100	4	8	2	Carbide
7801426	PFB-R300SS32-LL290CS	30	15	290	165	32	27	125	5,5	8	2	Carbide
7801437	PFB-R320SS32-S180CS	32	16	180	80	32	29	100	2,5	9	2	Carbide
7801447	PFB-R320SS32-L230CS	32	16	230	128	32	29	102	4	9	2	Carbide
7801427	PFB-R320SS32-LL300CS	32	16	300	176	32	29	124	5,5	9	2	Carbide
7801400	PFB-R080SS08-S120	8	4	120	36	8	7	84	4,5	2	2	Steel
7801401	PFB-R100SS10-S130	10	5	130	45	10	9	85	4,5	3	2	Steel
7801402	PFB-R120SS12-S130	12	6	130	54	12	11	76	4,5	4	2	Steel
7801403	PFB-R160SS16-S140	16	8	140	64	16	14	76	4	5	2	Steel
7801404	PFB-R200SS20-S160	20	10	160	80	20	18	80	4	6	2	Steel
7801405	PFB-R250SS25-S160	25	12,5	160	75	25	22	85	3	7	2	Steel
7801406	PFB-R300SS32-S170	30	15	170	90	32	27	80	3	8	2	Steel
7801407	PFB-R320SS32-S180	32	16	180	96	32	29	84	3	9	2	Steel

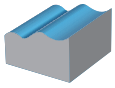
Accessories and spare parts

Applicable cutter DC	EDP	Designation	Torque	Specification
6	7808124	FS20652RB	0,8 N.m	Clamping screw
8	7808123	FS25669RB	1,0 N.m	Clamping screw
10	7808117	FS30686RB	1,2 N.m	Clamping screw
12	7808118	FS35610RB	2,0 N.m	Clamping screw
16	7808119	FS40613RB	3,0 N.m	Clamping screw
20	7808120	FS50615RB	5,0 N.m	Clamping screw
25	7808121	FS60620RB	5,0 N.m	Clamping screw
30 - 32	7808122	FS80624RB	6,0 N.m	Clamping screw
6	7808203	T6-D (Torx 6)	-	Wrench
8	7808204	T7-D (Torx 7)	-	Wrench
10	7808205	T8-D (Torx 8)	-	Wrench
12	7808207	T10-D (Torx 10)	-	Wrench
16	7808208	T15-D (Torx 15)	-	Wrench
20	7808209	T20-D (Torx 20)	-	Wrench
25	7808209	T20-D (Torx 20)	-	Wrench
30 - 32	7808212	T30-T (Torx 30)	-	Wrench





- Finishing ball nose cutter
- Excellent sharpness
- Screw fit type
- 10 - 30 mm



C.866 C.882 C.1059

EDP	Designation	DC	RE	LF	DCON	DCSFMS	DN	Seat size	CRKS	Wrench size	ZEFP
7801490	PFB-R100SF6	10	6	26	6,5	9	9	3	6	7	2
7801491	PFB-R120SF6	12	8	26	6,5	11	11	4	6	7	2
7801492	PFB-R160SF8	16	10	32	8,5	14,5	14	5	8	10	2
7801493	PFB-R200SF10	20	12,5	38	10,5	18	18	6	10	14	2
7801494	PFB-R250SF12	25	15	38	12,5	23	22	7	12	17	2
7801495	PFB-R300SF16	30	-	43	17	28	27	8	16	22	2

Accessories and spare parts

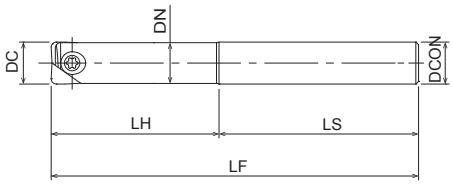
Applicable cutter DC	EDP	Designation	Torque	Specification
6	7808124	FS20652RB	0,8 N.m	Clamping screw
8	7808123	FS25669RB	1,0 N.m	Clamping screw
10	7808117	FS30686RB	1,2 N.m	Clamping screw
12	7808118	FS35610RB	2,0 N.m	Clamping screw
16	7808119	FS40613RB	3,0 N.m	Clamping screw
20	7808120	FS50615RB	5,0 N.m	Clamping screw
25	7808121	FS60620RB	5,0 N.m	Clamping screw
30 - 32	7808122	FS80624RB	6,0 N.m	Clamping screw
6	7808203	T6-D (Torx 6)	-	Wrench
8	7808204	T7-D (Torx 7)	-	Wrench
10	7808205	T8-D (Torx 8)	-	Wrench
12	7808207	T10-D (Torx 10)	-	Wrench
16	7808208	T15-D (Torx 15)	-	Wrench
20	7808209	T20-D (Torx 20)	-	Wrench
25	7808209	T20-D (Torx 20)	-	Wrench
30 - 32	7808212	T30-T (Torx 30)	-	Wrench

PFR

Milling | Indexable

INDEX





- Finishing corner radius cutter
- Excellent sharpness
- Cylindrical type
- 6 - 32 mm



C.885 C.1060

EDP	Designation	DC	LF	LH	DCON	DN	LS	ULDR	Seat size	ZEFP	Specification
7832029	PFR-R060SS06-S80CS	6	80	15	6	5,4	65	2,5	1	2	Carbide
7832039	PFR-R060SS06-L100CS	6	100	30	6	5,4	70	5	1	2	Carbide
7832019	PFR-R060SS06-LL120CS	6	120	42	6	5,4	79	7	1	2	Carbide
7832030	PFR-R080SS08-S100CS	8	100	20	8	7,5	80	2,5	2	2	Carbide
7832040	PFR-R080SS08-L120CS	8	120	40	8	7,5	80	5	2	2	Carbide
7832020	PFR-R080SS08-LL140CS	8	140	56	8	7,5	84	7	2	2	Carbide
7832031	PFR-R100SS10-S100CS	10	100	25	10	9,5	75	2,5	3	2	Carbide
7832041	PFR-R100SS10-L130CS	10	130	50	10	9,5	80	5	3	2	Carbide
7832021	PFR-R100SS10-LL150CS	10	150	70	10	9,5	80	7	3	2	Carbide
7832032	PFR-R120SS12-S110CS	12	110	30	12	11,5	80	2,5	4	2	Carbide
7832042	PFR-R120SS12-L140CS	12	140	60	12	11,5	80	5	4	2	Carbide
7832022	PFR-R120SS12-LL160CS	12	160	84	12	11,5	76	7	4	2	Carbide
7832033	PFR-R160SS16-S140CS	16	140	40	16	15,5	100	2,5	5	2	Carbide
7832043	PFR-R160SS16-L160CS	16	160	72	16	15,5	88	4,5	5	2	Carbide
7832023	PFR-R160SS16-LL200CS	16	200	96	16	15,5	104	6	5	2	Carbide
7832034	PFR-R200SS20-S160CS	20	160	50	20	19,5	110	2,5	6	2	Carbide
7832044	PFR-R200SS20-L180CS	20	180	90	20	19,5	90	4,5	6	2	Carbide
7832024	PFR-R200SS20-LL240CS	20	240	120	20	19,5	120	6	6	2	Carbide
7832035	PFR-R250SS25-S160CS	25	160	62,5	25	24,5	97,5	2,5	7	2	Carbide
7832045	PFR-R250SS25-L200CS	25	200	100	25	24,5	100	4	7	2	Carbide
7832025	PFR-R250SS25-LL260CS	25	260	137,5	25	24,5	122,5	5,5	7	2	Carbide
7832036	PFR-R300SS32-S170CS	30	170	75	32	29,5	95	2,5	8	2	Carbide
7832046	PFR-R300SS32-L220CS	30	220	120	32	29,5	100	4	8	2	Carbide
7832026	PFR-R300SS32-LL290CS	30	290	165	32	29,5	125	5,5	8	2	Carbide
7832037	PFR-R320SS32-S180CS	32	180	80	32	31,5	100	2,5	9	2	Carbide
7832047	PFR-R320SS32-L230CS	32	230	128	32	31,5	102	4	9	2	Carbide
7832027	PFR-R320SS32-LL300CS	32	300	176	32	31,5	124	5,5	9	2	Carbide
7832000	PFR-R080SS08-S120	8	120	36	8	7,5	84	4,5	2	2	Steel
7832001	PFR-R100SS10-S130	10	130	45	10	9,5	85	4,5	3	2	Steel
7832002	PFR-R120SS12-S130	12	130	54	12	11,5	76	4,5	4	2	Steel
7832003	PFR-R160SS16-S140	16	140	64	16	15,5	76	4	5	2	Steel
7832004	PFR-R200SS20-S160	20	160	80	20	19,5	80	4	6	2	Steel
7832005	PFR-R250SS25-S160	25	160	75	25	24,5	85	3	7	2	Steel
7832006	PFR-R300SS32-S170	30	170	90	32	29,5	80	3	8	2	Steel
7832007	PFR-R320SS32-S180	32	180	96	32	31,5	84	3	9	2	Steel

Accessories and spare parts

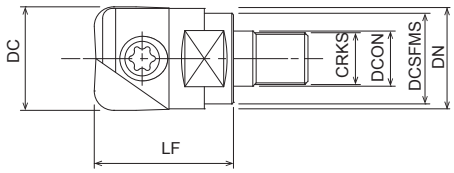
Applicable cutter DC	EDP	Designation	Torque	Specification
6	7808124	FS20652RB	0,8 N.m	Clamping screw
8	7808123	FS25669RB	1,0 N.m	Clamping screw
10	7808117	FS30686RB	1,2 N.m	Clamping screw
12	7808118	FS35610RB	2,0 N.m	Clamping screw
16	7808119	FS40613RB	3,0 N.m	Clamping screw
20	7808120	FS50615RB	5,0 N.m	Clamping screw
25	7808121	FS60620RB	5,0 N.m	Clamping screw
30 - 32	7808122	FS80624RB	6,0 N.m	Clamping screw
6	7808203	T6-D (Torx 6)	-	Wrench
8	7808204	T7-D (Torx 7)	-	Wrench
10	7808205	T8-D (Torx 8)	-	Wrench
12	7808207	T10-D (Torx 10)	-	Wrench
16	7808208	T15-D (Torx 15)	-	Wrench
20	7808209	T20-D (Torx 20)	-	Wrench
25	7808209	T20-D (Torx 20)	-	Wrench
30 - 32	7808212	T30-T (Torx 30)	-	Wrench

PFR

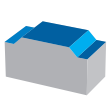
Milling | Indexable

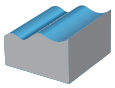
SCREW FIT





- Finishing corner radius cutter
- Excellent sharpness
- Screw fit type
- 10 - 32 mm



C.866 C.885 C.1060

EDP	Designation	DC	LF	DCON	DCSFMS	DN	Seat size	CRKS	Wrench size	ZEFP
7832090	PFR-R100SF6	10	26	6,5	9	9	3	6	7	2
7832091	PFR-R120SF6	12	26	6,5	11	11	4	6	7	2
7832092	PFR-R160SF8	16	32	8,5	14,5	15	5	8	10	2
7832093	PFR-R200SF10	20	38	10,5	18	19	6	10	14	2
7832094	PFR-R250SF12	25	38	12,5	23	24	7	12	17	2
7832095	PFR-R300SF16	30	43	17	28	29	8	16	22	2
7832096	PFR-R320SF16	32	43	17	28	31	9	16	22	2

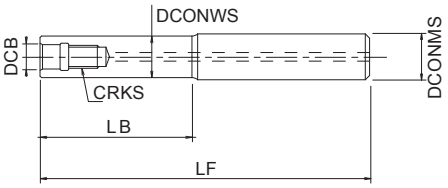
Accessories and spare parts

Applicable cutter DC	EDP	Designation	Torque	Specification
6	7808124	FS20652RB	0,8 N.m	Clamping screw
8	7808123	FS25669RB	1,0 N.m	Clamping screw
10	7808117	FS30686RB	1,2 N.m	Clamping screw
12	7808118	FS35610RB	2,0 N.m	Clamping screw
16	7808119	FS40613RB	3,0 N.m	Clamping screw
20	7808120	FS50615RB	5,0 N.m	Clamping screw
25	7808121	FS60620RB	5,0 N.m	Clamping screw
30 - 32	7808122	FS80624RB	6,0 N.m	Clamping screw
6	7808203	T6-D (Torx 6)	-	Wrench
8	7808204	T7-D (Torx 7)	-	Wrench
10	7808205	T8-D (Torx 8)	-	Wrench
12	7808207	T10-D (Torx 10)	-	Wrench
16	7808208	T15-D (Torx 15)	-	Wrench
20	7808209	T20-D (Torx 20)	-	Wrench
25	7808209	T20-D (Torx 20)	-	Wrench
30 - 32	7808212	T30-T (Torx 30)	-	Wrench

OP-SFA

Milling | Indexable





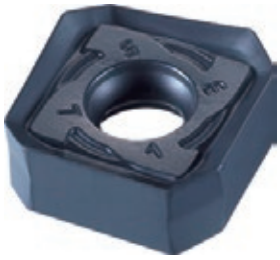
- Arbor for Screw fit type

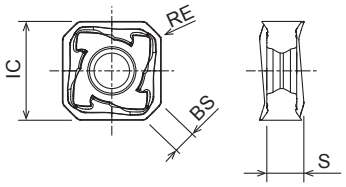
EDP	Designation	LF	LB	DCON	DCONWS	DCB	CRKS	Specification
7801904	SF-M06SS10-4	104	4	10	9	6,5	6	Steel
7801905	SF-M06SS12-10	104	10	12	11	6,5	6	Steel
7801900	SF-M08SS16-15	95	15	16	14,5	8,5	8	Steel
7801901	SF-M10SS20-20	120	20	20	18	10,5	10	Steel
7801902	SF-M12SS25-35	135	35	25	23	12,5	12	Steel
7801903	SF-M16SS32-35	155	35	32	28	17	16	Steel
7801918	SF-M06SS10-24CS	124	24	10	9	6,5	6	Carbide
7801919	SF-M06SS12-34CS	134	34	12	11	6,5	6	Carbide
7801910	SF-M08SS16-55CS	115	55	16	14,5	8,5	8	Carbide
7801911	SF-M08SS16-85CS	145	85	16	14,5	8,5	8	Carbide
7801912	SF-M10SS20-70CS	140	70	20	18	10,5	10	Carbide
7801913	SF-M10SS20-110CS	180	110	20	18	10,5	10	Carbide
7801914	SF-M12SS25-90CS	170	90	25	23	12,5	12	Carbide
7801915	SF-M12SS25-140CS	220	140	25	23	12,5	12	Carbide
7801916	SF-M16SS32-120CS	220	120	32	28	17	16	Carbide
7801917	SF-M16SS32-190CS	290	190	32	28	17	16	Carbide

PAS

Milling | Indexable | Inserts

INSERTS





- 45° face milling cutter
- Double sided 8 corners inserts

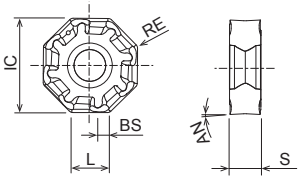
C.836

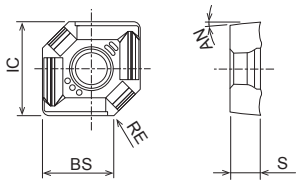
EDP	Designation	IC	S	RE	BS	APMX	Grade	P		M		K		N		S		H	
								dry		dry		GG	GGG	dry		dry		dry	
7814061	SNKU1505AZER-GM	15,88	7,18	1	3,65	6,5	XP3035	◉	◉	◎	◎	◎	◎						
7819061	SNKU1505AZER-GM	15,88	7,18	1	3,65	6,5	XC3025	◉				◎	◎						
7813061	SNKU1505AZER-GM	15,88	7,18	1	3,65	6,5	XP2040	◎	◎	◎	◉						◎	◎	
7812060	SNKU1505AZER-GR	15,88	7,18	1	3,65	6,5	XC1015					◉	◉						

PAO

Milling | Indexable | Inserts







- 45° face milling cutter
- Double sided 16 corners inserts

C.837

EDP	Designation	IC	S	L	AN	RE	BS	APMX	Type	Grade	P		M		K		N		S		H	
											dry		dry		GG	GGG	dry		dry		dry	
7814062	OZKU060508SR-GM	17,1	5,66	6	3	0,8	2	3,5	1	XP3035	◉	◉	◎	◎	◎	◎						
7825062	OZKU060508SR-GM	17,1	5,66	6	3	0,8	2	3,5	1	XC3030	◉				◎	◎						
7813062	OZKU060508SR-GM	17,1	5,66	6	3	0,8	2	3,5	1	XP2040	◎	◎	◎	◉						◎	◎	
7826062	OZKU060508SR-GM	17,1	5,66	6	3	0,8	2	3,5	1	XP2025		◎		◉						◎		
7816085	OZKU060508ER-SM	17,1	5,66	6	3	0,8	2	3,5	1	XC5040				◎						◉		
7812062	OZKU060508SR-GM	17,1	5,66	6	3	0,8	2	3,5	1	XC1015					◉	◎						
7812086	OZKU060508SR-GR	17,1	5,66	6	3	0,8	2	3,5	1	XC1015					◉	◎						
7821062	OZKU060508SR-GM	17,1	5,66	6	3	0,8	2	3,5	1	XP1020					◎	◉						
7814064	XAHT060525SR-GM	17,1	5,66	10	3	2,5	10	3,5	2	XP3035	◉	◉	◎	◎	◎	◎						
7812064	XAHT060525SR-GM	17,1	5,66	10	3	2,5	10	3,5	2	XC1015					◉	◉						

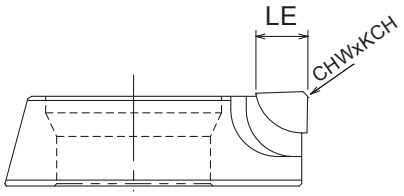
PFAL

Milling | Indexable | Inserts

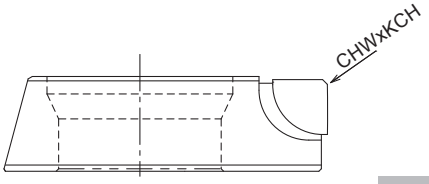
INSERTS



Type 1



Type 2



- Face milling finishing cutter for aluminium
- PCD blades

C.838

EDP	Designation	KCH	CHW	LE	Type	Grade	P		M		K		N		S		H	
							dry		dry		GG	GGG	dry		dry		dry	
7820500	FR1204	45	0,4	4	1	DP010							◉	◉				
7820502	FR1206	45	0,4	6	1	DP010							◉	◉				
7820501	FR1204-W	45	0,4	-	2	DP010							◉	◉				

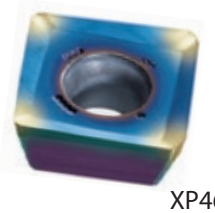
PFDC

Milling | Indexable | Inserts

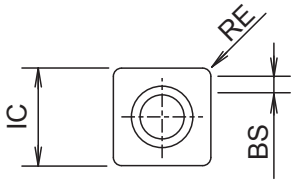
INSERTS

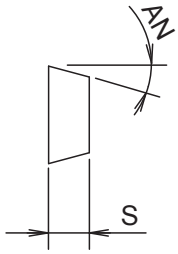


CK010



XP4610





- 90° Facemill cutter
- 4-corner inserts

C.839

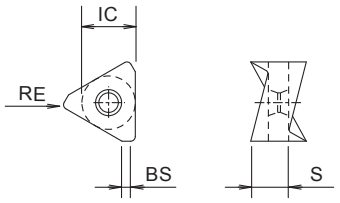
EDP	Designation	IC	S	AN	RE	BS	Grade	P		M		K		N		S		H	
								dry		dry		GG	GGG	dry		dry		dry	
7811076	SDHT09T308FR-NM	9,07	3,97	15°	0,8	2,5	CK010								◉				
7818076	SDHT09T308FR-NM	9,07	3,97	15°	0,8	2,5	XP4610							◉	◉				

PSTW

Milling | Indexable | Inserts

INSERTS



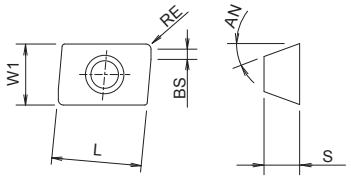


- 90° shoulder cutter
- Double sided 6 corners inserts

C.841

EDP	Designation	IC	S	RE	BS	APMX	Grade	P		M		K		N		S		H	
								dry		dry		GG	GGG	dry		dry		dry	
7813104	TNHU090404FR-NM	7,46	4,64	0,4	1,15	9	CK010								●				
7811087	TNHU120608ER-NM	10,8	6,55	0,8	1,25	12	CK010								●				
7821091	TNKU090404ER-GM	7,46	4,64	0,4	1,2	12	XC3020	●				○	○						
7827088	TNKU120608ER-GM	10,8	6,55	0,8	1,5	12	XC3020	●				○	○						
7821092	TNKU090404ER-GM	7,46	4,64	0,4	1,2	12	XP3025		●			○	○						
7828088	TNKU120608ER-GM	10,8	6,55	0,8	1,5	12	XP3025		●			○	○						
7821095	TNKU090404ER-GL	7,46	4,64	0,4	1,2	12	XC3030	●				○	○						
7825089	TNKU120608ER-GL	10,8	6,55	0,8	1,5	12	XC3030	●				○	○						
7821093	TNKU090404ER-GM	7,46	4,64	0,4	1,2	12	XC3030	●				○	○						
7825088	TNKU120608ER-GM	10,8	6,55	0,8	1,5	12	XC3030	●				○	○						
7813101	TNKU090404ER-GL	7,46	4,64	0,4	1,2	12	XP3035	●	●	○	○	○	○						
7814089	TNKU120608ER-GL	10,8	6,55	0,8	1,5	12	XP3035	●	●	○	○	○	○						
7813097	TNKU090404ER-GM	7,46	4,64	0,4	1,2	12	XP3035	●	●	○	○	○	○						
7813105	TNKU090408ER-GM	7,46	4,64	0,8	0,9	12	XP3035	●	●	○	○	○	○						
7813107	TNKU090412ER-GM	7,46	4,64	1,2	0,6	12	XP3035	●	●	○	○	○	○						
7814094	TNKU120612ER-GM	10,8	6,55	1,2	1,0	12	XP3035	●	●	○	○	○	○						
7814095	TNKU120616ER-GM	10,8	6,55	1,6	0,75	12	XP3035	●	●	○	○	○	○						
7814096	TNKU120620ER-GM	10,8	6,55	2,0	0,60	12	XP3035	●	●	○	○	○	○						
7814088	TNKU120608ER-GM	10,8	6,55	0,8	1,5	12	XP3035	●	●	○	○	○	○						
7813098	TNKU090404ER-GM	7,46	4,64	0,4	1,2	12	XP2040	○	○	○	●						○	○	
7813106	TNKU090408ER-GM	7,46	4,64	0,8	0,9	12	XP2040	○	○	○	●						○	○	
7813108	TNKU090412ER-GM	7,46	4,64	1,2	0,6	12	XP2040	○	○	○	●						○	○	
7813088	TNKU120608ER-GM	10,8	6,55	0,8	1,5	12	XP2040	○	○	○	●						○	○	
7813094	TNKU120612ER-GM	10,8	6,55	1,2	1,0	12	XP2040	○	○	○	●						○	○	
7813095	TNKU120616ER-GM	10,8	6,55	1,6	0,75	12	XP2040	○	○	○	●						○	○	
7813096	TNKU120620ER-GM	10,8	6,55	2,0	0,60	12	XP2040	○	○	○	●						○	○	
7813100	TNKU090404ER-GL	7,46	4,64	0,4	1,2	12	XP2040	○	○	○	●						○	○	
7813089	TNKU120608ER-GL	10,8	6,55	0,8	1,5	12	XP2040	○	○	○	●						○	○	
7813099	TNKU090404ER-GM	7,46	4,64	0,4	1,2	12	XC1015					●	○						
7812088	TNKU120608ER-GM	10,8	6,55	0,8	1,5	12	XC1015					●	○						
7813102	TNKU090404ER-GR	7,46	4,64	0,4	1,2	12	XC1015					●	○						
7812090	TNKU120608ER-GR	10,8	6,55	0,8	1,5	12	XC1015					●	○						
7821094	TNKU090404ER-GM	7,46	4,64	0,4	1,2	12	XP1020					○	●						
7821088	TNKU120608ER-GM	10,8	6,55	0,8	1,5	12	XP1020					○	●						
7821096	TNKU090404ER-GR	7,46	4,64	0,4	1,2	12	XP1020					○	●						
7821090	TNKU120608ER-GR	10,8	6,55	0,8	1,5	12	XP1020					○	●						
7813103	TNKU090404ER-SM	7,46	4,64	0,4	1,2	12	XC5040				○					●			
7816091	TNKU120608ER-SM	10,8	6,55	0,8	1,5	12	XC5040				○					●			



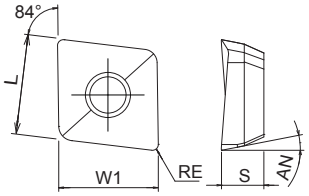


- 90° shoulder cutter
- 2 corners inserts with bottom notch

C.844

EDP	Designation	S	W1	L	AN	RE	BS	APMX	Grade	P		M		K		N		S		H	
										dry		dry		GG	GGG	dry		dry		dry	
7811023	ZDKT11T308FR-NM	3,8	6,8	11	15	0,8	1,4	10	CK010								●				
7827026	ZDKT11T308SR-GL	3,8	6,8	11	15	0,8	1,4	10	XC3020	●				◎	◎						
7827032	ZDKT11T308SR-GM	3,8	6,8	11	15	0,8	1,4	10	XC3020	●				◎	◎						
7827033	ZDKT11T308SR-GR	3,8	6,8	11	15	0,8	1,4	10	XC3020	●				◎	◎						
7828026	ZDKT11T308SR-GL	3,8	6,8	11	15	0,8	1,4	10	XP3025		●			◎	◎						
7828032	ZDKT11T308SR-GM	3,8	6,8	11	15	0,8	1,4	10	XP3025		●			◎	◎						
7828033	ZDKT11T308SR-GR	3,8	6,8	11	15	0,8	1,4	10	XP3025		●			◎	◎						
7825026	ZDKT11T308SR-GL	3,8	6,8	11	15	0,8	1,4	10	XC3030	●				◎	◎						
7825032	ZDKT11T308SR-GM	3,8	6,8	11	15	0,8	1,4	10	XC3030	●				◎	◎						
7825033	ZDKT11T308SR-GR	3,8	6,8	11	15	0,8	1,4	10	XC3030	●				◎	◎						
7814026	ZDKT11T308SR-GL	3,8	6,8	11	15	0,8	1,4	10	XP3035	●	●	◎	◎	◎	◎						
7814032	ZDKT11T308SR-GM	3,8	6,8	11	15	0,8	1,4	10	XP3035	●	●	◎	◎	◎	◎						
7814033	ZDKT11T308SR-GR	3,8	6,8	11	15	0,8	1,4	10	XP3035	●	●	◎	◎	◎	◎						
7826026	ZDKT11T308SR-GL	3,8	6,8	11	15	0,8	1,4	10	XP2025		◎		●						◎		
7826032	ZDKT11T308SR-GM	3,8	6,8	11	15	0,8	1,4	10	XP2025		◎		●						◎		
7813026	ZDKT11T308SR-GL	3,8	6,8	11	15	0,8	1,4	10	XP2040	◎	◎	◎	●						◎	◎	
7813032	ZDKT11T308SR-GM	3,8	6,8	11	15	0,8	1,4	10	XP2040	◎	◎	◎	●						◎	◎	
7813033	ZDKT11T308SR-GR	3,8	6,8	11	15	0,8	1,4	10	XP2040	◎	◎	◎	●						◎	◎	
7812033	ZDKT11T308SR-GR	3,8	6,8	11	15	0,8	1,4	10	XC1015					●	●						
7815031	ZDKT11T308ER-SM	3,8	6,8	11	15	0,8	1,4	10	XC5035			●	◎						◎		
7816031	ZDKT11T308ER-SM	3,8	6,8	11	15	0,8	1,4	10	XC5040				◎						●		
7824035	ZDKT11T308SR-HR	3,8	6,8	11	15	0,8	1,4	10	XP6015	◎				◎	◎					●	



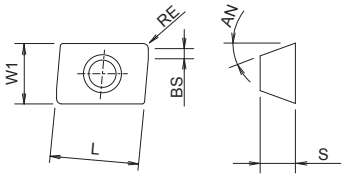


- Counterboring cutter
- 2 corners inserts

C.852

EDP	Designation	S	W1	L	AN	RE	Grade	P		M		K		N		S		H	
								dry		dry		GG	GGG	dry		dry		dry	
7814108	ZPNT100408EN	4,65	10,95	10,95	11	0,8	XP8030		◉		◉	◎	◎		◎		◎		◎
7814110	ZPNT130508EN	5,46	13,92	13,92	11	0,8	XP8030		◉		◉	◎	◎		◎		◎		◎
7814111	ZPNT170608EN	6,31	17,85	17,85	11	0,8	XP8030		◉		◉	◎	◎		◎		◎		◎



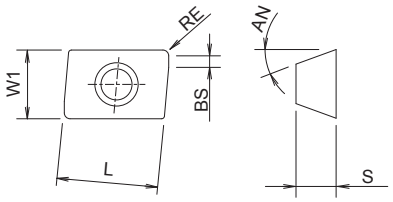


- 90° shoulder cutter
- 2 corners inserts with bottom notch

C.842

EDP	Designation	S	W1	L	AN	RE	BS	APMX	Grade	P		M		K		N		S		H	
										dry		dry		GG	GGG	dry		dry		dry	
7811112	ZDKT070302FR-NM	2,54	4	8,2	15	0,2	1,1		CK010								●				
7811113	ZDKT070304FR-NM	2,54	4	8,2	15	0,4	0,9		CK010								●				
7825127	ZDKT070304SR-GL	2,54	4	8,2	15	0,4	0,9		XC3030	●				○	○						
7825129	ZDKT070308SR-GL	2,54	4	8,2	15	0,8	0,5		XC3030	●				○	○						
7825128	ZDKT070304SR-GM	2,54	4	8,2	15	0,4	0,9		XC3030	●				○	○						
7825130	ZDKT070308SR-GM	2,54	4	8,2	15	0,8	0,5		XC3030	●				○	○						
7814123	ZDKT070304SR-GL	2,54	4	8,2	15	0,4	0,9		XP3035	●	●	○	○	○	○						
7814125	ZDKT070308SR-GL	2,54	4	8,2	15	0,8	0,5		XP3035	●	●	○	○	○	○						
7814124	ZDKT070304SR-GM	2,54	4	8,2	15	0,4	0,9		XP3035	●	●	○	○	○	○						
7814126	ZDKT070308SR-GM	2,54	4	8,2	15	0,8	0,5		XP3035	●	●	○	○	○	○						
7826121	ZDKT070304SR-GL	2,54	4	8,2	15	0,4	0,9		XP2025		○		●						○		
7826122	ZDKT070308SR-GL	2,54	4	8,2	15	0,8	0,5		XP2025		○		●						○		
7813117	ZDKT070304SR-GL	2,54	4	8,2	15	0,4	0,9		XP2040	○	○	○	●						○	○	
7813119	ZDKT070308SR-GL	2,54	4	8,2	15	0,8	0,5		XP2040	○	○	○	●						○	○	
7813116	ZDKT070302SR-GM	2,54	4	8,2	15	0,2	1,1		XP2040	○	○	○	●						○	○	
7813118	ZDKT070304SR-GM	2,54	4	8,2	15	0,4	0,9		XP2040	○	○	○	●						○	○	
7813120	ZDKT070308SR-GM	2,54	4	8,2	15	0,8	0,5		XP2040	○	○	○	●						○	○	
7812114	ZDKT070304SR-GM	2,54	4	8,2	15	0,4	0,9		XC1015					●	●						
7812115	ZDKT070308SR-GM	2,54	4	8,2	15	0,8	0,5		XC1015					●	●						
7814026	ZDKT11T308SR-GL	3,8	6,8	11	15	0,8	1,4	10	XP3035	●	●	○	○	○	○						
7814025	ZDKT11T304SR-GM	3,8	6,8	11	15	0,4	1,8	10	XP3035	●	●	○	○	○	○						
7814032	ZDKT11T308SR-GM	3,8	6,8	11	15	0,8	1,4	10	XP3035	●	●	○	○	○	○						
7814053	ZDKT11T312SR-GM	3,8	6,8	11	15	1,2	1	10	XP3035	●	●	○	○	○	○						
7814038	ZDKT11T320SR-GM	3,8	6,8	11	15	2	2,1	10	XP3035	●	●	○	○	○	○						
7814054	ZDKT11T330SR-GM	3,8	6,8	11	15	3	1,5	10	XP3035	●	●	○	○	○	○						
7814055	ZDKT11T340SR-GM	3,8	6,8	11	15	4	-	10	XP3035	●	●	○	○	○	○						
7814033	ZDKT11T308SR-GR	3,8	6,8	11	15	0,8	1,4	10	XP3035	●	●	○	○	○	○						
7825026	ZDKT11T308SR-GL	3,8	6,8	11	15	0,8	1,4	10	XP3030	●				○	○						
7825025	ZDKT11T304SR-GM	3,8	6,8	11	15	0,4	1,8	10	XP3030	●				○	○						
7825032	ZDKT11T308SR-GM	3,8	6,8	11	15	0,8	1,4	10	XP3030	●				○	○						
7825033	ZDKT11T308SR-GR	3,8	6,8	11	15	0,8	1,4	10	XP3030	●				○	○						
7828026	ZDKT11T308SR-GL	3,8	6,8	11	15	0,8	1,4	10	XP3025		●			○	○						
7828032	ZDKT11T308SR-GM	3,8	6,8	11	15	0,8	1,4	10	XP3025		●			○	○						
7828033	ZDKT11T308SR-GR	3,8	6,8	11	15	0,8	1,4	10	XP3025		●			○	○						
7813026	ZDKT11T308SR-GL	3,8	6,8	11	15	0,8	1,4	10	XP2040	○	○	○	●						○	●	
7813025	ZDKT11T304SR-GM	3,8	6,8	11	15	0,4	1,8	10	XP2040	○	○	○	●						○	●	
7813032	ZDKT11T308SR-GM	3,8	6,8	11	15	0,8	1,4	10	XP2040	○	○	○	●						○	●	
7813033	ZDKT11T308SR-GR	3,8	6,8	11	15	0,8	1,4	10	XP2040	○	○	○	●						○	●	
7826026	ZDKT11T308SR-GL	3,8	6,8	11	15	0,8	1,4	10	XP2025		○		●						○		
7826025	ZDKT11T304SR-GM	3,8	6,8	11	15	0,4	1,8	10	XP2025		○		●						○		
7826032	ZDKT11T308SR-GM	3,8	6,8	11	15	0,8	1,4	10	XP2025		○		●						○		
7815031	ZDKT11T308ER-SM	3,8	6,8	11	15	0,8	1,4	10	XC5035			●	○						○	○	
7815027	ZDKT11T316ER-SM	3,8	6,8	11	15	1,6	0,8	10	XC5035			●	○						○	○	
7816034	ZDKT11T304ER-SM	3,8	6,8	11	15	0,4	1,8	10	XC5040				○						●		
7816031	ZDKT11T308ER-SM	3,8	6,8	11	15	0,8	1,4	10	XC5040				○						●		
7816027	ZDKT11T316ER-SM	3,8	6,8	11	15	1,6	0,8	10	XC5040				○						●		
7827026	ZDKT11T308SR-GL	3,8	6,8	11	15	0,8	1,4	10	XC3020	●				○	○						
7827032	ZDKT11T308SR-GM	3,8	6,8	11	15	0,8	1,4	10	XC3020	●				○	○						
7827033	ZDKT11T308SR-GR	3,8	6,8	11	15	0,8	1,4	10	XC3020	●				○	○						
7812025	ZDKT11T304SR-GM	3,8	6,8	11	15	0,4	1,8	10	XC1015					●	●						
7812033	ZDKT11T308SR-GR	3,8	6,8	11	15	0,8	1,4	10	XC1015					●	●						
7824035	ZDKT11T308SR-HR	3,8	6,8	11	15	0,8	1,4	10	XP6015	○				○	○					●	
7811048	ZDKT11T302FR-NM	3,8	6,8	11	15	0,2	2	10	CK010								●				
7811049	ZDKT11T304FR-NM	3,8	6,8	11	15	0,4	1,8	10	CK010								●				
7811024	ZDHT11T304FR-NM	3,5	6,8	11	15	0,4	1,8	10	CK010								●				
7811023	ZDKT11T308FR-NM	3,8	6,8	11	15	0,8	1,4	10	CK010								●				
7814057	ZDKT150508SR-GL	5,56	9,3	15	15	0,8	1,6	14	XP3035	●	●	○	○	○	○						
7814029	ZDKT150508SR-GM	5,56	9,3	15	15	0,8	1,6	14	XP3035	●	●	○	○	○	○						
7814077	ZDKT150512SR-GM	5,56	9,3	15	15	1,2	1,2	14	XP3035	●	●	○	○	○	○						
7814078	ZDKT150516SR-GM	5,56	9,3	15	15	1,6	0,8	14	XP3035	●	●	○	○	○	○						
7814079	ZDKT150520SR-GM	5,56	9,3	15	15	2	2,1	14	XP3035	●	●	○	○	○	○						





- 90° shoulder cutter
- 2 corners inserts with bottom notch

C.842

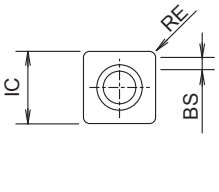
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										dry		dry		GG	GGG	dry		dry		dry	
7814080	ZDKT150530SR-GM	5,56	9,3	15	15	3	1,9	14	XP3035	◉	◉	◎	◎	◎	◎						
7814081	ZDKT150540SR-GM	5,56	9,3	15	15	4	1,1	14	XP3035	◉	◉	◎	◎	◎	◎						
7814082	ZDKT150550SR-GM	5,56	9,3	15	15	5	0,7	14	XP3035	◉	◉	◎	◎	◎	◎						
7814058	ZDKT150508SR-GR	5,56	9,3	15	15	0,8	1,6	14	XP3035	◉	◉	◎	◎	◎	◎						
7825057	ZDKT150508SR-GL	5,56	9,3	15	15	0,8	1,6	14	XP3030	◉				◎	◎						
7825029	ZDKT150508SR-GM	5,56	9,3	15	15	0,8	1,6	14	XP3030	◉				◎	◎						
7825058	ZDKT150508SR-GR	5,56	9,3	15	15	0,8	1,6	14	XP3030	◉				◎	◎						
7813057	ZDKT150508SR-GL	5,56	9,3	15	15	0,8	1,6	14	XP2040	◎	◎	◎	◉						◎	◉	
7813028	ZDKT150508SR-GM	5,56	9,3	15	15	0,8	1,6	14	XP2040	◎	◎	◎	◉						◎	◉	
7813058	ZDKT150508SR-GR	5,56	9,3	15	15	0,8	1,6	14	XP2040	◎	◎	◎	◉						◎	◉	
7826057	ZDKT150508SR-GL	5,56	9,3	15	15	0,8	1,6	14	XP2025		◎		◉						◎		
7826029	ZDKT150508SR-GM	5,56	9,3	15	15	0,8	1,6	14	XP2025		◎		◉						◎		
7815056	ZDKT150508ER-SM	5,56	9,3	15	15	0,8	1,6	14	XC5035			◉	◎						◎	◎	
7816056	ZDKT150508ER-SM	5,56	9,3	15	15	0,8	1,6	14	XC5040				◎						◉		
7812029	ZDKT150508SR-GM	5,56	9,3	15	15	0,8	1,6	14	XC1015					◉	◉						
7812058	ZDKT150508SR-GR	5,56	9,3	15	15	0,8	1,6	14	XC1015					◉	◉						
7824036	ZDKT150508SR-HR	5,56	9,3	15	15	0,8	1,6	14	XP6015	◎				◎	◎					◉	
7811046	ZDKT150508FR-NM	5,56	9,3	15	15	0,8	1,6	14	CK010								◉				

PSF/PSFL

Milling | Indexable | Inserts

INSERTS





- Shoulder cutter
- 4 corners inserts

C.848

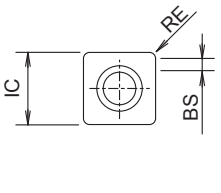
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									dry		dry		GG	GGG	dry		dry		dry	
7811076	SDHT09T308FR-NM	9,07	3,97	15	0,8	2,5	5	CK010								◉				
7811625	SDHT120508FR-NM	12,38	5	15	0,8	1,2	5	CK010								◉				
7825073	SDKT09T308SR-GL	9,07	3,97	15	0,8	2,5	5	XC3030	◉											
7825074	SDKT09T308SR-GM	12,38	3,97	15	0,8	2,5	5	XC3030	◉				◎	◎						
7825622	SDKT120508SR-GM	9,07	5	15	0,8	1,2	5	XC3030	◉				◎	◎						
7814073	SDKT09T308SR-GL	9,07	3,97	15	0,8	2,5	5	XP3035	◉	◉	◎	◎	◎	◎						
7814074	SDKT09T308SR-GM	12,38	3,97	15	0,8	2,5	5	XP3035	◉	◉	◎	◎	◎	◎						
7814621	SDKT120508SR-GM	9,07	5	15	0,8	1,2	5	XP3035	◉	◉	◎	◎	◎	◎						
7813073	SDKT09T308SR-GL	12,38	3,97	15	0,8	2,5	5	XP2040	◎	◎	◎	◉						◎	◎	
7813074	SDKT09T308SR-GM	9,07	3,97	15	0,8	2,5	5	XP2040	◎	◎	◎	◉						◎	◎	
7813623	SDKT120508SR-GL	9,07	5	15	0,8	1,2	5	XP2040	◎	◎	◎	◉						◎	◎	
7812075	SDKT09T308SR-GR	12,38	3,97	15	0,8	2,5	5	XC1015					◉	◉						
7812624	SDKT120508SR-GR	9,07	5	15	0,8	1,2	5	XC1015					◉	◉						
7816073	SDKT09T308SR-GL	9,07	3,97	15	0,8	2,5	5	XC5040				◎						◉		
7816620	SDKT120508SR-GL	12,38	5	15	0,8	1,2	5	XC5040				◎						◉		

PSF

Milling | Indexable | Inserts

INSERTS



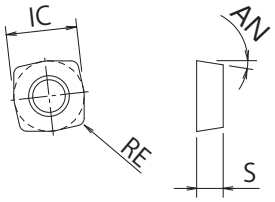


- Shoulder cutter
- 4 corners inserts

C.848

EDP	Designation	IC	S	AN	RE	BS	APMX	Grade	P		M		K		N		S		H	
									dry		dry		GG	GGG	dry		dry		dry	
7814073	SDKT09T308SR-GL	9,07	3,97	15	0,8	2,5	5	XP3035	◉	◉	◎	◎	◎	◎						
7814074	SDKT09T308SR-GM	9,07	3,97	15	0,8	2,5	5	XP3035	◉	◉	◎	◎	◎	◎						
7813073	SDKT09T308SR-GL	9,07	3,97	15	0,8	2,5	5	XP2040	◎	◎	◎	◉						◎	◎	
7813074	SDKT09T308SR-GM	9,07	3,97	15	0,8	2,5	5	XP2040	◎	◎	◎	◉						◎	◎	
7816073	SDKT09T308SR-GL	9,07	3,97	15	0,8	2,5	5	XC5040				◎						◉		
7812075	SDKT09T308SR-GR	9,07	3,97	15	0,8	2,5	5	XC1015					◉	◉						
7811076	SDHT09T308FR-NM	9,07	3,97	15	0,8	2,5	5	CK010								◉				



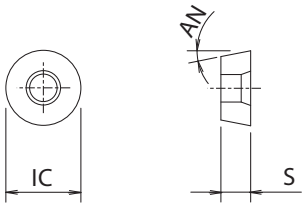


- High feed radius cutter for long over hang
- 4 corners inserts

C.854

EDP	Designation	IC	S	AN	RE	APMX	Grade	P		M		K		N		S		H	
								dry		dry		GG	GGG	dry		dry		dry	
7814092	SPMT070305SR-GM	7	2,75	11	0,5	0,8	XP3035	●	●	○	○	○	○						
7828092	SPMT070305SR-GM	7	2,75	11	0,5	0,8	XP3025		●			○	○						
7827092	SPMT070305SR-GM	7	2,75	11	0,5	0,8	XC3020	●				○	○						
7825092	SPMT070305SR-GM	7	2,75	11	0,5	0,8	XC3030	●				○	○						
7813092	SPMT070305SR-GM	7	2,75	11	0,5	0,8	XP2040	○	○	○	●						○	○	
7826092	SPMT070305SR-GM	7	2,75	11	0,5	0,8	XP2025		○		●						○		
7816093	SPMT070305ER-SM	7	2,75	11	0,5	0,8	XC5040				○						●		
7812092	SPMT070305SR-GM	7	2,75	11	0,5	0,8	XC1015					●	●						
7814020	SDMT09T308SR-GM	9,52	3,97	15	0,8	1	XP3035	●	●	○	○	○	○						
7825020	SDMT09T308SR-GM	9,52	3,97	15	0,8	1	XC3030	●				○	○						
7813020	SDMT09T308SR-GM	9,52	3,97	15	0,8	1	XP2040	○	○	○	●						○	○	
7826020	SDMT09T308SR-GM	9,52	3,97	15	0,8	1	XP2025		○		●						○		
7815021	SDMT09T308ER-SM	9,52	3,97	15	0,8	1	XC5035			●	○						○		
7816021	SDMT09T308ER-SM	9,52	3,97	15	0,8	1	XC5040				○						●		
7812020	SDMT09T308SR-GM	9,52	3,97	15	0,8	1	XC1015					●	●						
7814022	SXMT120410SR-GM	12,7	4,76	9	1	2	XP3035	●	●	○	○	○	○						
7825022	SXMT120410SR-GM	12,7	4,76	9	1	2	XC3030	●				○	○						
7813022	SXMT120410SR-GM	12,7	4,76	9	1	2	XP2040	○	○	○	●						○	○	
7826022	SXMT120410SR-GM	12,7	4,76	9	1	2	XP2025		○		●						○		
7815023	SXMT120410ER-SM	12,7	4,76	9	1	2	XC5035			●	○						○		
7816023	SXMT120410ER-SM	12,7	4,76	9	1	2	XC5040				○						●		
7812022	SXMT120410SR-GM	12,7	4,76	9	1	2	XC1015					●	●						



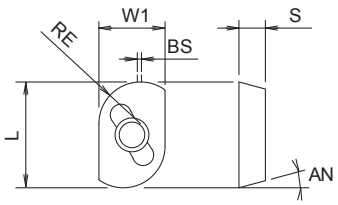


- Radius cutter
- Round inserts

C.857

EDP	Designation	IC	S	AN	Grade	P		M		K		N		S		H	
						dry		dry		GG	GGG	dry		dry		dry	
7814030	RPHW10T3MOSN	10	3,97	11	XP3035	●	●	○	○	○	○						
7825017	RPHW10T3MOSN	10	3,97	11	XC3030	●				○	○						
7813008	RPHT10T3MOEN-GL	10	3,97	11	XP2040	○	○	○	●						○	○	
7826008	RPHT10T3MOEN-GL	10	3,97	11	XP2025		○		●						○		
7815050	RPHT10T3M8EN-SM	10	3,97	11	XC5035			●	○						○		
7815010	RPHT10T3MOEN-SM	10	3,97	11	XC5035			●	○						○		
7816050	RPHT10T3M8EN-SM	10	3,97	11	XC5040				○						●		
7824083	RPMT10T3M8EN-HR	10	3,97	11	XP6015	○				○	○					●	
7812017	RPHW10T3MOEN	10	3,97	11	XC1015					●	●						
7811009	RPHT10T3MOFN-NM	10	3,97	11	CK010								●				
7814018	RPHW1204MOSN	12	4,76	11	XP3035	●	●	○	○	○	○						
7825018	RPHW1204MOSN	12	4,76	11	XC3030	●				○	○						
7813011	RPHT1204MOEN-GL	12	4,76	11	XP2040	○	○	○	●						○	○	
7826011	RPHT1204MOEN-GL	12	4,76	11	XP2025		○		●						○		
7815051	RPHT1204M8EN-SM	12	4,76	11	XC5035			●	○						○		
7815012	RPHT1204MOEN-SM	12	4,76	11	XC5035			●	○						○		
7816051	RPHT1204M8EN-SM	12	4,76	11	XC5040				○						●		
7824084	RPMT1204M8EN-HR	12	4,76	11	XP6015	○				○	○					●	
7812018	RPHW1204MOSN	12	4,76	11	XC1015					●	●						
7811013	RPHT1204MOFN-NM	12	4,76	11	CK010								●				
7814019	RPHW1605MOSN	16	5,56	11	XP3035	●	●	○	○	○	○						
7825019	RPHW1605MOSN	16	5,56	11	XC3030	●				○	○						
7813014	RPHT1605MOEN-GL	16	5,56	11	XP2040	○	○	○	●						○	○	
7826014	RPHT1605MOEN-GL	16	5,56	11	XP2025		○		●						○		
7815052	RPHT1605M8EN-SM	16	5,56	11	XC5035			●	○						○		
7815015	RPHT1605MOEN-SM	16	5,56	11	XC5035			●	○						○		
7816052	RPHT1605M8EN-SM	16	5,56	11	XC5040				○						●		
7812019	RPHW1605MOSN	16	5,56	11	XC1015					●	●						
7811016	RPHT1605MOFN-NM	16	5,56	11	CK010								●				





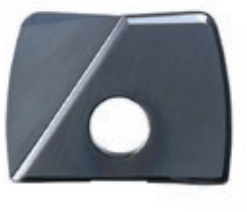
- High feed radius cutter, deep depth of cut
- 2 corners inserts

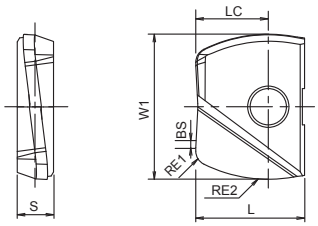
C.860

EDP	Designation	S	W1	L	AN	RE	BS	APMX	Grade	P		M		K		N		S		H	
										dry		dry		GG	GGG	dry		dry		dry	
7810000	ADMT2006100PDR-GM	6,35	16	24,18	15	10	1	20	XP3930	◉				◉	◉						

PFB-BR

Milling | Indexable | Inserts





- Barrel type
- Contour milling of vertical slope
- Flat bottom milling
- 10 - 32 mm



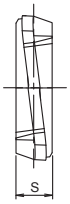
C.862

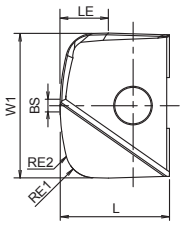
EDP	Designation	ZEFP	S	W1	L	RE	RE2	BS	LC	Grade	Body size	P		M		K		N		S		H	
												dry		dry		GG	GGG	dry		dry		dry	
7820071	PFB100R150-BR-ST	2	2,6	10	8,5	1	15	0,3	5	XP3225	3	◉		○						○			
7820072	PFB120R180-BR-ST	2	3	12	10	1	18	0,3	6	XP3225	4	◉		○						○			
7820073	PFB160R240-BR-ST	2	4	16	12	2	24	0,5	8	XP3225	5	◉		○						○			
7820074	PFB200R300-BR-ST	2	5	20	15	2	30	0,5	10	XP3225	6	◉		○						○			
7820075	PFB250R375-BR-ST	2	6	25	18,5	2,5	37,5	0,5	12,5	XP3225	7	◉		○						○			
7820076	PFB320R480-BR-ST	2	7	32	23,5	3	48	0,5	16	XP3225	9	◉		○						○			
7820081	PFB100R150-BR-SH	2	2,6	10	8,5	1	15	0,3	5	XP3310	3					◉	◉					◉	
7820082	PFB120R180-BR-SH	2	3	12	10	1	18	0,3	6	XP3310	4					◉	◉					◉	
7820083	PFB160R240-BR-SH	2	4	16	12	2	24	0,5	8	XP3310	5					◉	◉					◉	
7820084	PFB200R300-BR-SH	2	5	20	15	2	30	0,5	10	XP3310	6					◉	◉					◉	
7820085	PFB250R375-BR-SH	2	6	25	18,5	2,5	37,5	0,5	12,5	XP3310	7					◉	◉					◉	
7820086	PFB320R480-BR-SH	2	7	32	23,5	3	48	0,5	16	XP3310	9					◉	◉					◉	

PFB-LZ

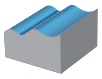
Milling | Indexable | Inserts







- Lens type
- Copy milling of horizontal slope
- Copy milling of curved surface
- 10 - 32 mm





C.862

EDP	Designation	ZEFP	S	W1	L	RE	RE2	BS	LC	Grade	Body size	P		M		K		N		S		H	
												dry		dry		GG	GGG	dry		dry		dry	
7820091	PFB100R150-LZ-ST	2	2,6	10	8,5	1	15	0,75	3,3	XP3225	3	◉		◎						◎			
7820092	PFB120R180-LZ-ST	2	3	12	10	1	18	0,75	4	XP3225	4	◉		◎						◎			
7820093	PFB160R240-LZ-ST	2	4	16	12	2	24	1	5,3	XP3225	5	◉		◎						◎			
7820094	PFB200R300-LZ-ST	2	5	20	15	2	30	1,75	6,7	XP3225	6	◉		◎						◎			
7820095	PFB250R375-LZ-ST	2	6	25	18,5	2,5	37,5	1,75	8,3	XP3225	7	◉		◎						◎			
7820096	PFB320R480-LZ-ST	2	7	32	23,5	3	48	2	10,7	XP3225	9	◉		◎						◎			
7820101	PFB100R150-LZ-SH	2	2,6	10	8,5	1	15	0,75	3,3	XP3310	3					◉	◉					◉	
7820102	PFB120R180-LZ-SH	2	3	12	10	1	18	0,75	4	XP3310	4					◉	◉					◉	
7820103	PFB160R240-LZ-SH	2	4	16	12	2	24	1	5,3	XP3310	5					◉	◉					◉	
7820104	PFB200R300-LZ-SH	2	5	20	15	2	30	1,75	6,7	XP3310	6					◉	◉					◉	
7820105	PFB250R375-LZ-SH	2	6	25	18,5	2,5	37,5	1,75	8,3	XP3310	7					◉	◉					◉	
7820106	PFB320R480-LZ-SH	2	7	32	23,5	3	48	2	10,7	XP3310	9					◉	◉					◉	

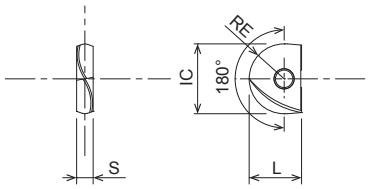
PFB

Milling | Indexable | Inserts

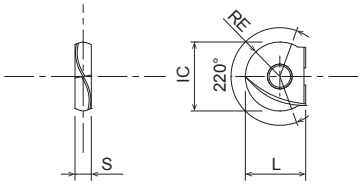


- Finishing ball nose cutter
- Excellent sharpness
- 6 - 32 mm

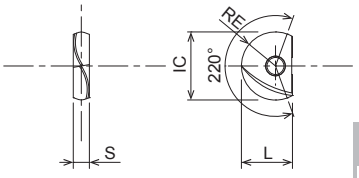
Type 1



Type 2



Type 3



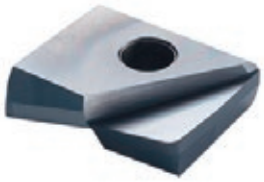
C.862

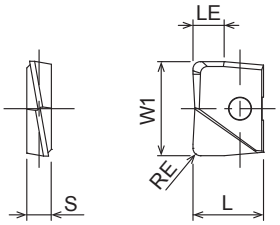
EDP	Designation	Range de-gree	IC	S	L	RE	Type	Grade	Body size	P		M		K		N		S		H	
										dry		dry		GG	GGG	dry		dry		dry	
7820030	PFB080-SP	180	8	2,4	7	4	1	XP3225	2	●		●				●			○		
7820031	PFB100-SP	180	10	2,6	8,5	5	1	XP3225	3	●		●				●			○		
7820032	PFB120-SP	180	12	3	10	6	1	XP3225	4	●		●				●			○		
7820033	PFB160-SP	180	16	4	12	8	1	XP3225	5	●		●				●			○		
7820034	PFB200-SP	180	20	5	15	10	1	XP3225	6	●		●				●			○		
7820035	PFB250-SP	180	25	6	18,5	12,5	1	XP3225	7	●		●				●			○		
7820036	PFB300-SP	180	30	7	22,5	15	1	XP3225	8	●		●				●			○		
7820010	PFB080-SP	180	8	2,4	7	4	1	XP3320	2	○		○		○	○				●	○	
7820011	PFB100-SP	180	10	2,6	8,5	5	1	XP3320	3	○		○		○	○				●	○	
7820012	PFB120-SP	180	12	3	10	6	1	XP3320	4	○		○		○	○				●	○	
7820013	PFB160-SP	180	16	4	12	8	1	XP3320	5	○		○		○	○				●	○	
7820014	PFB200-SP	180	20	5	15	10	1	XP3320	6	○		○		○	○				●	○	
7820015	PFB250-SP	180	25	6	18,5	12,5	1	XP3320	7	○		○		○	○				●	○	
7820016	PFB300-SP	180	30	7	22,5	15	1	XP3320	8	○		○		○	○				●	○	
7820039	PFB060-SH	220	6	2	5	3	2	XP3310	1					●	●					●	
7820040	PFB080-SH	180	8	2,4	7	4	1	XP3310	2					●	●					●	
7820041	PFB100-SH	180	10	2,6	8,5	5	1	XP3310	3					●	●					●	
7820042	PFB120-SH	180	12	3	10	6	1	XP3310	4					●	●					●	
7820043	PFB160-SH	180	16	4	12	8	1	XP3310	5					●	●					●	
7820044	PFB200-SH	180	20	5	15	10	1	XP3310	6					●	●					●	
7820045	PFB250-SH	180	25	6	18,5	12,5	1	XP3310	7					●	●					●	
7820046	PFB300-SH	180	30	7	22,5	15	1	XP3310	8					●	●					●	
7820047	PFB320-SH	180	32	7	23,5	16	1	XP3310	9					●	●					●	
48333000	PFB160-Q-SH	220	16	4	12	8	2	XP3310	5					●	●					●	
48333001	PFB200-Q-SH	220	20	5	15	10	2	XP3310	6					●	●					●	
7820107	PFB100-HH	180	10	2,6	8,5	5	1	XP6703	3	○				○	○					●	
7820108	PFB120-HH	180	12	3	10	6	1	XP6703	4	○				○	○					●	
7820109	PFB160-HH	180	16	4	12	8	1	XP6703	5	○				○	○					●	
7820110	PFB200-HH	180	20	5	15	10	1	XP6703	6	○				○	○					●	
7820111	PFB250-HH	180	25	6	18,5	12,5	1	XP6703	7	○				○	○					●	
7820112	PFB300-HH	180	30	7	22,5	15	1	XP6703	8	○				○	○					●	
7820113	PFB320-HH	180	32	7	23,5	16	1	XP6703	9	○				○	○					●	
7820018	PFB060-D	220	6	2	5	3	2	XC4505	1							●					
7820019	PFB070-D	220	7	2	5,5	3,5	2	XC4505	1							●					
7820020	PFB080-D	180	8	2,4	7	4	1	XC4505	2							●					
7820021	PFB100-D	180	10	2,6	8,5	5	1	XC4505	3							●					
7820022	PFB120-D	180	12	3	10	6	1	XC4505	4							●					
7820023	PFB160-D	180	16	4	12	8	1	XC4505	5							●					
7820024	PFB200-D	180	20	5	15	10	1	XC4505	6							●					
7820025	PFB250-D	180	25	6	18,5	12,5	1	XC4505	7							●					
7820026	PFB300-D	180	30	7	22,5	15	1	XC4505	8							●					
7820048	PFB060-Q	220	6	2	5	3	2	XP3225	1	●		●				●			○		
7820049	PFB070-Q	220	7	2	5,5	3,5	2	XP3225	1	●		●				●			○		
7820050	PFB080-Q	220	8	2,4	7	4	2	XP3225	2	●		●				●			○		
7820051	PFB100-Q	220	10	2,6	8,5	5	2	XP3225	3	●		●				●			○		
7820052	PFB120-Q	220	12	3	10	6	2	XP3225	4	●		●				●			○		
7820053	PFB160-Q	220	16	4	12	8	3	XP3225	5	●		●				●			○		
7820054	PFB200-Q	220	20	5	15	10	3	XP3225	6	●		●				●			○		
7820055	PFB250-Q	220	25	6	18,5	12,5	3	XP3225	7	●		●				●			○		
7820056	PFB300-Q	220	30	7	22,5	15	3	XP3225	8	●		●				●			○		
7820060	PFB080-Q-ST	200	8	2,4	7	4	2	XP2225	2	○		●							●	○	
7820061	PFB100-Q-ST	200	10	2,6	8,5	5	2	XP2225	3	○		●							●	○	
7820062	PFB120-Q-ST	200	12	3	10	6	2	XP2225	4	○		●							●	○	
7820063	PFB160-Q-ST	220	16	4	12	8	3	XP2225	5	○		●							●	○	
7820064	PFB200-Q-ST	220	20	5	15	10	3	XP2225	6	○		●							●	○	
7820065	PFB250-Q-ST	220	25	6	18,5	12,5	3	XP2225	7	○		●							●	○	
7820066	PFB300-Q-ST	220	30	7	22,5	15	3	XP2225	8	○		●							●	○	

PFR

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INSERTS





- Finishing corner radius cutter
- Excellent sharpness
- 6 - 32 mm

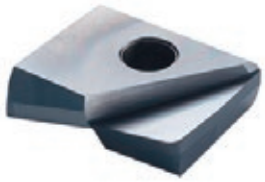
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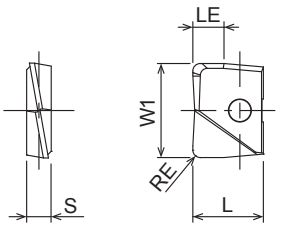
EDP	Designation	S	W1	L	RE	LE	Grade	Body size	P		M		K		N		S		H	
									dry		dry		GG	GGG	dry		dry		dry	
7820350	PFR060R03-ST	2	6	5	0,3	2	XP3225	1	●		●		○	○	●			●	○	
7820351	PFR060R05-ST	2	6	5	0,5	2	XP3225	1	●		●		○	○	●			●	○	
7820352	PFR060R10-ST	2	6	5	1	2	XP3225	1	●		●		○	○	●			●	○	
7820353	PFR070R03-ST	2	7	5,5	0,3	2	XP3225	1	●		●		○	○	●			●	○	
7820354	PFR070R05-ST	2	7	5,5	0,5	2	XP3225	1	●		●		○	○	●			●	○	
7820355	PFR070R10-ST	2	7	5,5	1	2	XP3225	1	●		●		○	○	●			●	○	
7820200	PFR080R03-ST	2,4	8	7	0,3	2,7	XP3225	2	●		●		○	○	●			●	○	
7820201	PFR080R05-ST	2,4	8	7	0,5	2,7	XP3225	2	●		●		○	○	●			●	○	
7820202	PFR080R10-ST	2,4	8	7	1	2,7	XP3225	2	●		●		○	○	●			●	○	
7820203	PFR080R20-ST	2,4	8	7	2	2,7	XP3225	2	●		●		○	○	●			●	○	
7820204	PFR100R03-ST	2,6	10	8,5	0,3	3,3	XP3225	3	●		●		○	○	●			●	○	
7820205	PFR100R05-ST	2,6	10	8,5	0,5	3,3	XP3225	3	●		●		○	○	●			●	○	
7820206	PFR100R10-ST	2,6	10	8,5	1	3,3	XP3225	3	●		●		○	○	●			●	○	
7820207	PFR100R20-ST	2,6	10	8,5	2	3,3	XP3225	3	●		●		○	○	●			●	○	
7820356	PFR110R03-ST	2,6	11	8,5	0,3	3,3	XP3225	3	●		●		○	○	●			●	○	
7820357	PFR110R05-ST	2,6	11	8,5	0,5	3,3	XP3225	3	●		●		○	○	●			●	○	
7820358	PFR110R10-ST	2,6	11	8,5	1	3,3	XP3225	3	●		●		○	○	●			●	○	
7820359	PFR110R20-ST	2,6	11	8,5	2	3,3	XP3225	3	●		●		○	○	●			●	○	
7820208	PFR120R03-ST	3	12	10	0,3	4	XP3225	4	●		●		○	○	●			●	○	
7820209	PFR120R05-ST	3	12	10	0,5	4	XP3225	4	●		●		○	○	●			●	○	
7820210	PFR120R10-ST	3	12	10	1	4	XP3225	4	●		●		○	○	●			●	○	
7820211	PFR120R20-ST	3	12	10	2	4	XP3225	4	●		●		○	○	●			●	○	
7820212	PFR120R30-ST	3	12	10	3	4	XP3225	4	●		●		○	○	●			●	○	
7820360	PFR130R03-ST	3	13	10	0,3	4	XP3225	4	●		●		○	○	●			●	○	
7820361	PFR130R05-ST	3	13	10	0,5	4	XP3225	4	●		●		○	○	●			●	○	
7820362	PFR130R10-ST	3	13	10	1	4	XP3225	4	●		●		○	○	●			●	○	
7820363	PFR130R20-ST	3	13	10	2	4	XP3225	4	●		●		○	○	●			●	○	
7820213	PFR160R03-ST	4	16	12	0,3	5,3	XP3225	5	●		●		○	○	●			●	○	
7820214	PFR160R05-ST	4	16	12	0,5	5,3	XP3225	5	●		●		○	○	●			●	○	
7820215	PFR160R10-ST	4	16	12	1	5,3	XP3225	5	●		●		○	○	●			●	○	
7820216	PFR160R20-ST	4	16	12	2	5,3	XP3225	5	●		●		○	○	●			●	○	
7820217	PFR160R30-ST	4	16	12	3	5,3	XP3225	5	●		●		○	○	●			●	○	
7820364	PFR170R03-ST	4	17	12	0,3	5,3	XP3225	5	●		●		○	○	●			●	○	
7820365	PFR170R05-ST	4	17	12	0,5	5,3	XP3225	5	●		●		○	○	●			●	○	
7820366	PFR170R10-ST	4	17	12	1	5,3	XP3225	5	●		●		○	○	●			●	○	
7820367	PFR170R20-ST	4	17	12	2	5,3	XP3225	5	●		●		○	○	●			●	○	
7820218	PFR200R03-ST	5	20	15	0,3	6,7	XP3225	6	●		●		○	○	●			●	○	
7820219	PFR200R05-ST	5	20	15	0,5	6,7	XP3225	6	●		●		○	○	●			●	○	
7820220	PFR200R10-ST	5	20	15	1	6,7	XP3225	6	●		●		○	○	●			●	○	
7820221	PFR200R20-ST	5	20	15	2	6,7	XP3225	6	●		●		○	○	●			●	○	
7820222	PFR200R30-ST	5	20	15	3	6,7	XP3225	6	●		●		○	○	●			●	○	
7820368	PFR210R03-ST	5	21	15	0,3	6,7	XP3225	6	●		●		○	○	●			●	○	
7820369	PFR210R05-ST	5	21	15	0,5	6,7	XP3225	6	●		●		○	○	●			●	○	
7820370	PFR210R10-ST	5	21	15	1	6,7	XP3225	6	●		●		○	○	●			●	○	
7820371	PFR210R20-ST	5	21	15	2	6,7	XP3225	6	●		●		○	○	●			●	○	
7820223	PFR250R03-ST	6	25	18,5	0,3	8,3	XP3225	7	●		●		○	○	●			●	○	
7820224	PFR250R05-ST	6	25	18,5	0,5	8,3	XP3225	7	●		●		○	○	●			●	○	
7820225	PFR250R10-ST	6	25	18,5	1	8,3	XP3225	7	●		●		○	○	●			●	○	
7820226	PFR250R20-ST	6	25	18,5	2	8,3	XP3225	7	●		●		○	○	●			●	○	
7820227	PFR250R30-ST	6	25	18,5	3	8,3	XP3225	7	●		●		○	○	●			●	○	
7820372	PFR260R03-ST	6	26	18,5	0,3	8,3	XP3225	7	●		●		○	○	●			●	○	
7820373	PFR260R05-ST	6	26	18,5	0,5	8,3	XP3225	7	●		●		○	○	●			●	○	
7820374	PFR260R10-ST	6	26	18,5	1	8,3	XP3225	7	●		●		○	○	●			●	○	

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INSERTS





- Finishing corner radius cutter
- Excellent sharpness
- 6 - 32 mm

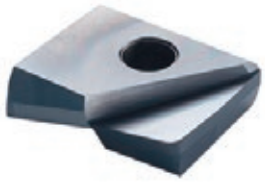
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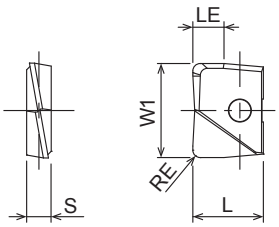
EDP	Designation	S	W1	L	RE	LE	Grade	Body size	P		M		K		N		S		H	
									dry		dry		GG	GGG	dry		dry		dry	
7820375	PFR260R20-ST	6	26	18,5	2	8,3	XP3225	7	●		●		○	○	●			●	○	
7820228	PFR300R03-ST	7	30	22,5	0,3	10	XP3225	8	●		●		○	○	●			●	○	
7820229	PFR300R05-ST	7	30	22,5	0,5	10	XP3225	8	●		●		○	○	●			●	○	
7820230	PFR300R10-ST	7	30	22,5	1	10	XP3225	8	●		●		○	○	●			●	○	
7820231	PFR300R20-ST	7	30	22,5	2	10	XP3225	8	●		●		○	○	●			●	○	
7820232	PFR300R30-ST	7	30	22,5	3	10	XP3225	8	●		●		○	○	●			●	○	
7820233	PFR320R03-ST	7	32	23,5	0,3	10,3	XP3225	9	●		●		○	○	●			●	○	
7820234	PFR320R05-ST	7	32	23,5	0,5	10,3	XP3225	9	●		●		○	○	●			●	○	
7820235	PFR320R10-ST	7	32	23,5	1	10,3	XP3225	9	●		●		○	○	●			●	●	
7820236	PFR320R20-ST	7	32	23,5	2	10,3	XP3225	9	●		●		○	○	●			●	●	
7820237	PFR320R30-ST	7	32	23,5	3	10,3	XP3225	9	●		●		○	○	●			●	●	
7820400	PFR060R03-SH	2	6	5	0,3	2	XP3310	1	○		○		●	●					●	
7820401	PFR060R05-SH	2	6	5	0,5	2	XP3310	1	◎		◎		●	●					●	
7820402	PFR060R10-SH	2	6	5	1	2	XP3310	1	◎		◎		●	●					●	
7820403	PFR070R03-SH	2	7	5,5	0,3	2	XP3310	1	◎		◎		●	●					●	
7820404	PFR070R05-SH	2	7	5,5	0,5	2	XP3310	1	◎		◎		●	●					●	
7820405	PFR070R10-SH	2	7	5,5	1	2	XP3310	1	◎		◎		●	●					●	
7820250	PFR080R03-SH	2,4	8	7	0,3	2,7	XP3310	2	◎		◎		●	●					●	
7820251	PFR080R05-SH	2,4	8	7	0,5	2,7	XP3310	2	◎		◎		●	●					●	
7820252	PFR080R10-SH	2,4	8	7	1	2,7	XP3310	2	◎		◎		●	●					●	
7820253	PFR080R20-SH	2,4	8	7	2	2,7	XP3310	2	◎		◎		●	●					●	
7820254	PFR100R03-SH	2,6	10	8,5	0,3	3,3	XP3310	3	◎		◎		●	●					●	
7820255	PFR100R05-SH	2,6	10	8,5	0,5	3,3	XP3310	3	◎		◎		●	●					●	
7820256	PFR100R10-SH	2,6	10	8,5	1	3,3	XP3310	3	◎		◎		●	●					●	
7820257	PFR100R20-SH	2,6	10	8,5	2	3,3	XP3310	3	◎		◎		●	●					●	
7820406	PFR110R03-SH	2,6	11	8,5	0,3	3,3	XP3310	3	◎		◎		●	●					●	
7820407	PFR110R05-SH	2,6	11	8,5	0,5	3,3	XP3310	3	◎		◎		●	●					●	
7820408	PFR110R10-SH	2,6	11	8,5	1	3,3	XP3310	3	◎		◎		●	●					●	
7820409	PFR110R20-SH	2,6	11	8,5	2	3,3	XP3310	3	◎		◎		●	●					●	
7820258	PFR120R03-SH	3	12	10	0,3	4	XP3310	4	◎		◎		●	●					●	
7820259	PFR120R05-SH	3	12	10	0,5	4	XP3310	4	◎		◎		●	●					●	
7820260	PFR120R10-SH	3	12	10	1	4	XP3310	4	◎		◎		●	●					●	
7820261	PFR120R20-SH	3	12	10	2	4	XP3310	4	◎		◎		●	●					●	
7820262	PFR120R30-SH	3	12	10	3	4	XP3310	4	◎		◎		●	●					●	
7820410	PFR130R03-SH	3	13	10	0,3	4	XP3310	4	◎		◎		●	●					●	
7820411	PFR130R05-SH	3	13	10	0,5	4	XP3310	4	◎		◎		●	●					●	
7820412	PFR130R10-SH	3	13	10	1	4	XP3310	4	◎		◎		●	●					●	
7820413	PFR130R20-SH	3	13	10	2	4	XP3310	4	◎		◎		●	●					●	
7820263	PFR160R03-SH	4	16	12	0,3	5,3	XP3310	5	◎		◎		●	●					●	
7820264	PFR160R05-SH	4	16	12	0,5	5,3	XP3310	5	◎		◎		●	●					●	
7820265	PFR160R10-SH	4	16	12	1	5,3	XP3310	5	◎		◎		●	●					●	
7820266	PFR160R20-SH	4	16	12	2	5,3	XP3310	5	◎		◎		●	●					●	
7820267	PFR160R30-SH	4	16	12	3	5,3	XP3310	5	◎		◎		●	●					●	
7820414	PFR170R03-SH	4	17	12	0,3	5,3	XP3310	5	◎		◎		●	●					●	
7820415	PFR170R05-SH	4	17	12	0,5	5,3	XP3310	5	◎		◎		●	●					●	
7820416	PFR170R10-SH	4	17	12	1	5,3	XP3310	5	◎		◎		●	●					●	
7820417	PFR170R20-SH	4	17	12	2	5,3	XP3310	5	◎		◎		●	●					●	
7820268	PFR200R03-SH	5	20	15	0,3	6,7	XP3310	6	◎		◎		●	●					●	
7820269	PFR200R05-SH	5	20	15	0,5	6,7	XP3310	6	◎		◎		●	●					●	
7820270	PFR200R10-SH	5	20	15	1	6,7	XP3310	6	◎		◎		●	●					●	
7820271	PFR200R20-SH	5	20	15	2	6,7	XP3310	6	◎		◎		●	●					●	
7820272	PFR200R30-SH	5	20	15	3	6,7	XP3310	6	◎		◎		●	●					●	
7820418	PFR210R03-SH	5	21	15	0,3	6,7	XP3310	6	◎		◎		●	●					●	

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INSERTS





- Finishing corner radius cutter
- Excellent sharpness
- 6 - 32 mm

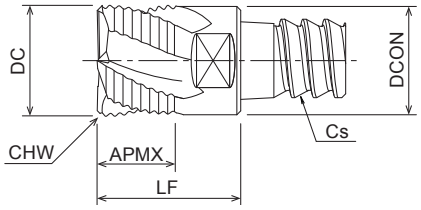
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EDP	Designation	S	W1	L	RE	LE	Grade	Body size	P		M		K		N		S		H	
									dry		dry		GG	GGG	dry		dry		dry	
7820419	PFR210R05-SH	5	21	15	0,5	6,7	XP3310	6	◎		◎		◉	◉					◉	
7820420	PFR210R10-SH	5	21	15	1	6,7	XP3310	6	◎		◎		◉	◉					◉	
7820421	PFR210R20-SH	5	21	15	2	6,7	XP3310	6	◎		◎		◉	◉					◉	
7820273	PFR250R03-SH	6	25	18,5	0,3	8,3	XP3310	7	◎		◎		◉	◉					◉	
7820274	PFR250R05-SH	6	25	18,5	0,5	8,3	XP3310	7	◎		◎		◉	◉					◉	
7820275	PFR250R10-SH	6	25	18,5	1	8,3	XP3310	7	◎		◎		◉	◉					◉	
7820276	PFR250R20-SH	6	25	18,5	2	8,3	XP3310	7	◎		◎		◉	◉					◉	
7820277	PFR250R30-SH	6	25	18,5	3	8,3	XP3310	7	◎		◎		◉	◉					◉	
7820422	PFR260R03-SH	6	26	18,5	0,3	8,3	XP3310	7	◎		◎		◉	◉					◉	
7820423	PFR260R05-SH	6	26	18,5	0,5	8,3	XP3310	7	◎		◎		◉	◉					◉	
7820424	PFR260R10-SH	6	26	18,5	1	8,3	XP3310	7	◎		◎		◉	◉					◉	
7820425	PFR260R20-SH	6	26	18,5	2	8,3	XP3310	7	◎		◎		◉	◉					◉	
7820278	PFR300R03-SH	7	30	22,5	0,3	10	XP3310	8	◎		◎		◉	◉					◉	
7820279	PFR300R05-SH	7	30	22,5	0,5	10	XP3310	8	◎		◎		◉	◉					◉	
7820280	PFR300R10-SH	7	30	22,5	1	10	XP3310	8	◎		◎		◉	◉					◉	
7820281	PFR300R20-SH	7	30	22,5	2	10	XP3310	8	◎		◎		◉	◉					◉	
7820282	PFR300R30-SH	7	30	22,5	3	10	XP3310	8	◎		◎		◉	◉					◉	
7820283	PFR320R03-SH	7	32	23,5	0,3	10,3	XP3310	9	◎		◎		◉	◉					◉	
7820284	PFR320R05-SH	7	32	23,5	0,5	10,3	XP3310	9	◎		◎		◉	◉					◉	
7820285	PFR320R10-SH	7	32	23,5	1	10,3	XP3310	9	◎		◎		◉	◉					◉	
7820286	PFR320R20-SH	7	32	23,5	2	10,3	XP3310	9	◎		◎		◉	◉					◉	
7820287	PFR320R30-SH	7	32	23,5	3	10,3	XP3310	9	◎		◎		◉	◉					◉	
7820450	PFR060R03-D	2	6	5	0,3	2	XC4505	1							◉					
7820451	PFR060R05-D	2	6	5	0,5	2	XC4505	1							◉					
7820452	PFR060R10-D	2	6	5	1	2	XC4505	1							◉					
7820300	PFR080R03-D	2,4	8	7	0,3	2,7	XC4505	2							◉					
7820301	PFR080R05-D	2,4	8	7	0,5	2,7	XC4505	2							◉					
7820302	PFR080R10-D	2,4	8	7	1	2,7	XC4505	2							◉					
7820303	PFR100R03-D	2,6	10	8,5	0,3	3,3	XC4505	3							◉					
7820304	PFR100R05-D	2,6	10	8,5	0,5	3,3	XC4505	3							◉					
7820305	PFR100R10-D	2,6	10	8,5	1	3,3	XC4505	3							◉					
7820306	PFR120R03-D	3	12	10	0,3	4	XC4505	4							◉					
7820307	PFR120R05-D	3	12	10	0,5	4	XC4505	4							◉					
7820308	PFR120R10-D	3	12	10	1	4	XC4505	4							◉					
7820309	PFR160R03-D	4	16	12	0,3	5,3	XC4505	5							◉					
7820310	PFR160R05-D	4	16	12	0,5	5,3	XC4505	5							◉					
7820311	PFR160R10-D	4	16	12	1	5,3	XC4505	5							◉					
7820312	PFR200R03-D	5	20	15	0,3	6,7	XC4505	6							◉					
7820313	PFR200R05-D	5	20	15	0,5	6,7	XC4505	6							◉					
7820314	PFR200R10-D	5	20	15	1	6,7	XC4505	6							◉					

PXNL / PXNH

Milling | Indexable | Heads





- Variable helix solid carbide head
- Roughing shape in 45 HRC work materials
- For PXMZ straight shank holder
- 10 - 25 mm



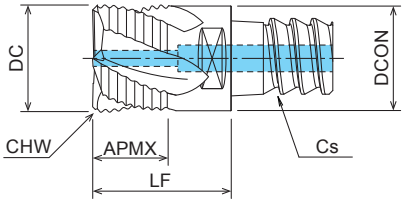


EDP	Designation	ZEFP	DC	CHW	APMX	LF	DCON	CS	FHA	Grade	P		M		K		N		S		H	
											dry		dry		GG	GGG	dry		dry		dry	
7830400	PXNL100C10-04C005	4	10	0,5	7	13	9,7	C10	19/21	XP3225	◉			◉	◉					○	○	
7830401	PXNL120C12-04C005	4	12	0,5	8,4	14,4	11,7	C12	19/21	XP3225	◉			◉	◉					○	○	
7830402	PXNL160C16-04C006	4	16	0,6	11,2	18,7	15,7	C16	19/21	XP3225	◉			◉	◉					○	○	
7830403	PXNL200C20-04C006	4	20	0,6	14	21,5	19,6	C20	19/21	XP3225	◉			◉	◉					○	○	
7830404	PXNL250C25-04C006	4	25	0,6	17,5	27,5	24	C25	19/21	XP3225	◉			◉	◉					○	○	
7830450	PXNH100C10-04C005	4	10	0,5	7	13	9,7	C10	40/42	XP3225	◉			◉	◉					○	○	
7830451	PXNH120C12-04C005	4	12	0,5	8,4	14,4	11,7	C12	40/42	XP3225	◉			◉	◉					○	○	
7830452	PXNH160C16-04C006	4	16	0,6	11,2	18,7	15,7	C16	40/42	XP3225	◉			◉	◉					○	○	
7830453	PXNH200C20-04C006	4	20	0,6	14	21,5	19,6	C20	40/42	XP3225	◉			◉	◉					○	○	
7830454	PXNH250C25-04C006	4	25	0,6	17,5	27,5	24	C25	40/42	XP3225	◉			◉	◉					○	○	

PXNL OH

Milling | Indexable | Heads





- Variable helix solid carbide head with coolant hole
- Roughing shape in 45 HRC work materials
- For PXMZ straight shank holder
- 12 - 25 mm



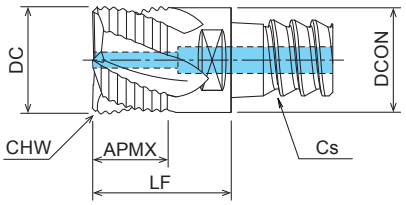
C.901 C.1065

EDP	Designation	ZEFP	DC	CHW	APMX	LF	DCON	CS	FHA	Grade	P		M		K		N		S		H	
											dry		dry		GG	GGG	dry		dry		dry	
7830411	PXNL120C12-04C005-O	4	12	0,5	8,4	14,4	11,7	C12	19/21	XP3225	◉			◉	◉					○	○	
7830412	PXNL160C16-04C006-O	4	16	0,6	11,2	18,7	15,7	C16	19/21	XP3225	◉			◉	◉					○	○	
7830413	PXNL200C20-04C006-O	4	20	0,6	14	21,5	19,6	C20	19/21	XP3225	◉			◉	◉					○	○	
7830414	PXNL250C25-04C006-O	4	25	0,6	17,5	27,5	24	C25	19/21	XP3225	◉			◉	◉					○	○	

PXNH OH

Milling | Indexable | Heads





- Variable helix solid carbide head with coolant hole
- Roughing shape in 45 HRC work materials
- For PXMZ straight shank holder
- 12 - 25 mm



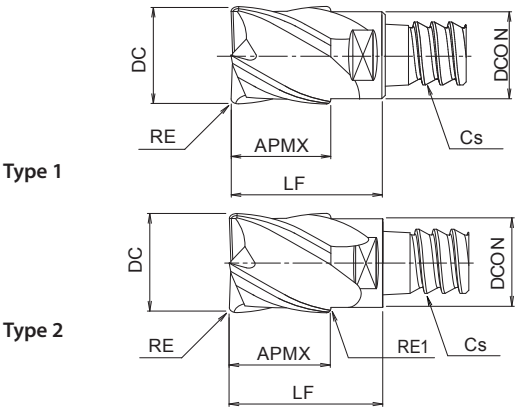
C.901
C.1065

EDP	Designation	ZEFP	DC	CHW	APMX	LF	DCON	CS	FHA	Grade	P		M		K		N		S		H	
											dry		dry		GG	GGG	dry		dry		dry	
7830461	PXNH120C12-04C005-O	4	12	0,5	8,4	14,4	11,7	C12	40/42	XP3225	◉			◉	◉					○	○	
7830462	PXNH160C16-04C006-O	4	16	0,6	11,2	18,7	15,7	C16	40/42	XP3225	◉			◉	◉					○	○	
7830463	PXNH200C20-04C006-O	4	20	0,6	14	21,5	19,6	C20	40/42	XP3225	◉			◉	◉					○	○	
7830464	PXNH250C25-04C006-O	4	25	0,6	17,5	27,5	24	C25	40/42	XP3225	◉			◉	◉					○	○	

PXVC

Milling | Indexable | Heads





- High variable helix solid carbide head
- Up to 7xD application in 55 HRC work materials
- For PXMZ straight shank holder
- 10 - 32 mm



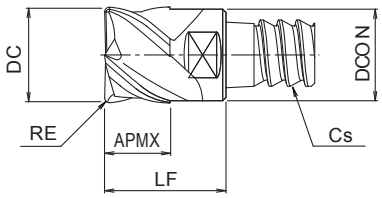
C.901
C.1066

EDP	Designation	ZEFP	DC	RE	APMX	LF	DCON	CS	FHA	Type	Grade	P		M		K		N		S		H	
												dry		dry		GG	GGG	dry		dry		dry	
7834994	PXVC100C10-04R000	4	10	0	10	16	9,8	C10	45/48	1	XP3225	●			●	●					○	○	
7834995	PXVC100C10-04R005	4	10	0,5	10	16	9,8	C10	45/48	1	XP3225	●			●	●					○	○	
7834996	PXVC100C10-04R010	4	10	1	10	16	9,8	C10	45/48	1	XP3225	●			●	●					○	○	
7834997	PXVC100C10-04R020	4	10	2	10	16	9,8	C10	45/48	1	XP3225	●			●	●					○	○	
7834998	PXVC100C10-04R030	4	10	3	10	16	9,8	C10	45/48	1	XP3225	●			●	●					○	○	
7834999	PXVC120C10-04R000	4	12	0	12	18	9,8	C10	45/48	2	XP3225	●			●	●					○	○	
7835000	PXVC120C10-04R005	4	12	0,5	12	18	9,8	C10	45/48	2	XP3225	●			●	●					○	○	
7835001	PXVC120C10-04R010	4	12	1	12	18	9,8	C10	45/48	2	XP3225	●			●	●					○	○	
7835002	PXVC120C10-04R020	4	12	2	12	18	9,8	C10	45/48	2	XP3225	●			●	●					○	○	
7835003	PXVC120C10-04R030	4	12	3	12	18	9,8	C10	45/48	2	XP3225	●			●	●					○	○	
7835004	PXVC120C12-04R000	4	12	0	12	18	11,7	C12	45/48	1	XP3225	●			●	●					○	○	
7835005	PXVC120C12-04R005	4	12	0,5	12	18	11,7	C12	45/48	1	XP3225	●			●	●					○	○	
7835006	PXVC120C12-04R010	4	12	1	12	18	11,7	C12	45/48	1	XP3225	●			●	●					○	○	
7835007	PXVC120C12-04R020	4	12	2	12	18	11,7	C12	45/48	1	XP3225	●			●	●					○	○	
7835008	PXVC120C12-04R030	4	12	3	12	18	11,7	C12	45/48	1	XP3225	●			●	●					○	○	
7835009	PXVC140C12-04R000	4	14	0	14	20	11,7	C12	45/48	2	XP3225	●			●	●					○	○	
7835010	PXVC140C12-04R005	4	14	0,5	14	20	11,7	C12	45/48	2	XP3225	●			●	●					○	○	
7835011	PXVC140C12-04R010	4	14	1	14	20	11,7	C12	45/48	2	XP3225	●			●	●					○	○	
7835012	PXVC140C12-04R020	4	14	2	14	20	11,7	C12	45/48	2	XP3225	●			●	●					○	○	
7835013	PXVC140C12-04R030	4	14	3	14	20	11,7	C12	45/48	2	XP3225	●			●	●					○	○	
7835014	PXVC160C16-04R000	4	16	0	16	23,5	15,7	C16	45/48	1	XP3225	●			●	●					○	○	
7835015	PXVC160C16-04R005	4	16	0,5	16	23,5	15,7	C16	45/48	1	XP3225	●			●	●					○	○	
7835016	PXVC160C16-04R010	4	16	1	16	23,5	15,7	C16	45/48	1	XP3225	●			●	●					○	○	
7835017	PXVC160C16-04R015	4	16	1,5	16	23,5	15,7	C16	45/48	1	XP3225	●			●	●					○	○	
7835018	PXVC160C16-04R020	4	16	2	16	23,5	15,7	C16	45/48	1	XP3225	●			●	●					○	○	
7835019	PXVC160C16-04R030	4	16	3	16	23,5	15,7	C16	45/48	1	XP3225	●			●	●					○	○	
7835020	PXVC180C16-04R000	4	18	0	18	25,5	15,7	C16	45/48	2	XP3225	●			●	●					○	○	
7835021	PXVC180C16-04R005	4	18	0,5	18	25,5	15,7	C16	45/48	2	XP3225	●			●	●					○	○	
7835022	PXVC180C16-04R010	4	18	1	18	25,5	15,7	C16	45/48	2	XP3225	●			●	●					○	○	
7835023	PXVC180C16-04R020	4	18	2	18	25,5	15,7	C16	45/48	2	XP3225	●			●	●					○	○	
7835024	PXVC180C16-04R030	4	18	3	18	25,5	15,7	C16	45/48	2	XP3225	●			●	●					○	○	
7835025	PXVC200C20-04R000	4	20	0	20	27,5	19,6	C20	45/48	1	XP3225	●			●	●					○	○	
7835026	PXVC200C20-04R005	4	20	0,5	20	27,5	19,6	C20	45/48	1	XP3225	●			●	●					○	○	
7835027	PXVC200C20-04R010	4	20	1	20	27,5	19,6	C20	45/48	1	XP3225	●			●	●					○	○	
7835028	PXVC200C20-04R020	4	20	2	20	27,5	19,6	C20	45/48	1	XP3225	●			●	●					○	○	
7835029	PXVC200C20-04R030	4	20	3	20	27,5	19,6	C20	45/48	1	XP3225	●			●	●					○	○	
7835030	PXVC220C20-04R000	4	22	0	22	29,5	19,6	C20	45/48	2	XP3225	●			●	●					○	○	
7835038	PXVC220C20-04R005	4	22	0,5	22	29,5	19,6	C20	45/48	2	XP3225	●			●	●					○	○	
7835031	PXVC220C20-04R010	4	22	1	22	29,5	19,6	C20	45/48	2	XP3225	●			●	●					○	○	
7835032	PXVC220C20-04R020	4	22	2	22	29,5	19,6	C20	45/48	2	XP3225	●			●	●					○	○	
7835033	PXVC220C20-04R030	4	22	3	22	29,5	19,6	C20	45/48	2	XP3225	●			●	●					○	○	
7835034	PXVC250C25-04R000	4	25	0	25	35	24	C25	45/48	1	XP3225	●			●	●					○	○	
7835035	PXVC250C25-04R010	4	25	1	25	35	24	C25	45/48	1	XP3225	●			●	●					○	○	
7835036	PXVC250C25-04R020	4	25	2	25	35	24	C25	45/48	1	XP3225	●			●	●					○	○	
7835037	PXVC250C25-04R030	4	25	3	25	35	24	C25	45/48	1	XP3225	●			●	●					○	○	
7835039	PXVC320C32-05R010	5	32	1	32	44,7	28	C32	45	1	XP3225	●			●	●					○	○	
7835040	PXVC320C32-08R010	8	32	1	32	44,7	28	C32	38	1	XP3225	●			●	●					○	○	

PXSE

Milling | Indexable | Heads





- Variable helix solid carbide head
- Up to 5xD application in 55 HRC work materials
- For PXMZ straight shank holder
- 10 - 25 mm



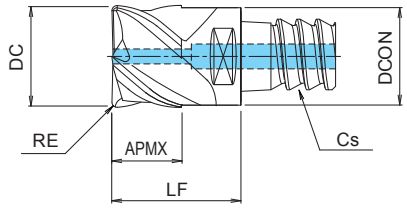
C.901
C.1068

EDP	Designation	ZEFP	DC	RE	APMX	LF	DCON	CS	FHA	Grade	P		M		K		N		S		H	
											dry		dry		GG	GGG	dry		dry		dry	
7829994	PXSE100C10-04R000	4	10	0	7	13	9,7	C10	38	XP3225	●			●	●					○	○	
7829995	PXSE100C10-04R005	4	10	0,5	7	13	9,7	C10	38	XP3225	●			●	●					○	○	
7829996	PXSE100C10-04R010	4	10	1	7	13	9,7	C10	38	XP3225	●			●	●					○	○	
7829997	PXSE100C10-04R020	4	10	2	7	13	9,7	C10	38	XP3225	●			●	●					○	○	
7829998	PXSE100C10-04R030	4	10	3	7	13	9,7	C10	38	XP3225	●			●	●					○	○	
7830004	PXSE120C12-04R000	4	12	0	8,4	14,4	11,7	C12	38	XP3225	●			●	●					○	○	
7830005	PXSE120C12-04R005	4	12	0,5	8,4	14,4	11,7	C12	38	XP3225	●			●	●					○	○	
7830006	PXSE120C12-04R010	4	12	1	8,4	14,4	11,7	C12	38	XP3225	●			●	●					○	○	
7830007	PXSE120C12-04R020	4	12	2	8,4	14,4	11,7	C12	38	XP3225	●			●	●					○	○	
7830008	PXSE120C12-04R030	4	12	3	8,4	14,4	11,7	C12	38	XP3225	●			●	●					○	○	
7830009	PXSE160C16-04R000	4	16	0	8,4	14,4	11,7	C16	38	XP3225	●			●	●					○	○	
7830010	PXSE160C16-04R005	4	16	0,5	8,4	14,4	11,7	C16	38	XP3225	●			●	●					○	○	
7830011	PXSE160C16-04R010	4	16	1	8,4	14,4	11,7	C16	38	XP3225	●			●	●					○	○	
7830012	PXSE160C16-04R015	4	16	1,5	11,2	18,7	15,7	C16	38	XP3225	●			●	●					○	○	
7830013	PXSE160C16-04R020	4	16	2	11,2	18,7	15,7	C16	38	XP3225	●			●	●					○	○	
7830014	PXSE160C16-04R030	4	16	3	11,2	18,7	15,7	C16	38	XP3225	●			●	●					○	○	
7830015	PXSE200C20-04R000	4	20	0	14	21,5	19,6	C20	38	XP3225	●			●	●					○	○	
7830016	PXSE200C20-04R005	4	20	0,5	14	21,5	19,6	C20	38	XP3225	●			●	●					○	○	
7830017	PXSE200C20-04R010	4	20	1	14	21,5	19,6	C20	38	XP3225	●			●	●					○	○	
7830018	PXSE200C20-04R020	4	20	2	14	21,5	19,6	C20	38	XP3225	●			●	●					○	○	
7830019	PXSE200C20-04R030	4	20	3	14	21,5	19,6	C20	38	XP3225	●			●	●					○	○	
7830020	PXSE250C25-04R000	4	25	0	17,5	27,5	24	C25	38	XP3225	●			●	●					○	○	
7830021	PXSE250C25-04R010	4	25	1	17,5	27,5	24	C25	38	XP3225	●			●	●					○	○	
7830022	PXSE250C25-04R020	4	25	2	17,5	27,5	24	C25	38	XP3225	●			●	●					○	○	
7830023	PXSE250C25-04R030	4	25	3	17,5	27,5	24	C25	38	XP3225	●			●	●					○	○	

PXSE OH

Milling | Indexable | Heads





- Variable helix solid carbide head with coolant hole
- Up to 5xD application in 55 HRC work materials
- For PXMZ straight shank holder
- 12 - 25 mm



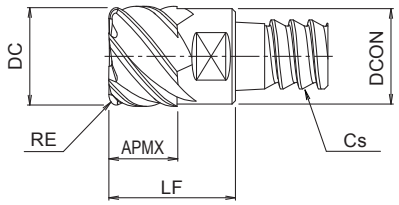
C.901 C.1068

EDP	Designation	ZEFP	DC	RE	APMX	LF	DCON	CS	FHA	Grade	P		M		K		N		S		H	
											dry		dry		GG	GGG	dry		dry		dry	
7830054	PXSE120C12-04R000-O	4	12	0	8,4	14,4	11,7	C12	38	XP3225	◉			◉	◉					○	○	
7830056	PXSE120C12-04R010-O	4	12	1	8,4	14,4	11,7	C12	38	XP3225	◉			◉	◉					○	○	
7830058	PXSE120C12-04R030-O	4	12	3	8,4	14,4	11,7	C12	38	XP3225	◉			◉	◉					○	○	
7830059	PXSE160C16-04R000-O	4	16	0	11,2	18,7	15,7	C16	38	XP3225	◉			◉	◉					○	○	
7830061	PXSE160C16-04R010-O	4	16	1	11,2	18,7	15,7	C16	38	XP3225	◉			◉	◉					○	○	
7830064	PXSE160C16-04R030-O	4	16	3	11,2	18,7	15,7	C16	38	XP3225	◉			◉	◉					○	○	
7830065	PXSE200C20-04R000-O	4	20	0	14	21,5	19,6	C20	38	XP3225	◉			◉	◉					○	○	
7830067	PXSE200C20-04R010-O	4	20	1	14	21,5	19,6	C20	38	XP3225	◉			◉	◉					○	○	
7830069	PXSE200C20-04R030-O	4	20	3	14	21,5	19,6	C20	38	XP3225	◉			◉	◉					○	○	
7830070	PXSE250C25-04R000-O	4	25	0	17,5	27,5	24	C25	38	XP3225	◉			◉	◉					○	○	
7830071	PXSE250C25-04R010-O	4	25	1	17,5	27,5	24	C25	38	XP3225	◉			◉	◉					○	○	
7830074	PXSE250C25-04R030-O	4	25	3	17,5	27,5	24	C25	38	XP3225	◉			◉	◉					○	○	

PXSM

Milling | Indexable | Heads





- Multi flute variable helix solid carbide head
- Up to 5xD application in 55 HRC work materials
- For PXMZ straight shank holder
- 10 - 25 mm



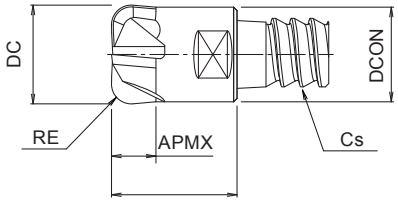
C.901
C.1068

EDP	Designation	ZEFP	DC	RE	APMX	LF	DCON	CS	FHA	Grade	P		M		K		N		S		H	
											dry		dry		GG	GGG	dry		dry		dry	
7830094	PXSM100C10-06R000	6	10	0	7	13	9,7	C10	38	XP3225	●			●	●					○	○	
7830095	PXSM100C10-06R005	6	10	0,5	7	13	9,7	C10	38	XP3225	●			●	●					○	○	
7830096	PXSM100C10-06R010	6	10	1	7	13	9,7	C10	38	XP3225	●			●	●					○	○	
7830097	PXSM100C10-06R020	6	10	2	7	13	9,7	C10	38	XP3225	●			●	●					○	○	
7830104	PXSM120C12-06R000	6	12	0	8,4	14,4	11,7	C12	38	XP3225	●			●	●					○	○	
7830105	PXSM120C12-06R005	6	12	0,5	8,4	14,4	11,7	C12	38	XP3225	●			●	●					○	○	
7830106	PXSM120C12-06R010	6	12	1	8,4	14,4	11,7	C12	38	XP3225	●			●	●					○	○	
7830107	PXSM120C12-06R020	6	12	2	8,4	14,4	11,7	C12	38	XP3225	●			●	●					○	○	
7830108	PXSM120C12-06R030	6	12	3	8,4	14,4	11,7	C12	38	XP3225	●			●	●					○	○	
7830109	PXSM160C16-06R000	6	16	0	11,2	18,7	15,7	C16	38	XP3225	●			●	●					○	○	
7830115	PXSM160C16-08R000	8	16	0	11,2	18,7	15,7	C16	42	XP3225	●			●	●					○	○	
7830110	PXSM160C16-06R005	6	16	0,5	11,2	18,7	15,7	C16	38	XP3225	●			●	●					○	○	
7830116	PXSM160C16-08R005	8	16	0,5	11,2	18,7	15,7	C16	42	XP3225	●			●	●					○	○	
7830111	PXSM160C16-06R010	6	16	1	11,2	18,7	15,7	C16	38	XP3225	●			●	●					○	○	
7830117	PXSM160C16-08R010	8	16	1	11,2	18,7	15,7	C16	42	XP3225	●			●	●					○	○	
7830112	PXSM160C16-06R015	6	16	1,5	11,2	18,7	15,7	C16	38	XP3225	●			●	●					○	○	
7830118	PXSM160C16-08R015	8	16	1,5	11,2	18,7	15,7	C16	42	XP3225	●			●	●					○	○	
7830113	PXSM160C16-06R020	6	16	2	11,2	18,7	15,7	C16	38	XP3225	●			●	●					○	○	
7830119	PXSM160C16-08R020	8	16	2	11,2	18,7	15,7	C16	42	XP3225	●			●	●					○	○	
7830114	PXSM160C16-06R030	6	16	3	11,2	18,7	15,7	C16	38	XP3225	●			●	●					○	○	
7830120	PXSM160C16-08R030	8	16	3	11,2	18,7	15,7	C16	42	XP3225	●			●	●					○	○	
7830121	PXSM200C20-10R000	10	20	0	14	21,5	19,6	C20	42	XP3225	●			●	●					○	○	
7830122	PXSM200C20-10R005	10	20	0,5	14	21,5	19,6	C20	42	XP3225	●			●	●					○	○	
7830123	PXSM200C20-10R010	10	20	1	14	21,5	19,6	C20	42	XP3225	●			●	●					○	○	
7830124	PXSM200C20-10R020	10	20	2	14	21,5	19,6	C20	42	XP3225	●			●	●					○	○	
7830125	PXSM200C20-10R030	10	20	3	14	21,5	19,6	C20	42	XP3225	●			●	●					○	○	
7830126	PXSM250C25-10R000	10	25	0	17,5	27,5	24	C25	42	XP3225	●			●	●					○	○	
7830127	PXSM250C25-10R010	10	25	1	17,5	27,5	24	C25	42	XP3225	●			●	●					○	○	
7830128	PXSM250C25-10R020	10	25	2	17,5	27,5	24	C25	42	XP3225	●			●	●					○	○	
7830129	PXSM250C25-10R030	10	25	3	17,5	27,5	24	C25	42	XP3225	●			●	●					○	○	

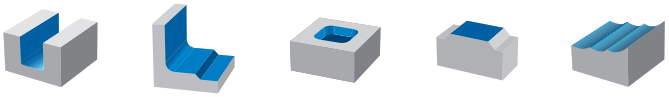
PXDR / PXRE

Milling | Indexable | Heads





- Corner radius with straight flutes solid carbide head
- Up to 7xD application in 60 HRC work materials
- For PXMZ straight shank holder
- 10 - 20 mm



C.901
C.1069

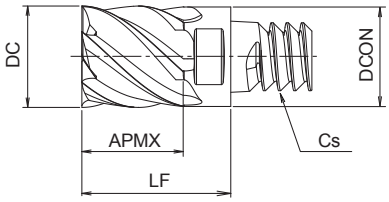
EDP	Designation	ZEFP	DC	RE	APMX	LF	DCON	CS	FHA	Grade	P		M		K		N		S		H	
											dry		dry		GG	GGG	dry		dry		dry	
7830200	PXRE100C10-04R020	4	10	2	4,5	13	9,7	C10	-	XP6305	◉				◉						◉	
7830201	PXRE120C12-04R020	4	12	2	5	14,4	11,7	C12	-	XP6305	◉				◉						◉	
7830202	PXRE160C16-6R030	6	16	3	7	18,7	15,7	C16	-	XP6305	◉				◉						◉	
7830203	PXRE200C20-06R030	6	20	3	10	21,5	19,6	C20	-	XP6305	◉				◉						◉	
7830369	PXDR100C10-03R015-N	3	10	1,5	7	13	9,7	C10	45	XP6305	◉			◉							◉	
7830370	PXDR100C10-03R020-N	3	10	2	7	13	9,7	C10	45	XP6305	◉			◉							◉	
7830371	PXDR120C12-03R015-N	3	12	1,5	8,4	14,4	11,7	C12	45	XP6305	◉			◉							◉	
7830372	PXDR120C12-03R020-N	3	12	2	8,4	14,4	11,7	C12	45	XP6305	◉			◉							◉	
7830373	PXDR160C16-03R020-N	3	16	2	11,2	18,7	15,7	C16	45	XP6305	◉			◉							◉	
7830374	PXDR160C16-03R030-N	3	16	3	11,2	18,7	15,7	C16	45	XP6305	◉			◉							◉	
7830375	PXDR200C20-03R020-N	3	20	2	14	21,5	19,6	C20	45	XP6305	◉			◉							◉	
7830376	PXDR200C20-03R030-N	3	20	3	14	21,5	19,6	C20	45	XP6305	◉			◉							◉	
7830349	PXDR100C10-03R015-P	3	10	1,5	7	13	9,7	C10	45	XP3225	◉			◉	◉						○	
7830350	PXDR100C10-03R020-P	3	10	2	7	13	9,7	C10	45	XP3225	◉			◉	◉						○	
7830351	PXDR120C12-03R015-P	3	12	1,5	8,4	14,4	11,7	C12	45	XP3225	◉			◉	◉						○	
7830352	PXDR120C12-03R020-P	3	12	2	8,4	14,4	11,7	C12	45	XP3225	◉			◉	◉						○	
7830353	PXDR160C16-03R020-P	3	16	2	11,2	18,7	15,7	C16	45	XP3225	◉			◉	◉						○	
7830354	PXDR160C16-03R030-P	3	16	3	11,2	18,7	15,7	C16	45	XP3225	◉			◉	◉						○	
7830355	PXDR200C20-03R020-P	3	20	2	14	21,5	19,6	C20	45	XP3225	◉			◉	◉						○	
7830356	PXDR200C20-03R030-P	3	20	3	14	21,5	19,6	C20	45	XP3225	◉			◉	◉						○	

PXSH

Milling | Indexable | Heads

HEADS NEW





- Multi flute square solid carbide head
- For high hardness steels
- For PXMZ straight shank holder
- 12 - 25 mm



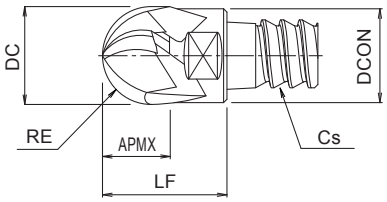
C.901 C.1070

EDP	Designation	ZEFP	DC	APMX	LF	DCON	CS	FHA	Grade	P		M		K		N		S		H	
										dry		dry		GG	GGG	dry		dry		dry	
7830380	PXSH120C12-06R000	6	12	12	18	11,7	C12	43	XP6703											◉	
7830381	PXSH160C16-06R000	6	16	16	23,5	15,7	C16	43	XP6703											◉	
7830382	PXSH200C20-06R000	6	20	20	27,5	19,6	C20	43	XP6703											◉	
7830383	PXSH250C25-08R000	8	25	25	35	24	C25	43	XP6703											◉	

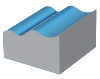
PXBE / PXBM

Milling | Indexable | Heads





- 3 flutes ball nose solid carbide head
- Up to 5xD application in 60 HRC work materials
- For PXMZ straight shank holder
- 10 - 20 mm

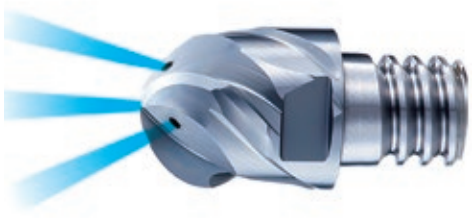



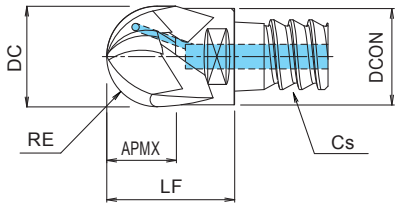

C.901 C.1072

EDP	Designation	ZEFP	DC	RE	APMX	LF	DCON	CS	FHA	Grade	P		M		K		N		S		H	
											dry		dry		GG	GGG	dry		dry		dry	
7830270	PXBE100C10-03R050-P	3	10	5	7	13	9,7	C10	45	XP3320	●			●	●					○	○	
7830271	PXBE120C12-03R060-P	3	12	6	8,4	14,4	11,7	C12	45	XP3320	●			●	●					○	○	
7830272	PXBE160C16-03R080-P	3	16	8	11,2	18,7	15,7	C16	45	XP3320	●			●	●					○	○	
7830273	PXBE200C20-03R100-P	3	20	10	14	21,5	19,6	C20	45	XP3320	●			●	●					○	○	
7830250	PXBE100C10-03R050-N	3	10	5	7	13	9,7	C10	45	XP3320	●			●	●					○	●	
7830251	PXBE120C12-03R060-N	3	12	6	8,4	14,4	11,7	C12	45	XP3320	●			●	●					○	●	
7830252	PXBE160C16-03R080-N	3	16	8	11,2	18,7	15,7	C16	45	XP3320	●			●	●					○	●	
7830253	PXBE200C20-03R100-N	3	20	10	14	21,5	19,6	C20	45	XP3320	●			●	●					○	●	
7830300	PXBM100C10-04R050	4	10	5	7	13	9,7	C10	45	XP3320	●			●	●					○	●	
7830301	PXBM120C12-04R060	4	12	6	8,4	14,4	11,7	C12	45	XP3320	●			●	●					○	●	
7830302	PXBM160C16-06R080	6	16	8	11,2	18,7	15,7	C16	45	XP3320	●			●	●					○	●	
7830303	PXBM200C20-06R100	6	20	10	14	21,5	19,6	C20	45	XP3320	●			●	●					○	●	

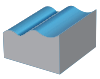
PXBE OH

Milling | Indexable | Heads





- Multi flute variable helix solid carbide head with coolant holes
- Up to 5xD application in 60 HRC work materials
- For PXMZ straight shank holder
- 12 - 20 mm


C.901
C.1072

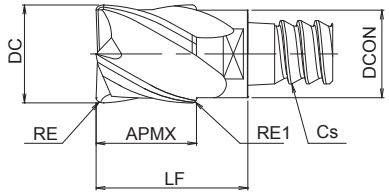
EDP	Designation	ZEFP	DC	RE	APMX	LF	DCON	CS	FHA	Grade	P		M		K		N		S		H	
											dry		dry		GG	GGG	dry		dry		dry	
7830281	PXBE120C12-03R060-P-O	3	12	6	8,4	14,4	11,7	C12	45	XP3320	◉			◉	◉					○	○	
7830282	PXBE160C16-03R080-P-O	3	16	8	11,2	18,7	15,7	C16	45	XP3320	◉			◉	◉					○	○	
7830283	PXBE200C20-03R100-P-O	3	20	10	14	21,5	19,6	C20	45	XP3320	◉			◉	◉					○	○	
7830261	PXBE120C12-03R060-N-O	3	12	6	8,4	14,4	11,7	C12	45	XP3320	◉			◉	◉					○	◉	
7830262	PXBE160C16-03R080-N-O	3	16	8	11,2	18,7	15,7	C16	45	XP3320	◉			◉	◉					○	◉	
7830263	PXBE200C20-03R100-N-O	3	20	10	14	21,5	19,6	C20	45	XP3320	◉			◉	◉					○	◉	

PXAL

Milling | Indexable | Heads

HEADS





- 3 flutes solid carbide head
- For Non-ferrous materials
- For PXMZ straight shank holder
- 10 - 25 mm

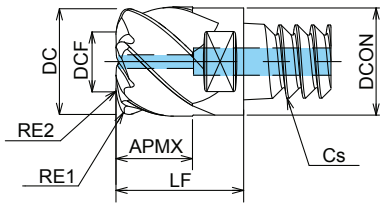
C.901 C.1073

EDP	Designation	ZEFP	DC	RE	APMX	LF	DCON	CS	FHA	Grade	P		M		K		N		S		H	
											dry		dry		GG	GGG	dry		dry		dry	
7834930	PXAL100C10-03R000	3	10	-	10	16	9,8	C10	45	XP4625							◉	◉				
7834931	PXAL100C10-03R100	3	10	1	10	16	9,8	C10	45	XP4625							◉	◉				
7834932	PXAL100C10-03R250	3	10	2,5	10	16	9,8	C10	45	XP4625							◉	◉				
7834933	PXAL120C10-03R000	3	12	-	12	18	9,8	C10	45	XP4625							◉	◉				
7834934	PXAL120C12-03R000	3	12	-	12	18	11,7	C12	45	XP4625							◉	◉				
7834935	PXAL120C12-03R100	3	12	1	12	18	11,7	C12	45	XP4625							◉	◉				
7834936	PXAL120C12-03R300	3	12	3	12	18	11,7	C12	45	XP4625							◉	◉				
7834937	PXAL140C12-03R000	3	14	-	14	20	11,7	C12	45	XP4625							◉	◉				
7834938	PXAL160C16-03R000	3	16	-	16	23,5	15,7	C16	45	XP4625							◉	◉				
7834939	PXAL160C16-03R100	3	16	1	16	23,5	15,7	C16	45	XP4625							◉	◉				
7834940	PXAL160C16-03R200	3	16	2	16	23,5	15,7	C16	45	XP4625							◉	◉				
7834941	PXAL160C16-03R300	3	16	3	16	23,5	15,7	C16	45	XP4625							◉	◉				
7834942	PXAL160C16-03R400	3	16	4	16	23,5	15,7	C16	45	XP4625							◉	◉				
7834943	PXAL180C16-03R000	3	18	-	18	25,5	15,7	C16	45	XP4625							◉	◉				
7834944	PXAL200C20-03R000	3	20	-	20	27,5	19,6	C20	45	XP4625							◉	◉				
7834945	PXAL200C20-03R100	3	20	1	20	27,5	19,6	C20	45	XP4625							◉	◉				
7834946	PXAL200C20-03R200	3	20	2	20	27,5	19,6	C20	45	XP4625							◉	◉				
7834947	PXAL200C20-03R300	3	20	3	20	27,5	19,6	C20	45	XP4625							◉	◉				
7834948	PXAL200C20-03R400	3	20	4	20	27,5	19,6	C20	45	XP4625							◉	◉				
7834949	PXAL220C20-03R000	3	22	-	22	29,5	19,6	C20	45	XP4625							◉	◉				
7834950	PXAL250C25-03R000	3	25	-	25	35	24	C25	45	XP4625							◉	◉				
7834951	PXAL250C25-03R100	3	25	1	25	35	24	C25	45	XP4625							◉	◉				
7834952	PXAL250C25-03R300	3	25	3	25	35	24	C25	45	XP4625							◉	◉				
7834953	PXAL250C25-03R500	3	25	5	25	35	24	C25	45	XP4625							◉	◉				

PXHF-AM

Milling | Indexable | Heads





- Multi flute solid carbide head with coolant holes
- For high feed additive manufacturing milling
- For PXMZ straight shank holder

C.901
C.1039

EDP	Designation	ZEFP	DC	RE1	RE2	APMX	LF	DCON	CS	FHA	Grade	P		M		K		N		S		H	
												dry		dry		GG	GGG	dry		dry		dry	
7830377	PXHF-AM120C12-06R150-O	6	12	1,5	1,2	8,4	14,4	11,7	C12	45	XP6703	●			●					○	●	●	
7830378	PXHF-AM160C16-06R200-O	6	16	2	1,6	11,2	18,7	15,7	C16	45	XP6703	●			●					○	●	●	
7830379	PXHF-AM200C20-06R250-O	6	20	2,5	2	14	21,5	19,6	C20	45	XP6703	●			●					○	●	●	

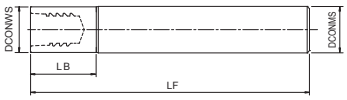
PXMZ

Milling | Indexable | Arbors

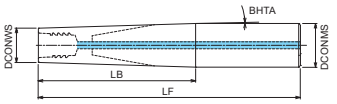


- Exchangeable carbide/steel body for PXM

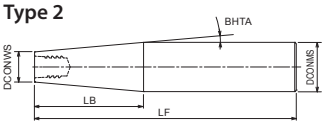
Type 1



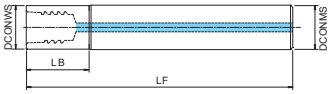
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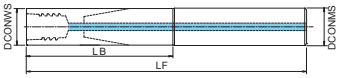
Type 2



Type 5



Type 3



EDP	Designation	CS	LF	DCONWS	LB	DCON	BHTA	Type	Shank material
48174001	PXMZ-C12SS12-S100	C12	100	11,7	18	12	0	1	Steel
48174002	PXMZ-C12TP20-S145	C12	145	11,7	47,4	20	5	2	Steel
48174003	PXMZ-C16SS16-S100	C16	100	15,7	23	16	0	1	Steel
48174004	PXMZ-C16TP25-S155	C16	155	15,7	53,1	25	5	2	Steel
48174005	PXMZ-C20SS20-S120	C20	120	19,6	28	20	0	1	Steel
48174006	PXMZ-C20TP32-S170	C20	170	19,6	70,8	32	5	2	Steel
48174007	PXMZ-C25SS25-S140	C25	140	24	34,5	25	0	1	Steel
48174022	PXMZ-C32SS32-S160	C32	160	28	33	32	0	1	Steel
48309001	PXMZ-C12SS12-S100-O	C12	100	11,7	18	12	0	5	Steel
48309002	PXMZ-C16SS16-S100-O	C16	100	15,7	23	16	0	5	Steel
48309003	PXMZ-C20SS20-S120-O	C20	120	19,6	28	20	0	5	Steel
48309004	PXMZ-C25SS25-S140-O	C25	140	24	34,5	25	0	5	Steel
48174008	PXMZ-C12SS12-S075CS	C12	75	11,7	24	12	0	1	Carbide
48174009	PXMZ-C12SS12-L100CS	C12	100	11,7	45,9	12	0	1	Carbide
48174010	PXMZ-C12SS12-L115CS	C12	115	11,7	64,2	12	0	1	Carbide
48174011	PXMZ-C12TP16-LL135CS	C12	135	11,7	83,8	16	1,3	2	Carbide
48174012	PXMZ-C16SS16-S090CS	C16	90	15,7	39,2	16	0	1	Carbide
48174013	PXMZ-C16SS16-L130CS	C16	130	15,7	61,2	16	0	1	Carbide
48174014	PXMZ-C16SS16-L135CS	C16	135	15,7	84,2	16	0	1	Carbide
48174015	PXMZ-C16TP20-LL165CS	C16	165	15,7	115	20	1,1	2	Carbide
48174016	PXMZ-C20SS20-S090CS	C20	90	19,6	39,1	20	0	1	Carbide
48174017	PXMZ-C20SS20-L150CS	C20	150	19,6	78,4	20	0	1	Carbide
48174018	PXMZ-C20SS20-L180CS	C20	180	19,6	109,1	20	0	1	Carbide
48174019	PXMZ-C20TP25-LL200CS	C20	200	19,6	140	25	1,1	2	Carbide
48174020	PXMZ-C25SS25-L200CS	C25	200	24	96,6	25	0	1	Carbide
48174021	PXMZ-C10SS10-S075	C10	75	9,8	12	10	0	1	Carbide
48174023	PXMZ-C10SS10-L100CS	C10	100	9,8	37,3	10	0	1	Carbide
48174024	PXMZ-C32SS32-L250CS	C32	250	28	115,2	32	0	1	Carbide
48174025	PXMZ-C10SS10-S075CS	C10	75	9,8	17,3	10	0	1	Carbide
48174026	PXMZ-C10TP12-LL130CS	C10	130	9,8	67	12	0,9	2	Carbide
48309005	PXMZ-C12SS12-S075CS-O	C12	75	11,7	25	12	0	3	Carbide
48309006	PXMZ-C12SS12-L100CS-O	C12	100	11,7	46,3	12	0	3	Carbide
48309007	PXMZ-C12SS12-L115CS-O	C12	115	11,7	65	12	0	3	Carbide
48309008	PXMZ-C12TP16-LL135CS-O	C12	135	11,7	85	16	1,3	4	Carbide
48309009	PXMZ-C12TP16-LL150CS-O	C12	150	11,7	85,6	16	1	4	Carbide
48309010	PXMZ-C16SS16-S090CS-O	C16	90	15,7	40	16	0	3	Carbide
48309011	PXMZ-C16SS16-L130CS-O	C16	130	15,7	62	16	0	3	Carbide
48309012	PXMZ-C16SS16-L135CS-O	C16	135	15,7	85	16	0	3	Carbide
48309013	PXMZ-C16TP20-LL165CS-O	C16	165	15,7	115	20	1	4	Carbide
48309014	PXMZ-C16TP20-LL180CS-O	C16	180	15,7	116,6	20	1	4	Carbide
48309015	PXMZ-C20SS20-S090CS-O	C20	90	19,6	40	20	0	3	Carbide
48309016	PXMZ-C20SS20-L150CS-O	C20	150	19,6	79,3	20	0	3	Carbide
48309017	PXMZ-C20SS20-L180CS-O	C20	180	19,6	110	20	0	3	Carbide
48309018	PXMZ-C20TP25-LL200CS-O	C20	200	19,6	140	25	1	4	Carbide
48309019	PXMZ-C20TP25-LL210CS-O	C20	210	19,6	145	25	1	4	Carbide
48309020	PXMZ-C25SS25-L200CS-O	C25	200	24	98	25	0	3	Carbide

Accessories and spare parts

Applicable head	EDP	Designation	Torque	Specification
10-12	7801890	PXMP8-10	10 N.m	Spanner
12-14	7801890	PXMP8-10	12 N.m	Spanner
16-18	7801891	PXMP13-16	30 N.m	Spanner
20-22	7801891	PXMP13-16	50 N.m	Spanner
25	7801892	PXMP21	60 N.m	Spanner
32	7801897	PXMP24	60 N.m	Spanner

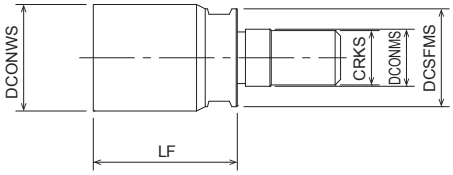
PXMJ

Milling | Indexable | Arbors

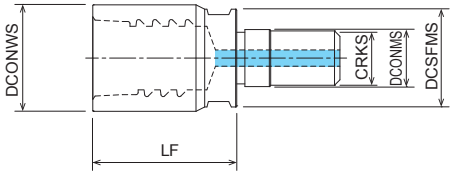


- Exchangeable screw fit body for PXM

Type 1



Type 2



EDP	Designation	CS	LF	DCONWS	DCSFMS	DCON	Type
7801893	PXMJ-C12SF06	C12	18	11,7	11	6,5	1
7801894	PXMJ-C16SF08	C16	21,8	15,7	14,5	8,5	1
7801895	PXMJ-C20SF10	C20	26,5	19,6	18	10,5	1
7801896	PXMJ-C25SF12	C25	34	24	23	12,5	1
7803551	PXMJ-C12SF06-O	C12	18	11,7	11	6,5	2
7803552	PXMJ-C16SF08-O	C16	21,8	15,7	14,5	8,5	2
7803553	PXMJ-C20SF10-O	C20	26,5	19,6	18	10,5	2
7803554	PXMJ-C25SF12-O	C25	34	24	23	12,5	2

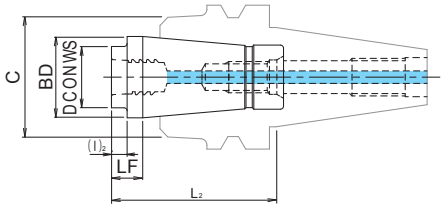
Accessories and spare parts

Applicable head	EDP	Designation	Torque	Specification
10-12	7801890	PXMP8-10	10 N.m	Spanner
12-14	7801890	PXMP8-10	12 N.m	Spanner
16-18	7801891	PXMP13-16	30 N.m	Spanner
20-22	7801891	PXMP13-16	50 N.m	Spanner
25	7801892	PXMP21	60 N.m	Spanner
32	7801897	PXMP24	60 N.m	Spanner

PXMC

Milling | Indexable | Collets





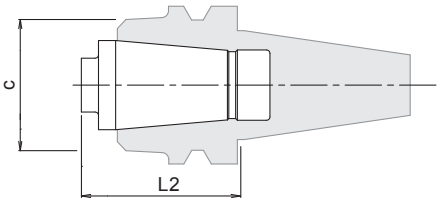
- PXMC collet for PHOENIX PXM series
- Applicable exchangeable HEADS: PXNH, PXNL, PXSE, PXSM, PXDR, PXRE, PXBE, PXBM
- With coolant hole
- Reducing overhang length allows high rigidity

EDP	Designation	CS	LF	DCONWS	LB	BD	LU
7834001	PXMC-C1205	C12	10,5	11,7	5	26	24
7834002	PXMC-C1605	C16	10,5	15,7	5	26	45,9
7834003	PXMC-C2005	C20	10,5	19,6	5	26	64,2
7834004	PXMC-C2505	C25	10,5	24	5	26	83,8
7834011	PXMC-C1230	C12	35,5	11,7	30	26	39,2
7834012	PXMC-C1630	C16	35,5	15,7	30	26	61,2
7834013	PXMC-C2030	C20	35,5	19,6	30	26	84,2
7834014	PXMC-C2530	C25	35,5	24	30	26	115

HYPRO SHRINK CHUCKS

Milling | Indexable | Holders





- HY-PRO holder for PXMC

EDP	Designation	BD	L2 extra short	L2 short
8910000	BT30SLK1235 P30T1(MAS1)	38	45,5	70,5
8910001	BT30SLK1235 P30T2(MAS2)	38	45,5	70,5
8910002	BT40SLK1245	38	55,5	80,5
8910003	BT40SLK1275	38	85,5	110,5
8910005	A63SLK1275	38	85,5	110,5
8910006	A63SLK12135	38	145,5	170,5

CUTTING CONDITIONS

Milling | Endmills | Cutting conditions

AE-VMS

Radius Type

Slot Milling



	Mild Steel • Carbon Steel • Cast Iron SS400 • S55C • FC250 ~750N/mm²		Alloy Steel • Tool Steel SCM • SKS • SKD ~30HRC		Prehardened Steel • Hardened Steel PX5 • NAK80 30~45HRC		Stainless Steel SUS304 • SUS420 ≤200HB		Precipitation Stainless Steel SUS630		Titanium Alloy Ti-6Al-4V		Ni-Based Alloy Inconel 718	
Cutting Speed	100 (80-120) (m/min)		90 (70-110) (m/min)		80 (60-100) (m/min)		70 (50-80) (m/min)		70 (60-80) (m/min)		60 (50-70) (m/min)		25 (20-30) (m/min)	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
1	28700	570	25500	460	22300	360	19100	340	25620	320	22280	300	9550	120
1,5	19100	610	17000	480	14900	420	12700	360	16980	360	14850	340	6370	130
2	14300	630	12700	510	11100	440	9600	380	12810	360	11140	350	4770	140
2,5	11500	780	10200	570	8900	460	7600	430	10190	410	8910	390	3820	150
3	10.600	790	9.600	590	8.500	410	7.400	380	8.540	430	7.430	410	3.180	160
4	8.000	820	7.200	610	6.400	410	5.600	390	6.410	460	5.570	440	2.390	170
5	6.400	870	5.700	680	5.100	490	4.500	450	5.120	490	4.460	470	1.910	180
6	5.300	1.010	4.800	860	4.200	600	3.700	330	4.270	480	3.710	460	1.590	180
8	4.000	870	3.600	680	3.200	580	2.800	330	2.750	450	2.390	430	1.190	200
10	3.200	800	2.900	660	2.500	500	2.200	320	2.200	420	1.910	400	950	180
12	2.700	770	2.400	640	2.100	490	1.900	300	1.830	420	1.590	400	800	180
16	2.000	570	1.800	480	1.600	370	1.200	290	1.140	260	990	250	500	110
20	1.600	460	1.400	370	1.300	300	900	230	920	270	800	260	400	120
25	1.300	370	1.100	290	1.000	230	600	150	730	250	640	240	250	90
Depth of cut	ap: 1D						Dc: Dc≤6 → ap: 0,5D; 6<Dc → ap: 1D				ap: 0,25D			

Side Milling



	Mild Steel • Carbon Steel • Cast Iron SS400 • S55C • FC250 ~750N/mm²		Alloy Steel • Tool Steel SCM • SKS • SKD ~30HRC		Prehardened Steel • Hardened Steel PX5 • NAK80 30~45HRC		Stainless Steel SUS304 • SUS420 ≤200HB		Precipitation Stainless Steel SUS630		Titanium Alloy Ti-6Al-4V		Ni-Based Alloy Inconel 718	
Cutting Speed	130 (100-150) (m/min)		120 (100-150) (m/min)		100 (80-120) (m/min)		80 (60-100) (m/min)		80 (70-90) (m/min)		70 (60-80) (m/min)		30 (25-40) (m/min)	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
1	38200	840	28700	690	25550	510	22300	450	29280	370	25460	350	12730	160
1,5	25500	920	21200	760	17000	540	14900	460	19520	410	16980	400	8490	180
2	19900	1430	17500	840	14300	630	11100	470	14640	440	12730	420	6370	190
2,5	15900	1590	14000	900	11500	690	8900	480	11710	480	10190	460	5090	210
3	13.800	1.660	12.700	1.070	10.600	760	8.000	480	9.760	510	8.490	480	4.240	220
4	10.400	1.830	9.600	1.150	8.000	800	6.000	530	7.320	550	6.370	530	3.180	240
5	8.300	1.990	7.600	1.220	6.400	900	4.800	560	5.860	560	5.090	540	2.550	250
6	6.900	2.070	6.400	1.540	5.300	1.060	4.200	640	4.880	580	4.240	550	2.120	250
8	5.200	1.770	4.800	1.540	4.000	1.040	3.200	610	3.200	450	2.790	430	1.590	230
10	4.100	1.640	3.800	1.370	3.200	900	2.500	580	2.560	430	2.230	410	1.270	220
12	3.500	1.400	3.200	1.280	2.700	760	2.100	530	2.140	420	1.860	400	1.060	210
16	2.600	1.250	2.400	1.060	2.000	640	1.400	450	1.370	410	1.190	400	700	210
20	2.100	1.010	1.900	840	1.600	510	1.100	370	1.100	390	950	380	560	200
25	1.700	820	1.500	660	1.300	420	900	310	880	510	760	490	320	190
Depth of cut	ap: 1,5D; ae: 0,2D													

1. The above milling condition is a guideline for the overhang length is 3×D.
2. Use a rigid and precise machine and holder.
3. The rotational speed is calculated by the median of the recommended cutting speed. Adjustment may be necessary depending on the rigidity of the workpiece fixture and machine.
4. Please use a suitable fluid with high smoke retardant properties.
5. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.
6. Please use water-soluble oil when machining stainless steel.
7. Reduce speed and feed as well as depth of cut when high precision is required.
8. Adjust the speed and feed accordingly when the overhang length is longer than specified.

Fix rate cutting condition

DC≥Ø6



Work Material	Mild Steel • Carbon Steel • Cast Iron SS400 • S55C • FC250 ~750N/mm²		Alloy Steel • Tool Steel SCM • SKS • SKD ~30HRC		Prehardened Steel • Hardened Steel PX5 • NAK80 30~45HRC		Stainless Steel SUS304 • SUS420 ≤200HB		Precipitation Stainless Steel SUS630		Titanium Alloy Ti-6Al-4V		Ni-Based Alloy Inconel 718	
Ø / L/D	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
Side Milling 4	80%		70%		70%		60%		60%		50%		50%	
Side Milling 5	70%		60%		60%		50%		50%		50%		50%	
Slotting 4	90%		90%		80%		70%		70%		60%		60%	
Slotting 5	80%		80%		70%		70%		70%		60%		60%	

CUTTING CONDITIONS

AE-VMSS

Square Type / Right Angle Type*

Slot milling

* For right angle type, please use 70% of the speed and feed shown in the table below as reference.



	Mild Steel • Carbon Steel • Cast Iron SS400 • S55C • FC250 ~750N/mm²		Alloy Steel • Tool Steel SCM • SKS • SKD ~30HRC		Prehardened Steel • Hardened Steel PX5 • NAK80 30~45HRC		Stainless Steel SUS304 • SUS420 ≤200HB		Precipitation Stainless Steel SUS630		Titanium Alloy Ti-6Al-4V		Ni-Based Alloy Inconel 718	
Cutting Speed	100 (80-120) (m/min)		90 (70-110) (m/min)		80 (60-100) (m/min)		70 (50-80) (m/min)		70 (60-80) (m/min)		60 (50-70) (m/min)		25 (20-30) (m/min)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
1	28.700	570	25.500	460	22.300	360	19.100	340	25.620	320	22.280	300	9.550	120
1,5	19.100	610	17.000	480	14.900	420	12.700	360	16.980	360	14.850	340	6.370	130
2	14.300	630	12.700	510	11.100	440	9.600	380	12.810	360	11.140	350	4.770	140
2,5	11.500	780	10.200	570	8.900	460	7.600	430	10.190	410	8.910	390	3.820	150
3	10.600	930	9.600	690	8.500	510	7.400	470	8.540	430	7.430	410	3.180	160
4	8.000	960	7.200	720	6.400	510	5.600	490	6.410	460	5.570	440	2.390	170
5	6.400	1.020	5.700	800	5.100	610	4.500	560	5.120	490	4.460	470	1.910	180
6	5.300	1.060	4.800	900	4.200	670	3.700	370	4.270	480	3.710	460	1.590	180
8	4.000	910	3.600	720	3.200	640	2.800	370	2.750	450	2.390	430	1.190	200
10	3.200	840	2.900	700	2.500	550	2.200	350	2.200	420	1.910	400	950	180
12	2.700	810	2.400	670	2.100	550	1.900	330	1.830	420	1.590	400	800	180
Depth of cut			ap: 1D				Dc: Dc≤6 → ap: 0,5D; Dc>6 → ap: 1D				ap: 0,25D			

Side milling



	Mild Steel • Carbon Steel • Cast Iron SS400 • S55C • FC250 ~750N/mm²		Alloy Steel • Tool Steel SCM • SKS • SKD ~30HRC		Prehardened Steel • Hardened Steel PX5 • NAK80 30~45HRC		Stainless Steel SUS304 • SUS420 ≤200HB		Precipitation Stainless Steel SUS630		Titanium Alloy Ti-6Al-4V		Ni-Based Alloy Inconel 718	
Cutting Speed	130 (100-150) (m/min)		120 (100-150) (m/min)		100 (80-120) (m/min)		80 (60-100) (m/min)		80 (70-90) (m/min)		70 (60-80) (m/min)		30 (25-40) (m/min)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
1	38.200	840	28.700	690	25.500	510	22.300	450	29.280	370	25.460	350	12.730	160
1,5	25.500	920	21.200	760	17.000	540	14.900	460	19.520	410	16.980	400	8.490	180
2	19.900	1.430	17.500	840	14.300	630	11.100	470	14.640	440	12.730	420	6.370	190
2,5	15.900	1.590	14.000	900	11.500	690	8.900	480	11.710	480	10.190	460	5.039	210
3	13.800	1.660	12.700	1.070	10.600	760	8.000	480	9.760	510	8.490	480	4.240	220
4	10.400	1.830	9.600	1.150	8.000	800	6.000	530	7.320	550	6.370	530	3.180	240
5	8.300	1.990	7.600	1.220	6.400	900	4.800	560	5.860	560	5.090	540	2.550	250
6	6.900	2.070	6.400	1.540	5.300	1.060	4.200	640	4.880	580	4.240	550	2.120	250
8	5.200	1.770	4.800	1.540	4.000	1.040	3.200	610	3.200	450	2.790	430	1.590	230
10	4.100	1.640	3.800	1.370	3.200	900	2.500	580	2.560	430	2.230	410	1.270	220
12	3.500	1.400	3.200	1.280	2.700	760	2.100	530	2.140	420	1.860	400	1.060	210
Depth of cut							ap: 1,5D; ae: 0,2D							

1. The above milling condition is a guideline for the overhang length is 3×D.
2. Use a rigid and precise machine and holder.
3. The rotational speed is calculated by the median of the recommended cutting speed. Adjustment may be necessary depending on the rigidity of the workpiece fixture and machine.
4. Please use a suitable fluid with high smoke retardant properties.
5. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.
6. Please use water-soluble oil when machining stainless steel.
7. Reduce speed and feed as well as depth of cut when high precision is required.
8. Adjust the speed and feed accordingly when the overhang length is longer than specified.

AE-VMSS

Long Neck Type

Side milling



	Mild Steel • Carbon Steel • Cast Iron SS400 • S55C • FC250 ~750N/mm²		Alloy Steel • Tool Steel SCM • SKS • SKD ~30HRC		Prehardened Steel • Hardened Steel PX5 • NAK80 30~45HRC		Stainless Steel SUS304 • SUS420 ≤200HB		Precipitation Stainless Steel SUS630		Titanium Alloy Ti-6Al-4V		Ni-Based Alloy Inconel 718	
Cutting Speed	105 (80-120) (m/min)		95 (70-110) (m/min)		70 (50-90) (m/min)		60 (40-80) (m/min)		60 (50-70) (m/min)		50 (40-60) (m/min)		30 (20-35) (m/min)	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
6	5.520	1.660	5.120	1.230	3.710	740	2.940	450	3.420	410	2.970	390	1.480	180
8	4.160	1.420	3.840	1.230	2.800	730	2.240	430	2.240	320	1.950	300	1.110	160
10	3.280	1.310	3.040	1.100	2.240	630	1.750	410	1.790	300	1.560	290	890	150
12	2.800	1.120	2.560	1.020	1.890	530	1.470	370	1.500	290	1.300	280	740	150
Depth of cut	ap: 1,5D; ae: 0,2D													

1. Use a rigid and precise machine and holder.
2. The rotational speed is calculated by the median of the recommended cutting speed. Adjustment may be necessary depending on the rigidity of the workpiece fixture and machine.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.
5. Please use water-soluble oil when machining stainless steel.
6. Reduce speed and feed as well as depth of cut when high precision is required.

Fix rate cutting condition

DC≥Ø6



Work Material		Mild Steel • Carbon Steel • Cast Iron SS400 • S55C • FC250 ~750N/mm²		Alloy Steel • Tool Steel SCM • SKS • SKD ~30HRC		Prehardened Steel • Hardened Steel PX5 • NAK80 30~45HRC		Stainless Steel SUS304 • SUS420 ≤200HB		Precipitation Stainless Steel SUS630		Titanium Alloy Ti-6Al-4V		Ni-Based Alloy Inconel 718	
Ø	L/D	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
Side Milling	4	80%		70%		70%		60%		60%		50%		50%	
	5	70%		60%		60%		50%		50%		50%		50%	
Slotting	4	90%		90%		80%		70%		70%		60%		60%	
	5	80%		80%		70%		70%		70%		60%		60%	

CUTTING CONDITIONS

AE-VML

Long Type (Applies to square / radius / chipbreaker type)

ae=0.05D • Standard side milling 3D



	Mild Steel • Carbon Steel • Cast Iron SS400 • S55C • FC250 ~750N/mm²		Alloy Steel • Tool Steel SCM • SKS • SKD ~30HRC		Prehardened Steel • Hardened Steel PX5 • NAK80 30~45HRC		Stainless Steel SUS304 • SUS420 ≤200HB		Precipitation Stainless Steel SUS630		Titanium Alloy Ti-6Al-4V		Ni-Based Alloy Inconel 718	
Cutting Speed	160 (140-180) (m/min)		150 (130-170) (m/min)		140 (120-160) (m/min)		125 (100-140) (m/min)		115 (90-130) (m/min)		105 (80-120) (m/min)		85 (70-90) (m/min)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
6	8.500	2.480	8.000	2.180	7.400	2.010	6.600	1.660	6.100	1.530	5.600	1.400	4.500	1.080
8	6.400	1.870	6.000	1.630	5.600	1.520	5.000	1.260	4.600	1.160	4.200	1.050	3.400	820
10	5.100	1.730	4.800	1.440	4.500	1.350	4.000	1.120	3.700	1.040	3.300	920	2.700	720
12	4.200	1.430	4.000	1.200	3.700	1.110	3.300	920	3.000	840	2.800	780	2.200	590
16	3.180	1.590	2.990	1.350	2.790	1.260	2.490	1.000	2.290	920	2.090	840	1.690	630
20	2.550	1.280	2.390	1.080	2.230	1.000	1.990	800	1.830	730	1.670	670	1.350	510
Depth of cut							ap: 3D, ae: 0,05D							

1. Use a rigid and precise machine and holder.
2. The rotational speed is calculated by the median of the recommended cutting speed. Adjustment may be necessary depending on the rigidity of the workpiece fixture and machine.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.
5. Please use water-soluble coolant when machining stainless steel.

ae=0.1D • High efficiency side milling 3D



	Mild Steel • Carbon Steel • Cast Iron SS400 • S55C • FC250 ~750N/mm²		Alloy Steel • Tool Steel SCM • SKS • SKD ~30HRC		Prehardened Steel • Hardened Steel PX5 • NAK80 30~45HRC		Stainless Steel SUS304 • SUS420 ≤200HB		Precipitation Stainless Steel SUS630		Titanium Alloy Ti-6Al-4V	
Cutting Speed	220 (200-240) (m/min)		170 (150-190) (m/min)		135 (110-150) (m/min)		130 (110-150) (m/min)		120 (100-140) (m/min)		110 (90-130) (m/min)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
6	11.700	3.180	9.000	2.270	7.200	1.810	6.900	1.600	6.400	1.480	5.800	1.340
8	8.800	2.390	6.800	1.710	5.400	1.360	5.200	1.210	4.800	1.120	4.400	1.020
10	7.000	2.240	5.400	1.510	4.300	1.200	4.100	1.070	3.800	990	3.500	910
12	5.800	1.860	4.500	1.260	3.600	1.010	3.500	910	3.200	830	2.900	750
16	4.380	1.970	3.380	1.350	2.690	1.080	2.590	910	2.390	840	2.190	770
20	3.500	1.580	2.710	1.080	2.150	860	2.070	720	1.910	670	1.750	610
Depth of cut							ap: 3D, ae: 0,1D					

ae=0.15D • High efficiency side milling 3D



	Mild Steel • Carbon Steel • Cast Iron SS400 • S55C • FC250 ~750N/mm²		Alloy Steel • Tool Steel SCM • SKS • SKD ~30HRC		Prehardened Steel • Hardened Steel PX5 • NAK80 30~45HRC		Stainless Steel SUS304 • SUS420 ≤200HB		Precipitation Stainless Steel SUS630		Titanium Alloy Ti-6Al-4V	
Cutting Speed	140 (120-160) (m/min)		100 (80-120) (m/min)		90 (70-110) (m/min)		85 (60-100) (m/min)		75 (50-90) (m/min)		65 (40-80) (m/min)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
6	7.400	1.860	5.600	1.300	4.800	1.110	4.500	950	4.000	840	3.400	720
8	5.600	1.410	4.200	970	3.600	840	3.400	720	3.000	640	2.600	550
10	4.500	1.350	3.300	860	2.900	750	2.700	650	2.400	580	2.100	510
12	3.700	1.110	2.800	730	2.400	620	2.300	550	2.000	480	1.700	410
16	2.790	1.120	1.990	700	1.790	630	1.690	570	1.490	510	1.290	420
20	2.230	890	1.590	560	1.430	500	1.350	460	1.190	400	1.040	340
Depth of cut							ap: 3D, ae: 0,15D					

ae≤0.2D • High efficiency side milling 3D



	Mild Steel • Carbon Steel • Cast Iron SS400 • S55C • FC250 ~750N/mm²		Alloy Steel • Tool Steel SCM • SKS • SKD ~30HRC		Prehardened Steel • Hardened Steel PX5 • NAK80 30~45HRC		Stainless Steel SUS304 • SUS420 ≤200HB		Precipitation Stainless Steel SUS630		Titanium Alloy Ti-6Al-4V	
Cutting Speed	100 (80-120) (m/min)		80 (60-100) (m/min)		70 (50-90) (m/min)		65 (40-80) (m/min)		55 (30-70) (m/min)		45 (20-60) (m/min)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
6	5.300	1.230	4.200	890	3.700	780	3.500	670	2.900	560	2.400	460
8	4.000	930	3.200	680	2.800	590	2.600	500	2.200	420	1.800	350
10	3.200	900	2.500	600	2.200	530	2.100	460	1.800	390	1.400	310
12	2.700	760	2.100	500	1.900	460	1.700	370	1.500	330	1.200	260
16	1.990	800	1.590	560	1.390	490	1.290	420	1.090	350	900	270
20	1.590	640	1.270	440	1.110	390	1.040	340	880	290	720	220
Depth of cut							ap: 3D, ae: 0,20D					

AE-VML

Long type (Applies to square / radius / chipbreaker type)

ae=0.05D • Standard side milling 4D



	Mild Steel • Carbon Steel • Cast Iron SS400 • S55C • FC250 ~750N/mm²		Alloy Steel • Tool Steel SCM • SKS • SKD ~30HRC		Prehardened Steel • Hardened Steel PX5 • NAK80 30~45HRC		Stainless Steel SUS304 • SUS420 ≤200HB		Precipitation Stainless Steel SUS630		Titanium Alloy Ti-6Al-4V		Ni-Based Alloy Inconel 718	
Cutting Speed	140 (120-160) (m/min)		130 (110-150) (m/min)		120 (100-140) (m/min)		115 (90-130) (m/min)		105 (80-120) (m/min)		95 (70-110) (m/min)		75 (60-80) (m/min)	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
6	7.400	2.010	6.900	1.740	6.400	1.610	6.100	1.420	5.600	1.300	5.000	1.160	4.000	880
8	5.600	1.520	5.200	1.310	4.800	1.210	4.600	1.070	4.200	980	3.800	880	3.000	660
10	4.500	1.440	4.100	1.230	3.800	1.140	3.700	960	3.300	860	3.000	780	2.400	590
12	3.700	1.180	3.500	1.050	3.200	960	3.100	810	2.800	730	2.500	650	2.000	500
16	2.790	1.330	2.590	1.170	2.390	1.080	2.290	860	2.090	780	1.890	710	1.490	520
20	2.230	1.060	2.070	930	1.910	860	1.830	690	1.670	630	1.510	570	1.190	420
Depth of cut	ap: 4D, ae: 0,05D													

1. Use a rigid and precise machine and holder.
2. The rotational speed is calculated by the median of the recommended cutting speed. Adjustment may be necessary depending on the rigidity of the workpiece fixture and machine.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.
5. Please use water-soluble coolant when machining stainless steel.

ae=0.1D • High efficiency side milling 4D



	Mild Steel • Carbon Steel • Cast Iron SS400 • S55C • FC250 ~750N/mm²		Alloy Steel • Tool Steel SCM • SKS • SKD ~30HRC		Prehardened Steel • Hardened Steel PX5 • NAK80 30~45HRC		Stainless Steel SUS304 • SUS420 ≤200HB		Precipitation Stainless Steel SUS630		Titanium Alloy Ti-6Al-4V	
Cutting Speed	200 (180-220) (m/min)		160 (140-180) (m/min)		130 (110-150) (m/min)		125 (100-140) (m/min)		115 (90-130) (m/min)		105 (80-120) (m/min)	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
6	10.600	2.670	8.500	1.970	6.900	1.600	6.600	1.400	6.100	1.290	5.600	1.190
8	8.000	2.020	6.400	1.480	5.200	1.210	5.000	1.060	4.600	980	4.200	890
10	6.400	1.920	5.100	1.330	4.100	1.070	4.000	950	3.700	890	3.300	790
12	5.300	1.590	4.200	1.090	3.500	910	3.300	790	3.000	720	2.800	670
16	3.980	1.690	3.180	1.190	2.590	970	2.490	870	2.290	800	2.090	730
20	3.180	1.350	2.550	960	2.070	780	1.990	700	1.830	640	1.670	580
Depth of cut	ap: 4D, ae: 0,1D											

ae=0.15D • High efficiency side milling 4D



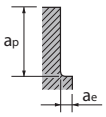
	Mild Steel • Carbon Steel • Cast Iron SS400 • S55C • FC250 ~750N/mm²		Alloy Steel • Tool Steel SCM • SKS • SKD ~30HRC		Prehardened Steel • Hardened Steel PX5 • NAK80 30~45HRC		Stainless Steel SUS304 • SUS420 ≤200HB		Precipitation Stainless Steel SUS630		Titanium Alloy Ti-6Al-4V	
Cutting Speed	135 (110-150) (m/min)		115 (100-140) (m/min)		85 (60-100) (m/min)		75 (50-90) (m/min)		65 (50-80) (m/min)		55 (40-70) (m/min)	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
6	7.200	1.670	6.100	1.290	4.500	950	4.000	770	3.400	650	2.900	560
8	5.400	1.250	4.600	980	3.400	720	3.000	580	2.600	500	2.200	430
10	4.300	1.200	3.700	890	2.700	650	2.400	530	2.100	460	1.800	400
12	3.600	1.010	3.100	740	2.300	550	2.000	440	1.700	370	1.500	330
16	2.690	1.080	2.290	800	1.690	590	1.490	480	1.290	420	1.090	330
20	2.150	860	1.830	640	1.350	470	1.190	390	1.040	340	880	260
Depth of cut	ap: 4D, ae: ≤0,15D											

CUTTING CONDITIONS

AE-VMFE

(Applies to square / radius type)

Side milling

	Mild Steel • Carbon Steel • Cast Iron SS400 • S55C • FC250 ~750N/mm²		Alloy Steel • Tool Steel SCM • SKS • SKD ~30HRC		Prehardened Steel • Hardened Steel PX5 • NAK80 30~45HRC		Stainless Steel SUS304 • SUS420 ≤200HB		Precipitation Stainless Steel SUS630		Titanium Alloy Ti-6Al-4V		Ni-Based Alloy Inconel 718	
Cutting Speed	120 (100-140) (m/min)		120 (100-140) (m/min)		120 (100-140) (m/min)		120 (100-140) (m/min)		115 (100-130) (m/min)		105 (90-120) (m/min)		70 (60-80) (m/min)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
6	6.370	2.550	6.370	2.290	6.370	2.040	6.370	1.910	6.100	1.590	5.570	1.340	3.720	740
8	4.780	1.910	4.780	1.720	4.780	1.530	4.780	1.430	4.580	1.190	4.180	1.000	2.790	560
10	3.820	1.530	3.820	1.380	3.820	1.220	3.820	1.150	3.660	950	3.340	800	2.230	490
12	3.180	1.270	3.180	1.140	3.180	1.020	3.180	950	3.050	790	2.790	670	1.860	410
14	2.730	1.090	2.730	980	2.730	870	2.730	820	2.620	680	2.390	570	1.590	480
18	2.120	850	2.120	760	2.120	680	2.120	640	2.030	530	1.860	450	1.240	370
22	1.740	700	1.740	630	1.740	560	1.740	520	1.660	430	1.520	360	1.010	300
Depth of cut														

ap	ae
2D	0,1D

1. The above milling condition is a guideline for the overhang length is 5×D.
2. Use a rigid and precise machine and holder.
3. Adjustment may be necessary depending on the rigidity of the workpiece fixture and machine.
4. Please use a suitable fluid with high smoke retardant properties.
5. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.
6. Please use water-soluble coolant when machining stainless steel, precipitation stainless steel, titanium alloy, Ni-based alloy.
7. Reduce speed and feed as well as depth of cut when high precision is required.
8. Adjust the speed and feed accordingly when the overhang length is longer than specified.

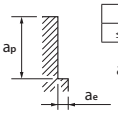
Cutting Condition Guide for Changes in Overhang Length

	Mild Steel • Carbon Steel • Cast Iron • Alloy Steel • Tool Steel (~750N/mm²~30HRC)				Prehardened Steel • Hardened Steel • Stainless Steel 30~45HRC				Titanium Alloy • Ni-Based Alloy Ti-6Al-4V - Inconel 718			
Cutting Speed	Cutting Speed	Feed	Depth of cut		Cutting Speed	Feed	Depth of cut		Cutting Speed	Feed	Depth of cut	
L/D	(m/min)	(mm/min)	ap	ae	(m/min)	(mm/min)	ap	ae	(m/min)	(mm/min)	ap	ae
6	80%	80%	1,7D	0,08D	80%	80%	1,7D	0,08D	80%	80%	1,7D	0,08D
7	65%	65%	1,6D	0,05D	65%	65%	1,6D	0,05D	65%	65%	1,6D	0,05D
8	50%	50%	1,5D	0,03D	40%	40%	1,5D	0,03D	30%	30%	1,5D	0,03D

AE-MSS-H

Square Type

Side Milling

	ToolSteel • Hardened Steel • Prehardened Steel SKD11 • SKD61 • NAK80		Hardened Steel							
			~ 55HRC		~ 62HRC		~ 66HRC		~ 70HRC	
Vc (m/min)	110 ~ 130		80 ~ 100		60 ~ 80		50 ~ 70		40 ~ 60	
DC X LU	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
1 X 3	38.220	1.220	28.660	860	22.290	530	19.110	400	15.920	250
2 X 6	19.110	1.220	14.330	860	11.150	530	9.550	400	7.960	250
3 X 9	12.740	1.220	9.550	880	7.430	530	6.370	400	5.310	250
4 X 12	9.550	1.220	7.170	890	5.570	530	4.780	400	3.980	250
5 X 15	7.640	1.220	5.730	920	4.460	540	3.820	400	3.180	250
6 X 18	6.370	1.830	4.780	1.350	3.720	800	3.180	600	2.650	380
8 X 24	4.780	1.840	3.580	1.350	2.790	800	2.390	600	1.990	380
10 X 30	3.820	1.830	2.870	1.340	2.230	800	1.910	600	1.590	380
12 X 36	3.180	1.830	2.390	1.330	1.860	800	1.590	600	1.330	380
Depth of cut										

ap	ae
≤1,5D	≤0,1D

a_e Max = 1mm

ap	ae
≤1,5D	≤0,05D

a_e Max = 0,5mm

ap	ae
≤1,5D	≤0,03D

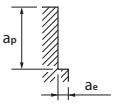
a_e Max = 0,3mm

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.

AE-MSS-H

Square Type

High-Speed Side Milling

	ToolSteel • Hardened Steel • Prehardened Steel SKD11 • SKD61 • NAK80		Hardened Steel							
			~ 55HRC		~ 62HRC		~ 66HRC		~ 70HRC	
Vc (m/min)	290 ~ 310		240 ~ 260		150 ~ 170		130 ~ 150		90 ~ 110	
DC X LU	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
1 X 3	50.000	1.800	50.000	1.800	50.000	1.500	44.590	1.160	31.850	700
2 X 6	47.770	3.440	39.810	2.870	25.480	1.530	22.290	1.160	15.920	700
3 X 9	31.850	3.440	26.540	2.870	16.990	1.530	14.860	1.190	10.620	720
4 X 12	23.890	3.440	19.900	2.870	12.740	1.530	11.150	1.190	7.960	720
5 X 15	19.110	3.440	15.920	2.870	10.190	1.530	8.920	1.190	6.370	720
6 X 18	15.920	5.160	13.270	4.300	8.490	2.290	7.430	1.780	5.310	1.080
8 X 24	11.940	5.160	9.950	4.300	6.370	2.290	5.570	1.770	3.980	1.080
10 X 30	9.550	5.160	7.960	4.300	5.100	2.300	4.460	1.770	3.180	1.080
12 X 36	7.960	5.160	6.630	4.300	4.250	2.300	3.720	1.770	2.650	1.080
Depth of cut										

ap	ae
≤1,5D	≤0,02D

a_e Max = 0,2mm

ap	ae
≤1,5D	≤0,01D

a_e Max = 0,01mm

1. Tools can cause sparks. Do not use flammable fluids.
2. Use an air blow or a suitable cutting fluid with high smoke retardant properties.

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire.
Be sure to use all proper fire - prevention measures.
The conditions are for high speed / high precision machining centers.

CUTTING CONDITIONS

Milling | Endmills | Cutting conditions

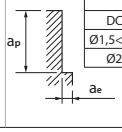
AE-MS-H

Square Type / Radius Type

Side Milling

	ToolSteel • Hardened Steel • Prehardened Steel		Hardened Steel							
	SKD11 • SKD61 • NAK80		~ 55HRC		~ 62HRC		~ 66HRC		~ 70HRC	
Vc (m/min)	110 ~ 130		80 ~ 100		60 ~ 80		50 ~ 70		40 ~ 60	
Mil.Dia (mm)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
1	38.220	1.530	28.660	1.150	22.290	620	19.110	460	15.920	330
1,5	25.480	1.530	19.110	1.150	14.860	620	12.740	460	10.620	330
2	19.110	1.530	14.330	1.150	11.150	620	9.550	460	7.960	330
2,5	15.290	1.530	11.460	1.150	8.920	620	7.640	460	6.370	330
3	12.740	1.530	9.550	1.150	7.430	620	6.370	460	5.310	340
3,5	10.910	1.220	8.190	890	6.370	540	5.460	400	4.550	250
4	9.550	1.530	7.170	1.150	5.570	620	4.780	460	3.980	340
4,5	8.490	1.220	6.370	890	4.950	530	4.240	400	3.540	250
5	7.640	1.530	5.730	1.150	4.460	620	3.820	460	3.180	360
5,5	6.940	1.220	5.210	890	4.050	530	3.470	400	2.890	250
6	6.370	2.290	4.780	1.720	3.720	940	3.180	690	2.650	510
8	4.780	2.290	3.580	1.720	2.790	940	2.390	690	1.990	510
10	3.820	2.290	2.870	1.720	2.230	940	1.910	690	1.590	510
12	3.180	2.290	2.390	1.720	1.860	950	1.590	690	1.330	510
16	2.390	1.840	1.790	1.340	1.390	800	1.190	590	990	380
20	1.910	1.830	1.430	1.340	1.110	800	950	590	800	380

Depth of cut



	ap	ae
DC≤Ø1,5	1,5D	0,02D
Ø1,5<DC≤Ø2,5	1,5D	0,05D
Ø2,5<DC	1,5D	0,1D

ae Max = 1mm

ap	ae
1,5D	0,05D

ae Max = 1mm

ap	ae
1,5D	0,03D

ae Max = 0,5mm

ap	ae
1D	0,02D

ae Max = 0,5mm

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.

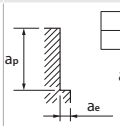
AE-MS-H

Square Type / Radius Type

High-Speed Side Milling

	ToolSteel • Hardened Steel • Prehardened Steel		Hardened Steel							
	SKD11 • SKD61 • NAK80		~ 55HRC		~ 62HRC		~ 66HRC		~ 70HRC	
Vc (m/min)	290 ~ 310		240 ~ 260		150 ~ 170		130 ~ 150		90 ~ 110	
Mil.Dia (mm)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
1	50.000	2.000	50.000	2.000	50.000	1.600	44.590	1.250	31.850	700
1,5	50.000	3.000	50.000	3.000	33.970	1.630	29.720	1.250	21.230	760
2	47.770	3.820	39.810	3.180	25.480	1.630	22.290	1.250	15.920	800
2,5	38.220	3.820	31.850	3.190	20.380	1.630	17.830	1.250	12.740	800
3	31.850	3.820	26.540	3.180	16.990	1.630	14.860	1.250	10.620	810
3,5	27.280	3.440	22.740	2.870	14.550	1.530	12.730	1.180	9.090	730
4	23.890	3.820	19.900	3.180	12.740	1.630	11.150	1.250	7.960	810
4,5	21.220	3.440	17.680	2.860	11.320	1.530	9.900	1.180	7.070	730
5	19.110	3.820	15.920	3.180	10.190	1.630	8.920	1.250	6.370	810
5,5	17.360	3.440	14.470	2.870	9.260	1.530	8.100	1.180	5.790	730
6	15.920	5.730	13.270	4.780	8.490	2.450	7.430	1.870	5.310	1.210
8	11.940	5.730	9.950	4.780	6.370	2.450	5.570	1.870	3.980	1.210
10	9.550	5.730	7.960	4.780	5.100	2.450	4.460	1.870	3.180	1.210
12	7.960	5.730	6.630	4.770	4.250	2.450	3.720	1.900	2.650	1.210
16	5.970	5.160	4.970	4.290	3.180	2.290	2.790	1.770	1.990	1.090
20	4.770	5.150	3.980	4.300	2.550	2.300	2.230	1.770	1.590	1.090

Depth of cut



ap	ae
1D	0,05D

ae Max = 0,5mm

ap	ae
1D	0,03D

ae Max = 0,5mm

ap	ae
1D	0,02D

ae Max = 0,2mm

ap	ae
1D	0,01D

ae Max = 0,2mm

1. Tools can cause sparks. Do not use flammable fluids.
2. Use an air blow or a suitable cutting fluid with high smoke retardant properties.

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire - prevention measures.
The conditions are for high speed / high precision machining centers.

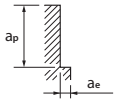
AE-ML-H

Square Type

Side Milling

	Hardened Steel • Prehardened Steel		Hardened Steel							
	SCM • SKD61 • NAK80		~ 55HRC		~ 62HRC		~ 66HRC		~ 70HRC	
Vc (m/min)	60		45		30		20		15	
Mil.Dia (mm)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
3	6.370	650	4.780	370	3.180	170	2.120	100	1.590	60
4	4.780	650	3.580	370	2.390	170	1.590	100	1.190	60
5	3.820	650	2.870	370	1.910	170	1.270	100	960	60
6	3.180	970	2.390	560	1.590	260	1.060	150	800	90
8	2.390	970	1.790	560	1.190	260	800	150	600	90
10	1.910	970	1.430	560	960	260	640	150	480	90
12	1.590	970	1.190	560	800	260	530	150	400	90
16	1.190	970	900	560	600	260	400	150	300	90
20	960	970	720	560	480	260	320	150	240	90

Depth of cut



ap	ae
3D	0,01D

ae Max = 0,2mm

ap	ae
3D	0,005D

ae Max = 0,1mm

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.

AE-BM-H

Roughing

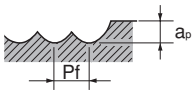
The machining path is on condition of contouring line operation.

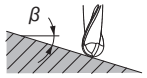
	ToolSteel • Hardened Steel • Prehardened Steel SKD11 • SKD61 • NAK80		Hardened Steel							
R	~45HRC		~ 55HRC		~ 62HRC		~ 66HRC		~ 70HRC	
	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
R1	20.700	3.310	18.300	1.830	15.900	1.590	14.300	1.140	9.600	770
R1,5	13.800	2.760	12.200	1.710	10.600	1.480	9.600	1.150	6.400	770
R2	10.400	2.500	9.200	1.660	8.000	1.440	7.200	1.150	4.800	770
R2,5	8.300	2.660	7.300	1.900	6.400	1.660	5.700	1.370	3.800	910
R3	6.900	2.760	6.100	1.950	5.300	1.700	4.800	1.340	3.200	900
R4	5.200	2.500	4.600	1.840	4.000	1.600	3.600	1.300	2.400	860
R5	4.500	2.340	4.000	1.760	3.500	1.540	3.200	1.280	2.200	850
R6	4.000	2.240	3.600	1.730	3.200	1.540	2.900	1.160	2.100	840
Depth of cut										

	ap	Pf
RE<R3	0,1D	0,2D
R3≤RE	0,15D	0,2D

	ap	Pf
RE<R3	0,07D	0,15D
R3≤RE	0,12D	0,15D

ap	Pf
0,05D	0,15D





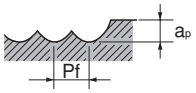
1. Use a rigid and precise machine and holder.
2. We suggest using air blow or MQL (mist).
3. These milling conditions are for an end mill where the tool extension length is 4 times the diameter of the end mill. When length of the tool extension from the machine is long, reduce the speed and feed and milling depth.
4. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
5. When the radius of curvature is less than 1.5 times the tool diameter, please reduce the speed to 50-80%, the feed rate to 50-80%, and the pick feed to 20-60% of the above shown cutting conditions.
6. When the machining incline angle (β) is more than 15°, please reduce the speed to 40-60%, the feed 30-50%, and the axial cutting depth to 30-60% of the above shown cutting conditions.
7. If the cutting depth is small, it is possible to further increase the speed and feed.

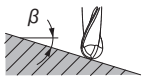
AE-BM-H

Finishing

The machining path is on condition of contouring line operation.

	ToolSteel • Hardened Steel • Prehardened Steel SKD11 • SKD61 • NAK80		Hardened Steel							
R	~45HRC		~ 55HRC		~ 62HRC		~ 66HRC		~ 70HRC	
	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
R1	27.100	4.340	24.700	2.470	22.300	1.780	18.300	1.460	13.500	1.080
R1,5	18.000	3.600	16.500	2.310	14.900	1.780	12.200	1.460	9.000	1.080
R2	13.500	3.240	12.300	2.210	11.100	1.780	9.200	1.470	6.800	1.090
R2,5	10.800	3.460	9.900	2.570	8.900	2.140	7.300	1.750	5.400	1.300
R3	9.000	3.600	8.200	2.620	7.400	2.070	6.100	1.710	4.500	1.260
R4	6.800	3.260	6.200	2.480	5.600	1.790	4.600	1.470	3.400	1.090
R5	5.700	2.960	5.300	2.330	4.800	1.730	4.000	1.440	3.000	1.080
R6	5.000	2.800	4.600	2.210	4.200	1.680	3.500	1.400	2.800	1.120
Depth of cut										





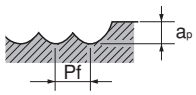
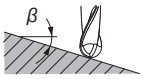
ap	Pf
0,02D	0,05D



AE-BM-H

High Speed Roughing

The machining path is on condition of contouring line operation.

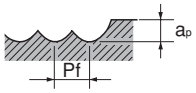
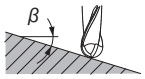
	ToolSteel • Hardened Steel • Prehardened Steel SKD11 • SKD61 • NAK80		Hardened Steel							
R	~45HRC		~ 55HRC		~ 62HRC		~ 66HRC		~ 70HRC	
	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
R1	37.300	5.970	33.000	3.300	28.700	2.870	25.800	2.060	17.200	1.380
R1,5	24.800	4.960	22.000	3.080	19.100	2.670	17.200	2.060	11.500	1.380
R2	20.700	4.970	18.300	3.290	15.900	2.860	14.300	2.290	9.600	1.540
R2,5	16.600	5.310	14.600	3.800	12.700	3.300	11.500	2.760	7.600	1.820
R3	13.800	5.520	12.200	3.900	10.600	3.390	9.600	2.690	6.400	1.790
R4	10.400	4.990	9.200	3.680	8.000	3.200	7.200	2.590	4.800	1.730
R5	8.900	4.630	8.000	3.520	7.000	3.080	6.400	2.560	4.500	1.800
R6	8.000	4.480	7.200	3.460	6.400	3.070	5.800	2.320	4.200	1.680
Depth of cut	ap: 0,1D, Pf: 0,2D		ap: 0,08D, Pf: 0,2D						ap: 0,05D, Pf: 0,1D	

1. Use a rigid and precise machine and holder.
2. We suggest using air blow or MQL (mist).
3. These milling conditions are for an end mill where the tool extension length is 4 times the diameter of the end mill. When length of the tool extension from the machine is long, reduce the speed and feed and milling depth.
4. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
5. When the radius of curvature is less than 1.5 times the tool diameter, please reduce the speed to 50-80%, the feed rate to 50-80%, and the pick feed to 20-60% of the above shown cutting conditions.
6. When the machining incline angle (β) is more than 15°, please reduce the speed to 40-60%, the feed 30-50%, and the axial cutting depth to 30-60% of the above shown cutting conditions.
7. If the cutting depth is small, it is possible to further increase the speed and feed.

AE-BM-H

High Speed Finishing

The machining path is on condition of contouring line operation.

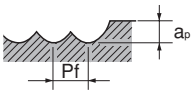
	ToolSteel • Hardened Steel • Prehardened Steel SKD11 • SKD61 • NAK80		Hardened Steel							
R	~45HRC		~ 55HRC		~ 62HRC		~ 66HRC		~ 70HRC	
	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
R1	40.610	6.500	37.020	3.700	33.440	2.680	27.470	2.200	20.300	1.620
R1,5	27.070	5.410	24.680	3.460	22.290	2.670	18.310	2.200	13.540	1.620
R2	24.360	5.850	22.210	4.000	20.060	3.210	16.480	2.640	12.180	1.950
R2,5	19.490	6.240	17.770	4.620	16.050	3.850	13.180	3.160	9.750	2.340
R3	16.240	6.500	14.810	4.740	13.380	3.750	10.990	3.080	8.120	2.270
R4	12.180	5.850	11.110	4.440	10.030	3.210	8.240	2.640	6.090	1.950
R5	10.320	5.370	9.460	4.160	8.600	3.100	7.170	2.580	5.450	1.960
R6	9.080	5.080	8.360	4.010	7.640	3.060	6.210	2.480	5.020	2.010
Depth of cut							ap: 0,02D, Pf: 0,05D			

1. Use a rigid and precise machine and holder.
2. We suggest using air blow or MQL (mist).
3. These milling conditions are for an end mill where the tool extension length is 4 times the diameter of the end mill. When length of the tool extension from the machine is long, reduce the speed and feed and milling depth.
4. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
5. When the radius of curvature is less than 1.5 times the tool diameter, please reduce the speed to 50-80%, the feed rate to 50-80%, and the pick feed to 20-60% of the above shown cutting conditions.
6. When the machining incline angle (β) is more than 15°, please reduce the speed to 40-60%, the feed 30-50%, and the axial cutting depth to 30-60% of the above shown cutting conditions.
7. If the cutting depth is small, it is possible to further increase the speed and feed.

AE-BD-H

Finishing

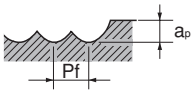
The machining path is on condition of contouring line operation.

	ToolSteel • Hardened Steel • Prehardened Steel SKD11 • SKD61 • NAK80		Hardened Steel							
R	~45HRC		~ 55HRC		~ 62HRC		~ 66HRC		~ 70HRC	
	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
R0,5	38.400	2.350	38.400	2.350	38.400	2.000	38.400	1.600	38.400	1.450
R0,75	38.400	3.050	38.400	3.050	38.400	2.500	31.800	1.900	25.200	1.450
R1	38.400	3.600	38.400	3.550	28.800	2.200	24.000	1.750	19.200	1.250
R1,5	31.800	4.000	25.200	3.200	19.200	2.000	16.200	1.600	12.600	1.200
R2	24.000	3.650	19.200	2.950	14.400	1.900	11.900	1.500	9.500	1.150
R2,5	19.200	3.500	15.000	2.650	11.500	1.700	9.500	1.350	7.600	1.000
R3	16.200	3.350	12.600	2.300	9.500	1.550	8.000	1.250	6.400	955
R4	11.900	2.850	9.500	2.050	7.100	1.350	5.900	1.050	4.800	830
R5	9.500	2.550	7.600	1.800	5.800	1.150	4.800	875	3.800	700
R6	8.000	2.400	6.400	1.650	4.800	955	4.000	795	3.200	635
Depth of cut			ap: 0,05D Pf: 0,1D		ap: 0,03D Pf: 0,1D		ap: 0,02D Pf: 0,05D			

AE-BD-H

High speed Finishing

The machining path is on condition of contouring line operation.

	ToolSteel • Hardened Steel • Prehardened Steel SKD11 • SKD61 • NAK80		Hardened Steel							
R	~45HRC		~ 55HRC		~ 62HRC		~ 66HRC		~ 70HRC	
	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
R0,5	50.000	3.700	50.000	3.700	50.000	3.100	50.000	2.600	50.000	2.400
R0,75	50.000	4.800	50.000	4.800	50.000	3.900	50.000	3.050	38.400	2.300
R1	50.000	5.600	50.000	5.350	48.000	3.650	38.400	2.800	28.800	2.100
R1,5	49.800	6.200	38.400	4.800	31.800	3.350	25.200	2.550	19.200	1.900
R2	37.200	5.700	28.800	4.400	24.000	3.200	19.200	2.400	14.400	1.800
R2,5	30.000	5.450	22.800	4.000	19.200	2.850	15.600	2.150	11.500	1.600
R3	24.600	5.200	19.200	3.450	16.200	2.550	12.600	2.050	9.500	1.550
R4	18.600	4.450	14.400	3.050	11.900	2.250	9.500	1.800	7.100	1.350
R5	15.000	3.950	11.500	2.650	9.500	1.900	7.600	1.550	5.800	1.150
R6	12.600	3.700	9.500	2.500	8.000	1.600	6.400	1.350	4.800	995
Depth of cut			ap: 0,02D Pf: 0,05D				ap: 0,01D Pf: 0,05D			

1. Use a rigid and precise machine and holder.
2. We suggest using air blow or MQL (mist).
3. These milling conditions are for an end mill where the tool extension length is 4 times the diameter of the end mill. When length of the tool extension from the machine is long, reduce the speed and feed and milling depth.
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6. When the machining incline angle (β) is more than 15°, please reduce the speed to 40-60%, the feed 30-50%, and the axial cutting depth to 30-60% of the above shown cutting conditions.
7. If the cutting depth is small, it is possible to further increase the speed and feed.

AE-LNBD-H

The machining path is on condition of contouring line operation.

		ToolSteel • Hardened Steel • Prehardened Steel SKD11 • SKD61 • NAK80				Hardened Steel															
RE	LU	~45HRC				~ 55HRC				~ 62HRC				~ 66HRC				~ 70HRC			
	(mm)	S (min^{-1})	F (mm/min)	ap	Pf	S (min^{-1})	F (mm/min)	ap	Pf	S (min^{-1})	F (mm/min)	ap	Pf	S (min^{-1})	F (mm/min)	ap	Pf	S (min^{-1})	F (mm/min)	ap	Pf
R0,05	0,2	50.000	80	0,003	0,003	50.000	70	0,003	0,003	50.000	70	0,003	0,003	50.000	60	0,003	0,003	50.000	50	0,003	0,003
R0,05	0,3	50.000	70	0,003	0,003	50.000	60	0,003	0,003	50.000	60	0,003	0,003	50.000	50	0,003	0,003	50.000	40	0,003	0,003
R0,05	0,5	50.000	50	0,003	0,003	50.000	40	0,003	0,003	50.000	40	0,003	0,003	50.000	30	0,003	0,003	50.000	20	0,003	0,003
R0,1	0,3	50.000	400	0,005	0,005	50.000	280	0,005	0,005	50.000	220	0,004	0,005	50.000	190	0,004	0,005	50.000	140	0,004	0,005
R0,1	0,5	50.000	380	0,005	0,005	50.000	260	0,005	0,005	50.000	200	0,004	0,005	50.000	170	0,004	0,005	50.000	130	0,004	0,005
R0,1	0,75	50.000	340	0,005	0,005	50.000	230	0,005	0,005	50.000	180	0,004	0,005	50.000	150	0,004	0,005	50.000	110	0,004	0,005
R0,1	1	50.000	340	0,005	0,005	50.000	230	0,005	0,005	50.000	180	0,004	0,005	50.000	150	0,004	0,005	45.000	110	0,004	0,005
R0,1	1,25	50.000	300	0,005	0,005	50.000	210	0,005	0,005	50.000	150	0,004	0,005	46.500	130	0,004	0,005	37.200	100	0,004	0,005
R0,1	1,5	50.000	280	0,005	0,005	50.000	190	0,005	0,005	49.200	130	0,004	0,005	44.300	110	0,004	0,005	35.500	80	0,004	0,005
R0,1	1,75	50.000	240	0,005	0,005	50.000	170	0,005	0,005	45.600	120	0,004	0,005	41.100	100	0,004	0,005	32.900	80	0,004	0,005
R0,1	2	45.600	210	0,005	0,005	44.500	140	0,005	0,005	39.600	100	0,004	0,005	35.700	90	0,004	0,005	28.600	70	0,004	0,005
R0,1	2,5	38.400	160	0,004	0,005	37.200	100	0,004	0,005	37.200	80	0,004	0,005	33.500	70	0,004	0,005	26.800	50	0,004	0,005
R0,1	3	38.400	140	0,004	0,005	37.200	90	0,004	0,005	37.200	70	0,004	0,005	33.500	60	0,004	0,005	26.800	50	0,004	0,005
R0,15	0,5	50.000	600	0,005	0,1	50.000	400	0,005	0,01	50.000	300	0,005	0,01	50.000	260	0,005	0,01	50.000	200	0,01	0,01
R0,15	0,6	50.000	570	0,005	0,1	50.000	390	0,005	0,01	50.000	300	0,005	0,01	50.000	260	0,005	0,01	50.000	200	0,01	0,01
R0,15	0,75	50.000	570	0,005	0,1	50.000	390	0,05	0,01	50.000	300	0,005	0,01	50.000	260	0,005	0,01	50.000	200	0,01	0,01
R0,15	1	50.000	570	0,005	0,01	50.000	390	0,005	0,01	50.000	300	0,005	0,01	50.000	260	0,005	0,01	50.000	200	0,01	0,01
R0,15	1,25	50.000	570	0,005	0,01	50.000	380	0,005	0,01	50.000	300	0,005	0,01	50.000	260	0,005	0,01	50.000	200	0,01	0,01
R0,15	1,5	50.000	570	0,005	0,01	50.000	370	0,005	0,01	50.000	290	0,005	0,01	50.000	250	0,005	0,01	46.500	190	0,01	0,01
R0,15	1,75	50.000	480	0,005	0,01	50.000	310	0,005	0,01	50.000	220	0,005	0,01	46.500	190	0,005	0,01	37.200	140	0,01	0,01
R0,15	2	50.000	450	0,005	0,005	50.000	290	0,005	0,005	49.200	210	0,004	0,005	44.300	180	0,004	0,005	35.500	140	0,004	0,005
R0,15	2,25	50.000	380	0,005	0,005	50.000	250	0,005	0,005	49.200	180	0,004	0,005	44.300	150	0,004	0,005	35.500	110	0,004	0,005
R0,15	2,5	48.000	280	0,005	0,005	48.000	190	0,005	0,005	43.200	130	0,004	0,005	38.900	110	0,004	0,005	31.200	80	0,004	0,005
R0,15	3	45.600	230	0,005	0,005	44.400	150	0,005	0,005	39.600	100	0,004	0,005	35.700	90	0,004	0,005	28.600	70	0,004	0,005
R0,15	3,5	40.800	190	0,004	0,005	39.600	120	0,004	0,005	39.600	95	0,004	0,005	35.700	80	0,004	0,005	28.600	60	0,004	0,005
R0,15	4	38.400	140	0,004	0,005	37.200	90	0,004	0,005	37.200	70	0,004	0,005	33.500	60	0,004	0,005	26.800	50	0,004	0,005
R0,15	4,5	38.400	120	0,004	0,005	37.200	80	0,004	0,005	37.200	60	0,004	0,005	33.500	50	0,004	0,005	26.800	40	0,004	0,005
R0,15	5	34.800	95	0,004	0,005	33.600	60	0,004	0,005	33.600	50	0,004	0,005	30.300	40	0,004	0,005	24.200	30	0,004	0,005
R0,2	0,5	50.000	900	0,01	0,02	50.000	630	0,01	0,02	50.000	500	0,008	0,015	50.000	430	0,008	0,015	50.000	320	0,008	0,015
R0,2	0,75	50.000	850	0,01	0,02	50.000	590	0,01	0,02	50.000	470	0,008	0,015	50.000	400	0,008	0,015	50.000	300	0,008	0,015
R0,2	0,8	50.000	850	0,01	0,02	50.000	590	0,01	0,02	50.000	470	0,008	0,015	50.000	400	0,008	0,015	50.000	300	0,008	0,015
R0,2	1	50.000	850	0,01	0,02	50.000	550	0,01	0,02	50.000	440	0,008	0,015	50.000	370	0,008	0,015	50.000	280	0,008	0,015
R0,2	1,5	50.000	760	0,01	0,02	50.000	520	0,01	0,02	50.000	410	0,008	0,015	50.000	350	0,008	0,015	46.500	260	0,008	0,015
R0,2	2	50.000	660	0,01	0,02	50.000	460	0,01	0,02	50.000	330	0,008	0,015	48.600	280	0,008	0,015	38.900	210	0,008	0,015
R0,2	2,5	50.000	520	0,008	0,015	50.000	360	0,008	0,015	49.200	260	0,008	0,015	44.300	220	0,008	0,015	35.500	170	0,008	0,015
R0,2	3	50.000	470	0,005	0,01	50.000	320	0,005	0,01	45.600	220	0,005	0,01	41.100	190	0,005	0,01	32.900	140	0,005	0,01
R0,2	3,5	48.000	400	0,005	0,01	48.000	280	0,005	0,01	43.200	200	0,005	0,01	38.900	170	0,005	0,01	31.200	130	0,005	0,01
R0,2	4	43.200	350	0,005	0,005	42.000	230	0,005	0,005	37.200	160	0,005	0,005	33.500	140	0,005	0,005	26.800	110	0,005	0,005
R0,2	4,5	38.400	270	0,004	0,005	37.200	180	0,004	0,005	33.600	130	0,004	0,005	30.300	110	0,004	0,005	24.200	80	0,004	0,005
R0,2	5	38.400	260	0,004	0,005	37.200	170	0,004	0,005	33.600	120	0,004	0,005	30.300	100	0,004	0,005	24.200	80	0,004	0,005
R0,2	5,5	36.000	210	0,004	0,005	34.800	140	0,004	0,005	31.200	100	0,004	0,005	28.100	90	0,004	0,005	22.500	70	0,004	0,005
R0,2	6	36.000	190	0,004	0,005	34.800	120	0,004	0,005	31.200	100	0,004	0,005	28.100	90	0,004	0,005	22.500	70	0,004	0,005
R0,25	0,75	50.000	1.100	0,015	0,03	50.000	750	0,015	0,03	50.000	590	0,01	0,02	50.000	500	0,01	0,02	50.000	380	0,01	0,02
R0,25	1	50.000	1.050	0,015	0,03	50.000	730	0,015	0,03	50.000	580	0,01	0,02	50.000	490	0,01	0,02	50.000	370	0,01	0,02
R0,25	1,5	50.000	1.050	0,015	0,03	50.000	700	0,015	0,03	50.000	560	0,01	0,02	50.000	480	0,01	0,02	48.000	360	0,01	0,02
R0,25	2	50.000	950	0,015	0,03	50.000	650	0,015	0,03	50.000	520	0,01	0,02	48.600	440	0,01	0,02	38.900	330	0,01	0,02
R0,25	2,5	50.000	950	0,015	0,03	50.000	600	0,015	0,03	50.000	430	0,01	0,02	46.500	370	0,01	0,02	37.200	280	0,01	0,02
R0,25	3	50.000	850	0,01	0,02	50.000	550	0,01	0,02	48.000	390	0,01	0,02	43.200	330	0,01	0,02	34.600	250	0,01	0,02
R0,25	3,5	50.000	650	,01	0,02	50.000	450	0,01	0,02	45.600	320	0,01	0,02	41.100	270	0,01	0,02	32.900	200	0,01	0,02
R0,25	4	50.000	570	0,01	0,01	50.000	390	0,01	0,01	40.800	270	0,01	0,01	36.800	230	0,01	0,01	29.400	170	0,01	0,01
R0,25	4,5	45.600	470	0,01	0,01	45.600	320	0,01	0,01	31.200	220	0,01	0,01	28.100	190	0,01	0,01	22.500	140	0,01	0,01
R0,25	5	36.000	380	0,005	0,01	34.800	250	0,005	0,01	28.800	170	0,005	0,01	26.000	140	0,005	0,01	20.800	110	0,005	0,01
R0,25	5,5	33.600	280	0,004	0,005	32.400	180	0,004	0,005	26.400	120	0,004	0,005	23.800	100	0,004	0,005	19.100	80	0,004	0,005
R0,25	6	31.200	230	0,004	0,005	30.000	150	0,004	0,005	24.000	100	0,004	0,005	21.600	90	0,004	0,005	17.300	70	0,004	0,005
R0,25	7	28.800	190	0,004	0,005	27.600	130	0,004	0,005	24.000	100	0,004	0,005	21.600	90	0,004	0,005	17.300	70	0,004	0,005
R0,25	8	26.400	150	0,004	0,005	25.200	110	0,004	0,005	24.000	100	0,004	0,005	21.600	90	0,004	0,005	17.300	70	0,004	0,005
R0,25	9	24.000	110	0,004	0,005	25.200	100	0,004	0,005	24.000	90	0,004	0,005	21.600	80	0,004	0,005	17.300	60	0,004	0,005
R0,25	10	24.000	95	0,004	0,005	25.200	100	0,004	0,005	24.000	90	0,004	0,005	21.600	80	0,004	0,005	17.300	60	0,004	0,005
R0,3	0,75	50.000	1.250	0,03	0,05	50.000	880	0,03	0,05	50.000	700	0,01	0,02	50.000	600	0,01	0,02	50.000	450	0,01	0,02
R0,3	1	50.000	1.200	0,03	0,05	50.000	840	0,03	0,05	50.000	670	0,01	0,02	50.000	570	0,01	0,02	50.000	430	0,01	0,02
R0,3	1,2	50.000	1.200	0,03	0,05	50.000	840	0,03	0,05	50.000	670	0,01	0,02	50.000	570	0,01	0,02	50.000	430	0,01	0,02
R0,3	1,5	50.000	1.200	0,03	0,05	50.000	830	0,03	0,05	50.000	660	0,01	0,02	50.000	560	0,01	0,02	50.000	420	0,01	0,02
R0,3	2	50.000	1.200	0,03	0,05	50.000	820	0,03	0,05	50.000	650	0,01	0,02	50.000	550	0,01	0,02	50.000	410	0,01	0,02
R0,3	2,5	50.000	1.100	0,03	0,05	50.000	770	0,03	0,05	50.000	610	0,01	0,02	50.000	520	0,01	0,02	48.000	390	0,01	0,02
R0,3	3	50.000	1.100	0,02	0,03	50.000	750	0,02	0,03	50.000	540	0,01	0,02	48.600	460	0,01	0,02	38.900	350	0,01	0,02
R0,3	3,5	50.000	950	0,02	0,03	50.000	660	0,02	0,03	49.200	480	0,01	0,02	44.300	410	0,01	0,02	35.500	310	0,01	0,02
R0,3	4	48.000	850	0,01	0,02	48.000	590	0,01	0,02	43.200	420	0,01	0,02	38.900	360	0,01	0,02	31.200	270	0,01	0,02
R0,3	4,5	40.800	740	0,01	0,02	40.800	510	0,01	0,02	37.200	370	0,01	0,02	33.500	310	0,01	0,02	26.800	230	0,01	0,02
R0,3	5	36.000	640	0,01	0,02	36.000	440	0,01	0,02	32.400	310	0,01	0,02	29.200	260	0,01	0,02	23.400	200	0,01	0,02
R0,3	5,5	33.600	610	0,01	0,02	33.600	420	0,01	0,02	30.000	300	0,01	0,02	27.000	260	0,01	0,02	21.600	200	0,01	0,02
R0,3	6	31.200	570	0,01	0,02	30.000	380	0,01	0,02	26.400	260	0,01	0,02	23.800	220	0,01	0,02	19.100	170	0,01	0,02
R0,3	6,5	28.800	520	0,01	0,01	27.600	340	0,01	0,01	24.000	230	0,01	0,01	21.600	200	0,01	0,01	17.300	150	0,01	0,01
R0,3	7	27.600	420	0,01	0,01	26.400	280	0,01	0,01	22.800	190	0,01	0,01	20.600	160	0,01	0,01	16.500	120	0,01	0,01
R0,3	7,5	27.600	380	0,01	0,01	26.400	250	0,01	0,01	22.800	170	0,01	0,01	20.600	140	0,01	0,01	16.500	110	0,01	0,01
R0,3	8	24.000	300	0,005	0,01	22.800	200	0,005	0,01	20.400	140	0,005	0,01	18.400	120	0,005	0,01	14.700	90	0,005	0,01
R0,3	8,5	24.000	280	0,005	0,01	22.800	180	0,005	0,01	20.400	130	0,005	0,01	18.400	110	0,005	0,01	14.700	80	0,005	0,01

AE-LNBD-H

The machining path is on condition of contouring line operation.

		ToolSteel • Hardened Steel • Prehardened Steel SKD11 • SKD61 • NAK80				Hardened Steel															
RE	LU	~45HRC				~ 55HRC				~ 62HRC				~ 66HRC				~ 70HRC			
	(mm)	S (min⁻¹)	F (mm/min)	ap	Pf	S (min⁻¹)	F (mm/min)	ap	Pf	S (min⁻¹)	F (mm/min)	ap	Pf	S (min⁻¹)	F (mm/min)	ap	Pf	S (min⁻¹)	F (mm/min)	ap	Pf
R0,3	9	24.000	260	0,005	0,01	22.800	170	0,005	0,01	20.400	120	0,005	0,01	18.400	100	0,005	0,01	14.700	80	0,005	0,01
R0,3	9,5	24.000	220	0,005	0,008	22.800	140	0,005	0,008	20.400	110	0,005	0,008	18.400	90	0,005	0,008	14.700	70	0,005	0,008
R0,3	10	24.000	190	0,005	0,008	22.800	120	0,005	0,008	20.400	100	0,005	0,008	18.400	90	0,005	0,008	14.700	70	0,005	0,008
R0,3	11	21.600	140	0,005	0,008	20.400	90	0,005	0,008	20.400	80	0,005	0,008	18.400	70	0,005	0,008	14.700	50	0,005	0,008
R0,3	12	21.600	110	0,005	0,005	20.400	80	0,005	0,005	20.400	70	0,004	0,005	18.400	60	0,004	0,005	14.700	50	0,004	0,005
R0,4	1	50.000	2.200	0,04	0,08	50.000	1.800	0,04	0,08	50.000	1.400	0,04	0,08	50.000	1.190	0,04	0,08	50.000	890	0,04	0,08
R0,4	1,5	50.000	2.000	0,04	0,08	50.000	1.700	0,04	0,08	50.000	1.300	0,04	0,08	50.000	1.110	0,04	0,08	50.000	830	0,04	0,08
R0,4	2	50.000	1.900	0,04	0,08	50.000	1.600	0,04	0,08	50.000	1.200	0,015	0,03	50.000	1.020	0,015	0,03	50.000	770	0,015	0,03
R0,4	2,5	50.000	1.700	0,04	0,08	50.000	1.400	0,04	0,08	50.000	1.000	0,015	0,03	50.000	850	0,015	0,03	41.500	640	0,015	0,03
R0,4	3	50.000	1.500	0,04	0,08	50.000	1.100	0,04	0,08	50.000	820	0,015	0,03	48.600	700	0,015	0,03	38.900	530	0,015	0,03
R0,4	4	48.000	1.100	0,04	0,08	48.000	1.000	0,04	0,08	45.600	760	0,015	0,03	41.100	650	0,015	0,03	32.900	490	0,015	0,03
R0,4	5	40.800	900	0,03	0,05	40.800	800	0,03	0,05	37.200	580	0,015	0,03	33.500	490	0,015	0,03	26.800	370	0,015	0,03
R0,4	6	36.000	760	0,03	0,05	36.000	650	0,03	0,05	32.400	460	0,015	0,03	29.200	390	0,015	0,03	23.400	290	0,015	0,03
R0,4	7	30.000	570	0,01	0,02	30.000	450	0,01	0,02	26.400	310	0,01	0,02	23.800	260	0,01	0,02	19.100	200	0,01	0,02
R0,4	8	27.600	420	0,005	0,01	27.600	300	0,005	0,01	24.000	200	0,005	0,01	21.600	170	0,005	0,01	17.300	130	0,005	0,01
R0,4	9	25.200	360	0,005	0,009	24.000	250	0,005	0,009	22.200	190	0,005	0,009	20.000	160	0,005	0,009	16.000	120	0,005	0,009
R0,4	10	21.600	300	0,005	0,008	20.400	200	0,005	0,008	20.400	170	0,005	0,008	18.400	140	0,005	0,008	14.700	110	0,005	0,008
R0,4	12	20.400	230	0,005	0,005	19.200	160	0,005	0,005	19.200	110	0,005	0,005	17.300	90	0,005	0,005	13.900	70	0,005	0,005
R0,5	1,5	50.000	3.900	0,05	0,1	50.000	3.900	0,05	0,1	50.000	3.100	0,02	0,05	50.000	2.640	0,02	0,05	50.000	1.980	0,02	0,05
R0,5	2	50.000	3.700	0,05	0,1	50.000	3.700	0,05	0,1	50.000	3.000	0,02	0,05	50.000	2.550	0,02	0,05	50.000	1.910	0,02	0,05
R0,5	2,5	50.000	3.350	0,05	0,1	50.000	3.100	0,05	0,1	50.000	2.500	0,02	0,05	50.000	2.130	0,02	0,05	48.000	1.600	0,02	0,05
R0,5	3	50.000	3.000	0,05	0,1	50.000	2.400	0,05	0,1	50.000	1.900	0,02	0,05	48.600	1.620	0,02	0,05	38.900	1.220	0,02	0,05
R0,5	4	48.000	2.850	0,05	0,1	48.000	2.200	0,05	0,1	48.000	1.700	0,02	0,05	43.200	1.450	0,02	0,05	34.600	1.090	0,02	0,05
R0,5	5	43.200	2.100	0,05	0,1	43.200	1.600	0,05	0,1	43.200	1.200	0,02	0,05	38.900	1.020	0,02	0,05	31.200	770	0,02	0,05
R0,5	6	36.000	1.900	0,05	0,1	36.000	1.500	0,05	0,1	36.000	1.200	0,02	0,05	32.400	1.020	0,02	0,05	26.000	770	0,02	0,05
R0,5	7	32.400	1.600	0,05	0,1	32.400	1.300	0,05	0,1	32.400	1.000	0,02	0,05	29.200	850	0,02	0,05	23.400	640	0,02	0,05
R0,5	8	31.200	1.500	0,05	0,1	31.200	1.200	0,05	0,1	31.200	960	0,02	0,05	28.100	820	0,02	0,05	22.500	620	0,02	0,05
R0,5	9	28.800	1.100	0,03	0,05	28.800	880	0,03	0,05	28.800	700	0,02	0,05	26.000	600	0,02	0,05	20.800	450	0,02	0,05
R0,5	10	26.400	1.000	0,01	0,02	25.200	760	0,01	0,02	21.600	520	0,01	0,02	19.500	440	0,01	0,02	15.600	330	0,01	0,02
R0,5	12	24.000	760	0,01	0,01	22.800	570	0,01	0,01	20.400	400	0,01	0,01	18.400	340	0,01	0,01	14.700	260	0,01	0,01
R0,5	13	22.800	670	0,005	0,01	21.600	500	0,005	0,01	19.200	350	0,005	0,01	17.300	300	0,005	0,01	13.900	230	0,005	0,01
R0,5	14	21.600	570	0,005	0,01	20.400	430	0,005	0,01	18.000	300	0,005	0,01	16.200	260	0,005	0,01	13.000	200	0,005	0,01
R0,5	16	19.200	400	0,005	0,01	18.000	300	0,005	0,01	15.600	200	0,005	0,01	14.100	170	0,005	0,01	11.300	130	0,005	0,01
R0,5	18	16.800	300	0,005	0,005	15.600	220	0,005	0,005	14.400	160	0,004	0,005	13.000	140	0,004	0,005	10.400	110	0,004	0,005
R0,5	20	15.600	285	0,005	0,005	14.400	180	0,005	0,005	14.400	140	0,004	0,005	13.000	120	0,004	0,005	10.400	90	0,004	0,005
R0,5	22	14.400	190	0,005	0,005	14.400	110	0,005	0,005	14.400	100	0,004	0,005	13.000	90	0,004	0,005	10.400	70	0,004	0,005
R0,6	2	50.000	3.800	0,06	0,12	50.000	3.800	0,06	0,12	50.000	3.200	0,02	0,05	50.000	2.720	0,02	0,05	50.000	2.040	0,02	0,05
R0,6	2,4	50.000	3.600	0,06	0,12	50.000	3.600	0,06	0,12	50.000	3.000	0,02	0,05	50.000	2.550	0,02	0,05	50.000	1.910	0,02	0,05
R0,6	2,5	50.000	3.600	0,06	0,12	50.000	3.600	0,06	0,12	50.000	3.000	0,02	0,05	50.000	2.550	0,02	0,05	48.000	1.910	0,02	0,05
R0,6	3	50.000	3.200	0,06	0,12	50.000	3.200	0,06	0,12	50.000	2.600	0,02	0,05	46.500	2.210	0,02	0,05	37.200	1.660	0,02	0,05
R0,6	4	48.000	2.850	0,06	0,12	48.000	2.300	0,06	0,12	45.600	1.750	0,02	0,05	41.100	1.490	0,02	0,05	32.900	1.120	0,02	0,05
R0,6	6	38.400	2.000	0,06	0,12	38.400	1.600	0,06	0,12	36.000	1.200	0,02	0,05	32.400	1.020	0,02	0,05	26.000	770	0,02	0,05
R0,6	8	30.000	1.600	0,06	0,12	30.000	1.200	0,06	0,12	30.000	960	0,02	0,05	27.000	820	0,02	0,05	21.600	620	0,02	0,05
R0,6	10	24.000	1.100	0,05	0,1	21.600	800	0,05	0,1	19.200	560	0,02	0,05	17.300	480	0,02	0,05	13.900	360	0,02	0,05
R0,6	12	20.400	850	0,03	0,05	19.200	640	0,03	0,05	16.800	440	0,02	0,05	15.200	370	0,02	0,05	12.100	280	0,02	0,05
R0,6	14	19.200	610	0,03	0,05	18.000	450	0,03	0,05	15.600	310	0,02	0,05	14.100	260	0,02	0,05	11.300	200	0,02	0,05
R0,6	16	18.000	420	0,02	0,05	16.800	300	0,02	0,05	14.400	200	0,02	0,05	13.000	170	0,02	0,05	10.400	130	0,02	0,05
R0,6	18	18.000	330	0,005	0,005	16.800	200	0,005	0,005	14.400	130	0,004	0,005	13.000	110	0,004	0,005	10.400	80	0,004	0,005
R0,6	20	15.600	300	0,005	0,005	14.400	180	0,005	0,005	12.000	120	0,004	0,005	10.800	100	0,004	0,005	8.700	80	0,004	0,005
R0,75	2	50.000	5.200	0,075	0,15	50.000	5.200	0,075	0,15	50.000	4.200	0,03	0,06	50.000	3.570	0,03	0,06	50.000	2.680	0,03	0,06
R0,75	2,5	50.000	5.000	0,075	0,15	50.000	5.000	0,075	0,15	50.000	4.000	0,03	0,06	50.000	3.400	0,03	0,06	50.000	2.550	0,03	0,06
R0,75	3	50.000	4.800	0,075	0,15	50.000	4.800	0,075	0,15	50.000	3.900	0,03	0,06	50.000	3.320	0,03	0,06	48.000	2.490	0,03	0,06
R0,75	4	48.000	3.700	0,075	0,15	48.000	2.900	0,075	0,15	45.600	2.200	0,03	0,06	41.100	1.870	0,03	0,06	32.900	1.400	0,03	0,06
R0,75	5	42.000	3.200	0,075	0,15	42.000	2.600	0,075	0,15	39.600	1.900	0,03	0,06	35.700	1.620	0,03	0,06	28.600	1.220	0,03	0,06
R0,75	6	36.000	2.700	0,075	0,15	36.000	2.200	0,075	0,15	32.400	1.500	0,03	0,06	29.200	1.280	0,03	0,06	23.400	960	0,03	0,06
R0,75	8	28.800	2.100	0,075	0,15	28.800	1.700	0,075	0,15	25.200	1.100	0,03	0,06	22.700	940	0,03	0,06	18.200	710	0,03	0,06
R0,75	10	28.800	1.900	0,075	0,15	28.800	1.500	0,075	0,15	25.200	1.000	0,03	0,06	22.700	850	0,03	0,06	18.200	640	0,03	0,06
R0,75	12	25.200	1.300	0,075	0,1	25.200	1.000	0,075	0,1	21.600	680	0,03	0,06	19.500	580	0,03	0,06	15.600	440	0,03	0,06
R0,75	14	20.400	1.100	0,05	0,1	20.400	900	0,05	0,1	18.000	630	0,03	0,06	16.200	540	0,03	0,06	13.000	410	0,03	0,06
R0,75	16	16.800	760	0,05	0,1	15.600	560	0,05	0,1	12.000	340	0,03	0,05	10.800	290	0,03	0,05	8.700	220	0,03	0,05
R0,75	18	15.600	470	0,03	0,05	14.400	350	0,03	0,05	12.000	230	0,03	0,05	10.800	200	0,03	0,05	8.700	150	0,03	0,05
R0,75	20	14.400	340	0,02	0,05	13.200	240	0,02	0,05	10.800	150	0,02	0,05	9.800	130	0,02	0,05	7.800	100	0,02	0,05
R0,75	22	14.400	300	0,02	0,05	13.200	220	0,02	0,05	10.800	140	0,02	0,05	9.800	120	0,02	0,05	7.800	90	0,02	0,05
R0,75	25	13.800	250	0,02	0,05	12.600	180	0,02	0,05	10.800	120	0,02	0,05	9.800	100	0,02	0,05	7.800	80	0,02	0,05
R0,75	30	13.200	190	0,005	0,01	12.000	120	0,005	0,01	10.800	90	0,005	0,01	9.800	80	0,005	0,01	7.800	60	0,01	0,01
R0,8	4	36.000	3.500	0,08	0,16	34.800	2.700	0,08	0,16	31.200	2.000	0,03	0,08	28.100	1.700	0,03	0,08	22.500	1.280	0,03	0,08
R0,8	8	28.800	2.800	0,08	0,16	27.600	2.100	0,08	0,16	24.000	1.400	0,03	0,08	21.600	1.190	0,03	0,08	17.300	890	0,03	0,08
R0,8	12	25.200	1.700	0,05	0,1	24.000	1.380	0,05	0,1	21.600	990	0,03	0,08	19.500	840	0,03	0,08	15.600	630	0,03	0,08
R0,8	16	16.800	760	0,05	0,1	15.600	600	0,05	0,1	13.200	400	0,03	0,08	11.900	340	0,03	0,08	9.600	260	0,03	0,08
R0,8	20	14.400	360	0,03	0,05	13.200	280	0,03	0,05	12.000	200	0,03	0,05	10.800	170	0,03	0,05	8.700	130	0,03	0,05
R1	2,5	50.000	6.400	0,1	0,2	50.000	6.000	0,1	0,2	50.000	4.400	0,05	0,1	50.000	3.740	0,05	0,1	43.200	2.810	0,05	0,1
R1	3	50.000	6.000	0,1	0,2	50.000	5.700	0,1	0,2	50.000	4.000	0,05	0,1	48.600	3.400	0,05	0,1	38.900	2.550	0,05	0,1
R1	4	50.000	5.600	0,1	0,2	50.000	5.300	0,1	0,2	48.000	3.600	0,05	0,1	43.200	3.060	0,05	0,1	34.600	2.300	0,05	0,1
R1	5	48.000	4.500	0,1	0,2	46.800	4.300	0,1	0,2	40.800	2.700	0,05	0,1	36.800	2.300	0,05	0,1	29.400	1.730	0,05	0,1
R1	6	43.200	2.800	0,1	0,2	42.000	2.700	0,1	0,2	36.000	1.800	0,05	0,1	32.400	1.530	0,05	0,1	26.000	1.150	0,05	0,1
R1	8	30.000	2.400	0,1	0,2	28.800	2.300	0,1	0,2	24.000	1.500	0,05	0,1	21.600	1.280	0,05	0,1	17.300	960	0,05	0,1

CUTTING CONDITIONS

AE-LNBD-H

The machining path is on condition of contouring line operation.

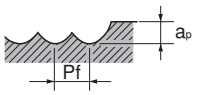
		ToolSteel • Hardened Steel • Prehardened Steel SKD11 • SKD61 • NAK80				Hardened Steel													
RE	LU	~45HRC				~ 55HRC				~ 62HRC				~ 66HRC				~ 70HRC			
	(mm)	S (min-1)	F (mm/min)	ap	Pf	S (min-1)	F (mm/min)	ap	Pf	S (min-1)	F (mm/min)	ap	Pf	S (min-1)	F (mm/min)	ap	Pf	S (min-1)	F (mm/min)	ap	Pf
R1	10	24.000	2.200	0,1	0,2	22.800	2.000	0,1	0,2	20.400	1.400	0,05	0,1	18.400	1.190	0,05	0,1	14.700	890	0,05	0,1
R1	12	19.200	1.900	0,1	0,2	18.000	1.700	0,1	0,2	15.600	1.100	0,05	0,1	14.100	940	0,05	0,1	11.300	710	0,05	0,1
R1	13	19.200	1.800	0,1	0,2	18.000	1.600	0,1	0,2	15.600	1.050	0,05	0,1	14.100	890	0,05	0,1	11.300	670	0,05	0,1
R1	14	18.000	1.700	0,1	0,2	16.800	1.500	0,1	0,2	14.400	1.000	0,05	0,1	13.000	850	0,05	0,1	10.400	640	0,05	0,1
R1	16	16.800	1.600	0,1	0,1	15.600	1.400	0,1	0,1	13.200	950	0,05	0,1	11.900	810	0,05	0,1	9.600	610	0,05	0,1
R1	18	15.600	1.500	0,1	0,1	14.400	1.200	0,1	0,1	12.000	800	0,05	0,1	10.800	680	0,05	0,1	8.700	510	0,05	0,1
R1	20	13.200	1.100	0,05	0,1	12.000	890	0,05	0,1	10.800	640	0,05	0,1	9.800	540	0,05	0,1	7.800	410	0,05	0,1
R1	22	10.800	950	0,05	0,1	10.800	860	0,05	0,1	9.000	570	0,05	0,1	8.100	480	0,05	0,1	6.500	360	0,05	0,1
R1	25	10.800	760	0,03	0,05	10.800	680	0,03	0,05	9.000	450	0,03	0,05	8.100	380	0,03	0,05	6.500	290	0,03	0,05
R1	30	10.800	470	0,02	0,05	10.800	360	0,02	0,05	9.000	240	0,02	0,05	8.100	200	0,02	0,05	6.500	150	0,02	0,05
R1	35	9.000	230	0,02	0,03	8.400	130	0,02	0,03	7.200	100	0,02	0,03	6.500	90	0,02	0,03	5.200	70	0,02	0,03
R1	40	7.200	140	0,02	0,03	7.200	100	0,02	0,03	7.200	90	0,02	0,03	6.500	80	0,02	0,03	5.200	60	0,02	0,03
R1,25	6	28.800	3.600	0,1	0,2	27.600	3.400	0,1	0,2	24.000	2.400	0,05	0,1	21.600	2.040	0,05	0,1	17.300	1.530	0,05	0,1
R1,25	8	26.400	3.350	0,1	0,2	25.200	3.150	0,1	0,2	21.600	2.150	0,05	0,1	19.500	1.830	0,05	0,1	15.600	1.370	0,05	0,1
R1,25	10	24.000	3.100	0,1	0,2	22.800	2.900	0,1	0,2	19.200	1.900	0,05	0,1	17.300	1.620	0,05	0,1	13.900	1.220	0,05	0,1
R1,25	15	20.400	2.600	0,1	0,2	19.200	2.400	0,1	0,2	16.800	1.600	0,05	0,1	15.200	1.360	0,05	0,1	12.100	1.020	0,05	0,1
R1,25	20	18.000	1.700	0,1	0,2	16.800	1.600	0,1	0,2	14.400	1.000	0,05	0,1	13.000	850	0,05	0,1	10.400	640	0,05	0,1
R1,25	25	13.200	950	0,03	0,05	12.000	830	0,03	0,05	10.800	590	0,03	0,05	9.800	500	0,03	0,05	7.800	380	0,03	0,05
R1,25	30	10.800	760	0,03	0,05	9.600	650	0,03	0,05	8.400	450	0,03	0,05	7.600	380	0,03	0,05	6.100	290	0,03	0,05
R1,25	35	9.000	470	0,02	0,03	8.400	430	0,02	0,03	7.200	290	0,02	0,03	6.500	250	0,02	0,03	5.200	190	0,02	0,03
R1,5	6	49.800	6.200	0,15	0,3	38.400	4.800	0,15	0,3	31.800	3.300	0,06	0,15	28.700	2.810	0,06	0,15	22.900	2.110	0,06	0,15
R1,5	8	36.000	4.200	0,15	0,3	30.000	3.500	0,15	0,3	26.400	2.400	0,06	0,15	23.800	2.040	0,06	0,15	19.100	1.530	0,06	0,15
R1,5	10	30.000	3.600	0,15	0,3	24.000	2.800	0,15	0,3	21.600	2.000	0,06	0,15	19.500	1.700	0,06	0,15	15.600	1.280	0,06	0,15
R1,5	12	24.000	2.800	0,15	0,3	21.600	2.500	0,15	0,3	19.200	1.700	0,06	0,15	17.300	1.450	0,06	0,15	13.900	1.090	0,06	0,15
R1,5	13	22.800	2.650	0,15	0,3	19.800	2.250	0,15	0,3	17.400	1.500	0,06	0,15	15.700	1.280	0,06	0,15	12.600	960	0,06	0,15
R1,5	14	21.600	2.500	0,15	0,3	18.000	2.000	0,15	0,3	15.600	1.300	0,06	0,15	14.100	1.110	0,06	0,15	11.300	830	0,06	0,15
R1,5	15	19.200	2.200	0,1	0,3	15.600	1.800	0,1	0,3	13.200	1.200	0,06	0,15	11.900	1.020	0,06	0,15	9.600	770	0,06	0,15
R1,5	16	19.200	1.900	0,1	0,2	15.600	1.500	0,1	0,2	13.200	1.100	0,06	0,15	11.900	940	0,06	0,15	9.600	710	0,06	0,15
R1,5	20	16.800	1.700	0,1	0,2	13.200	1.600	0,1	0,2	12.000	1.000	0,06	0,15	10.800	850	0,06	0,15	8.700	640	0,06	0,15
R1,5	25	14.400	1.100	0,05	0,1	10.800	820	0,05	0,1	9.600	580	0,05	0,1	8.700	490	0,05	0,1	7.000	370	0,05	0,1
R1,5	30	10.800	760	0,03	0,05	8.400	590	0,03	0,05	7.200	400	0,03	0,05	6.500	340	0,03	0,05	5.200	260	0,03	0,05
R1,5	35	9.000	570	0,02	0,05	7.200	460	0,02	0,05	6.000	300	0,02	0,05	5.400	260	0,02	0,05	4.400	200	0,02	0,05
R1,5	40	7.800	470	0,02	0,03	6.000	360	0,02	0,03	4.800	230	0,02	0,03	4.400	200	0,02	0,03	3.500	150	0,02	0,03
R1,75	10	24.000	3.100	0,1	0,3	19.200	2.200	0,1	0,3	16.800	1.500	0,07	0,15	15.200	1.280	0,07	0,15	12.100	960	0,07	0,15
R1,75	15	21.600	2.800	0,1	0,3	16.800	2.000	0,1	0,3	14.400	1.300	0,07	0,15	13.000	1.110	0,07	0,15	10.400	830	0,07	0,15
R1,75	16	20.400	2.700	0,1	0,3	15.600	1.900	0,1	0,2	13.200	1.250	0,07	0,15	11.900	1.060	0,07	0,15	9.600	800	0,07	0,15
R1,75	20	19.200	2.500	0,1	0,2	14.400	1.800	0,1	0,2	12.000	1.200	0,07	0,15	10.800	1.020	0,07	0,15	8.700	770	0,07	0,15
R1,75	25	14.400	1.900	0,1	0,1	10.800	1.300	0,1	0,1	9.600	920	0,07	0,15	8.700	780	0,07	0,15	7.000	590	0,07	0,15
R1,75	30	12.000	1.500	0,05	0,1	9.600	1.100	0,05	0,1	8.400	770	0,05	0,1	7.600	650	0,05	0,1	6.100	490	0,05	0,1
R1,75	35	10.800	950	0,05	0,05	8.400	700	0,05	0,05	6.000	400	0,05	0,05	5.400	340	0,05	0,05	4.400	260	0,05	0,05
R1,75	40	9.000	760	0,05	0,05	7.200	580	0,05	0,05	4.800	300	0,05	0,05	4.400	260	0,05	0,05	3.500	200	0,05	0,05
R1,75	45	7.800	570	0,03	0,03	6.000	420	0,03	0,03	4.800	260	0,03	0,03	4.400	220	0,03	0,03	3.500	170	0,03	0,03
R2	8	37.200	5.700	0,2	0,5	28.800	4.400	0,2	0,5	24.000	3.200	0,08	0,2	21.600	2.720	0,08	0,2	17.300	2.040	0,08	0,20
R2	10	30.000	4.200	0,2	0,5	24.000	3.300	0,2	0,5	21.600	2.300	0,08	0,2	19.500	1.960	0,08	0,2	15.600	1.470	0,08	0,20
R2	12	24.000	3.400	0,2	0,5	20.400	2.900	0,2	0,5	16.800	1.900	0,08	0,2	15.200	1.620	0,08	0,2	12.100	1.220	0,08	0,20
R2	13	24.000	3.400	0,2	0,5	19.800	2.800	0,2	0,5	15.600	1.750	0,08	0,2	14.100	1.490	0,08	0,2	11.300	1.120	0,08	0,20
R2	14	24.000	3.400	0,2	0,5	19.800	2.800	0,2	0,5	15.600	1.750	0,08	0,2	14.100	1.490	0,08	0,2	11.300	1.120	0,08	0,20
R2	15	24.000	3.400	0,2	0,5	19.200	2.700	0,2	0,5	14.400	1.600	0,08	0,2	13.000	1.360	0,08	0,2	10.400	1.020	0,08	0,20
R2	16	21.600	3.000	0,2	0,5	18.000	2.500	0,2	0,5	12.000	1.300	0,08	0,2	10.800	1.110	0,08	0,2	8.700	830	0,08	0,20
R2	20	19.200	2.600	0,2	0,4	16.800	2.300	0,2	0,4	9.600	1.000	0,08	0,2	8.700	850	0,08	0,2	7.000	640	0,08	0,20
R2	25	19.200	2.600	0,1	0,3	15.600	2.200	0,1	0,3	7.200	810	0,08	0,2	6.500	690	0,08	0,2	5.200	520	0,08	0,20
R2	30	16.800	2.200	0,1	0,2	14.400	1.900	0,1	0,2	6.000	630	0,08	0,2	5.400	540	0,08	0,2	4.400	410	0,08	0,20
R2	35	14.400	1.700	0,1	0,2	10.800	1.200	0,1	0,2	4.800	420	0,08	0,2	4.400	360	0,08	0,2	3.500	270	0,08	0,20
R2	40	10.800	1.200	0,05	0,1	9.600	1.000	0,05	0,1	4.800	400	0,05	0,1	4.400	340	0,05	0,1	3.500	260	0,05	0,1
R2	45	9.000	950	0,05	0,05	8.400	890	0,05	0,05	4.400	360	0,05	0,05	3.900	310	0,05	0,05	3.200	230	0,05	0,05
R2	50	7.800	660	0,02	0,05	7.200	600	0,02	0,05	4.400	280	0,02	0,05	3.900	240	0,02	0,05	3.200	180	0,02	0,05
R2,5	10	30.000	5.400	0,25	0,5	22.800	4.000	0,25	0,5	19.200	2.800	0,1	0,25	17.300	2.380	0,1	0,25	13.900	1.790	0,1	0,25
R2,5	15	24.000	3.900	0,25	0,5	20.400	3.300	0,25	0,5	15.600	2.000	0,1	0,25	14.100	1.700	0,1	0,25	11.300	1.280	0,1	0,25
R2,5	20	19.200	3.300	0,25	0,5	15.600	2.700	0,25	0,5	9.600	1.300	0,1	0,25	8.700	1.110	0,1	0,25	7.000	830	0,1	0,25
R2,5	25	18.000	3.000	0,2	0,3	14.400	2.400	0,2	0,3	7.200	960	0,1	0,25	6.500	820	0,1	0,25	5.200	620	0,1	0,25
R2,5	30	16.800	2.300	0,1	0,3	13.200	1.800	0,1	0,3	4.800	520	0,1	0,25	4.400	440	0,1	0,25	3.500	330	0,1	0,25
R2,5	35	14.400	1.500	0,1	0,3	12.000	1.100	0,1	0,3	3.900	280	0,1	0,25	3.500	240	0,1	0,25	2.800	180	0,1	0,25
R2,5	40	12.000	1.100	0,1	0,2	10.800	990	0,1	0,2	3.600	260	0,1	0,2	3.300	220	0,1	0,2	2.600	170	0,1	0,20
R2,5	45	10.800	850	0,1	0,1	9.600	660	0,1	0,1	3.600	200	0,1	0,1	3.300	170	0,1	0,1	2.600	130	0,1	0,1
R2,5	50	9.000	760	0,1	0,1	8.400	610	0,1	0,1	3.400	190	0,1	0,1	3.100	160	0,1	0,1	2.500	120	0,1	0,1

AE-LNBD-H

The machining path is on condition of contouring line operation.

		ToolSteel • Hardened Steel • Prehardened Steel SKD11 • SKD61 • NAK80				Hardened Steel													
RE	LU	~45HRC				~ 55HRC				~ 62HRC				~ 66HRC				~ 70HRC			
	(mm)	S (min-1)	F (mm/min)	ap	Pf	S (min-1)	F (mm/min)	ap	Pf	S (min-1)	F (mm/min)	ap	Pf	S (min-1)	F (mm/min)	ap	Pf	S (min-1)	F (mm/min)	ap	Pf
R3	10	26.400	5.600	0,3	0,5	21.600	3.800	0,3	0,5	18.600	2.800	0,1	0,2	16.800	2.380	0,1	0,2	13.400	1.790	0,1	0,20
R3	12	24.000	5.200	0,3	0,5	19.200	3.400	0,3	0,5	16.200	2.500	0,1	0,2	14.600	2.130	0,1	0,2	11.700	1.600	0,1	0,20
R3	15	22.200	4.800	0,3	0,5	17.400	3.250	0,3	0,5	14.400	1.850	0,1	0,2	13.000	1.570	0,1	0,2	10.400	1.180	0,1	0,20
R3	20	19.200	3.900	0,3	0,5	14.400	3.000	0,3	0,5	9.600	1.600	0,1	0,2	8.700	1.360	0,1	0,2	7.000	1.020	0,1	0,20
R3	25	14.400	3.000	0,3	0,5	12.000	2.500	0,3	0,5	7.200	1.200	0,1	0,2	6.500	1.020	0,1	0,2	5.200	770	0,1	0,20
R3	30	12.000	2.400	0,3	0,5	10.800	2.100	0,3	0,5	4.800	740	0,1	0,2	4.400	630	0,1	0,2	3.500	470	0,1	0,20
R3	35	10.800	2.100	0,2	0,4	10.800	2.000	0,2	0,4	4.200	620	0,1	0,2	3.800	530	0,1	0,2	3.100	400	0,1	0,20
R3	40	10.800	1.900	0,2	0,3	10.800	1.800	0,2	0,3	3.600	480	0,1	0,2	3.300	410	0,1	0,2	2.600	310	0,1	0,20
R3	45	9.600	1.700	0,2	0,3	9.600	1.600	0,2	0,3	3.400	440	0,1	0,2	3.100	370	0,1	0,2	2.500	280	0,1	0,20
R3	50	8.400	1.500	0,2	0,3	8.400	1.400	0,2	0,3	3.000	400	0,1	0,2	2.700	340	0,1	0,2	2.200	260	0,1	0,20
R3	60	7.200	1.250	0,2	0,3	7.200	1.150	0,2	0,3	2.800	350	0,1	0,2	2.500	300	0,1	0,2	2.000	230	0,1	0,20

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication / oil mist coolant) or air blow is recommended.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. The above cutting conditions are for contouring operation with low-load and stable condition. Refer to the table above to set the milling conditions in accordance with the actual situation.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with a diameter of θ 0.5 (R0.25) or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage. Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.



AE-CRE-H/AE-H-CRE-H

Frontal Milling

	ToolSteel • Hardened Steel • Prehardened Steel SKD11 • SKD61 • NAK80		Hardened Steel							
	~45HRC		~ 55HRC		~ 62HRC		~ 66HRC		~ 70HRC	
(m/min)	140~160		140~160		90~110		70~90		50~70	
DC x RE	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)
1 ×R0,2	48.000	7.250	48.000	6.800	32.000	2.900	25.500	1.650	19.500	950
2 ×R0,5	24.000	7.250	24.000	6.800	16.000	2.900	13.000	1.700	9.550	950
3 ×R0,75	16.000	8.600	16.000	8.050	10.700	3.450	8.450	1.950	6.350	1.100
4 ×R1	12.000	9.550	12.000	8.950	7.950	3.800	6.350	2.200	4.750	1.200
5 ×R1,2	9.550	9.500	9.550	8.950	6.350	3.800	5.050	2.200	3.800	1.200
6 ×R1,5	7.950	9.500	7.950	8.900	5.300	3.800	4.200	2.200	3.150	1.200
7 ×R1,5	6.800	8.550	6.800	8.000	4.500	3.400	3.600	1.950	2.700	1.100
8 ×R2	5.950	9.500	5.950	8.900	3.950	3.750	3.150	2.200	2.350	1.200
9 ×R2	5.300	8.550	5.300	8.000	3.500	3.400	2.800	1.950	2.100	1.100
10 ×R2	4.750	9.450	4.750	8.900	3.150	3.750	2.500	2.150	1.900	1.200
11 ×R2	4.300	8.500	4.300	7.950	2.850	3.350	2.300	1.950	1.700	1.100
12 ×R3	3.950	9.450	3.950	8.850	2.650	3.800	2.100	2.200	1.550	1.200
13 ×R3	3.650	8.500	3.650	8.000	2.400	3.350	1.950	1.950	1.450	1.100
Depth of cut	ap 0,1RE / ae 0,3D ap Max = 0,2mm		ap 0,1RE / ae 0,3D ap Max = 0,2mm		ap 0,05RE / ae 0,3D ap Max = 0,1mm					

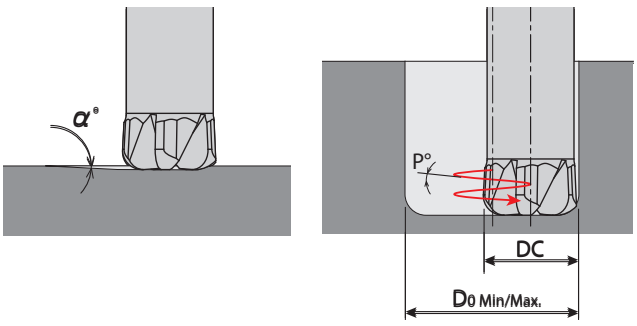
1. Use a rigid and precise machine and holder.
2. These milling conditions are based on milling with circular interpolation at corners. For milling without circular interpolation (such as right angle corners), reduce the speed to 50-70% and the cutting depth to 50-80% of the above conditions.
3. We suggest using air blow or MQL (mist).
4. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
5. These milling conditions are for overhang length of less than 4 × D. For longer overhang length, reduce the speed, feed rate, and the cutting depth in accordance to the respective coefficients to prevent chattering. It can also be used by lowering the cutting speed and adjusting the ae.

Cutting Condition Guide for Changes in Overhang Length

L/D	ToolSteel • Hardened Steel • Prehardened Steel SKD11 • SKD61 • NAK80			Hardened Steel											
	~45HRC			~ 55HRC			~ 62HRC			~ 66HRC			~ 70HRC		
	S (min-1)	F (mm/min)	ap (mm)	S (min-1)	F (mm/min)	ap (mm)	S (min-1)	F (mm/min)	ap (mm)	S (min-1)	F (mm/min)	ap (mm)	S (min-1)	F (mm/min)	ap (mm)
L/D≤4	100%			100%			100%			100%			100%		
4<L/D<6	70%			70%			70%			60%			60%		
L/D=6	50%			50%			50%			40%			40%		

Maximum Ramping Angle (E°)

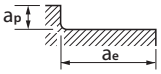
DC X RE	Ramping Angle E°	Helical Milling (mm)		Helical Angle P°
		D0 Min.	D0 Max.	
1 ×R0,2	3°	1,25	1,75	1,5°
2 ×R0,5		2,5	3,5	
3 ×R0,75		4,5	5,5	
4 ×R1		6	7	
5 ×R1,2		7,5	9	
6 ×R1,5		9	11	
7 ×R1,5		10,5	13	
8 ×R2		12	15	
9 ×R2		13,5	17	
10 ×R2		15	19	
11 ×R2		16,5	21	
12 ×R3		18	23	
13 ×R3		19,5	25	



When ramping or helical milling, after adjusting the cutting condition by changing the overhang length, set the feed rate to 50% or less.

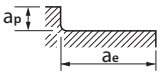
AE-HFE-H

Frontal Milling L/D≤4

	ToolSteel • Hardened Steel • Prehardened Steel SKD11 • SKD61 • NAK80		Hardened Steel							
	~45HRC		~ 55HRC		~ 62HRC		~ 66HRC		~ 70HRC	
(m/min)	120~140		100~120		80~100		70~90		60~80	
DC X rt	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
1 ×R0,1	41.000	7.400	35.000	5.300	28.500	3.200	25.000	1.650	22.000	1.250
2 ×R0,2	20.500	7.400	17.500	5.300	14.000	3.150	12.500	1.650	11.000	1.250
3 ×R0,3	13.500	9.100	11.500	6.550	9.550	4.050	8.450	2.100	7.400	1.550
4 ×R0,35	10.000	9.450	8.750	6.950	7.150	4.250	6.350	2.200	5.550	1.650
5 ×R0,4	8.250	9.750	7.000	6.950	5.700	4.250	5.050	2.200	4.450	1.650
6 ×R0,45	6.900	9.800	5.800	6.950	4.750	4.250	4.200	2.200	3.700	1.650
8 ×R0,65	5.150	9.750	4.350	6.950	3.550	4.250	3.150	2.200	2.750	1.600
10 ×R0,7	4.100	9.700	3.500	6.950	2.850	4.250	2.500	2.150	2.200	1.600
12 ×R0,8	3.450	9.800	2.900	6.950	2.350	4.200	2.100	2.200	1.850	1.650
Depth of cut										

ap	ae
0,04D	0,6D

Frontal Milling 4<L/D≤6

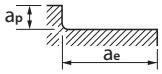
	ToolSteel • Hardened Steel • Prehardened Steel SKD11 • SKD61 • NAK80		Hardened Steel							
	~45HRC		~ 55HRC		~ 62HRC		~ 66HRC		~ 70HRC	
(m/min)	110~130		90~110		70~90		60~80		40~60	
DC X rt	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
1 ×R0,1	38.000	5.750	31.500	3.550	25.000	2.800	22.000	1.450	15.500	850
2 ×R0,2	19.000	5.750	15.500	3.500	12.500	2.800	11.000	1.450	7.950	900
3 ×R0,3	12.500	7.100	10.500	4.450	8.450	3.600	7.400	1.800	5.300	1.100
4 ×R0,35	9.550	7.600	7.950	4.750	6.350	3.800	5.550	1.900	3.950	1.150
5 ×R0,4	7.600	7.550	6.350	4.750	5.050	3.750	4.450	1.900	3.150	1.150
6 ×R0,45	6.350	7.600	5.300	4.750	4.200	3.750	3.700	1.900	2.650	1.150
8 ×R0,65	4.750	7.550	3.950	4.700	3.150	3.750	2.750	1.900	1.950	1.150
10 ×R0,7	3.800	7.550	3.150	4.700	2.500	3.700	2.200	1.900	1.550	1.150
12 ×R0,8	3.150	7.550	2.650	4.750	2.100	3.750	1.850	1.900	1.300	1.150
Depth of cut										

ap	ae
0,03D	0,5D

1. Use a rigid and precise machine and holder.
2. The values listed above are for reference. Please set the cutting condition in accordance with the actual machining environment.
3. When the depth of cut ap exceeds the table above, set it so that it does not exceed the maximum depth of cut ap Max. Please adjust the cutting condition according to the actual machining environment.
4. Please reduce the feed rate when the depth of cut is greater than specified.
5. We suggest using air blow or MQL (mist).
6. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
7. If the pick amount is DCF or more, cusp may occur on the machined surface.

AE-HFE-H

Frontal Milling 6<L/D≤7

	ToolSteel • Hardened Steel • Prehardened Steel SKD11 • SKD61 • NAK80		Hardened Steel							
	~45HRC		~ 55HRC		~ 62HRC		~ 66HRC		~ 70HRC	
(m/min)	90~110		65~85		50~70		45~65		30~50	
DC X rt	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
1 ×R0,1	31.500	4.150	23.500	2.650	19.000	1.400	17.500	950	12.500	550
2 ×R0,2	15.500	4.100	11.500	2.600	9.550	1.450	8.750	950	6.000	550
3 ×R0,3	10.500	5.200	7.950	3.350	6.350	1.800	5.800	1.200	4.200	700
4 ×R0,35	7.950	5.550	5.950	3.550	4.750	1.850	4.350	1.300	3.150	750
5 ×R0,4	6.350	5.550	4.750	3.550	3.800	1.850	3.500	1.300	2.500	750
6 ×R0,45	5.300	5.550	3.950	3.550	3.150	1.850	2.900	1.300	2.100	750
8 ×R0,65	3.950	5.500	2.950	3.500	2.350	1.850	2.150	1.250	1.550	750
10 ×R0,7	3.150	5.500	2.350	3.500	1.900	1.850	1.750	1.300	1.250	750
12 ×R0,8	2.650	5.550	1.950	3.500	1.550	1.850	1.450	1.300	1.050	750
Depth of cut										

ap	ae
0,02D	0,4D

Maximum Ramping Angle (E°)

DC X rt	Ramping Angle E°	Helical Milling (mm)		Helical Angle P°
		D0 Min.	D0 Max.	
1 ×R0,1	3°	1,25	1,75	1,5°
2 ×R0,2		2,5	3,5	
3 ×R0,3		4,5	5,5	
4 ×R0,35		6	7	
5 ×R0,4		7,5	9	
6 ×R0,45		9	11	
8 ×R0,65		12	15	
10 ×R0,7		15	19	
12 ×R0,8		18	23	

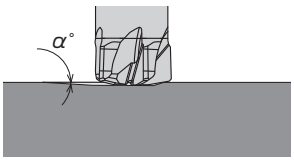
* For ramping and helical milling, set the feed rate to 50%.

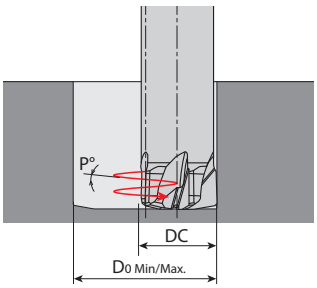
Edge shape definitions for the purpose of creating a program

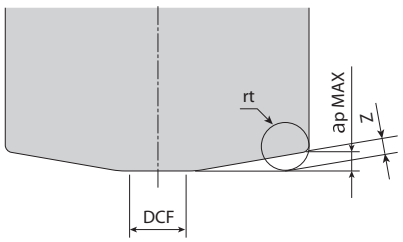
DC	rt	Remainder Z
1	R0,1	0,04
2	R0,2	0,073
3	R0,3	0,11
4	R0,35	0,143
5	R0,4	0,185
6	R0,45	0,227
8	R0,65	0,294
10	R0,7	0,351
12	R0,8	0,428

Maximum depth of cut

DC	APMX
1	0,04
2	0,08
3	0,12
4	0,16
5	0,2
6	0,24
8	0,32
10	0,4
12	0,48







AE-CPR4-H

Regular Milling

			Hardened Steel • Prehardened Steel PX5 • SKD61 • NAK80• HPM1				Hardened Steel STAVAX • HPM38				Hardened Steel				DIN-1.2379 1.2379			
DC	RE	LU	~45HRC				45 ~ 50HRC				50 ~ 58HRC				58 ~ 65HRC			
		(mm)	S (min-1)	F (mm/min)	ap (mm)	ae (mm)	S (min-1)	F (mm/min)	ap (mm)	ae (mm)	S (min-1)	F (mm/min)	ap (mm)	ae (mm)	S (min-1)	F (mm/min)	ap (mm)	ae (mm)
0,2	0,02	0,5	40.000	560	0,006	0,072	36.000	470	0,005	0,060	31.500	380	0,003	0,048	15.750	380	0,003	0,048
0,2	0,02	1	38.000	530	0,005	0,072	34.000	440	0,004	0,060	30.000	360	0,002	0,048	15.000	360	0,002	0,048
0,2	0,02	1,5	36.000	430	0,004	0,054	32.000	350	0,003	0,045	28.500	290	0,002	0,036	14.250	290	0,002	0,036
0,2	0,02	2	34.000	250	0,002	0,054	30.000	200	0,002	0,045	27.000	160	0,001	0,036	13.500	160	0,001	0,036
0,2	0,05	0,5	40.000	560	0,006	0,072	36.000	470	0,005	0,060	31.500	380	0,003	0,048	15.750	380	0,003	0,048
0,2	0,05	1	38.000	530	0,005	0,072	34.000	440	0,004	0,060	30.000	360	0,002	0,048	15.000	360	0,002	0,048
0,2	0,05	1,5	36.000	430	0,004	0,054	32.000	350	0,003	0,045	28.500	290	0,002	0,036	14.250	290	0,002	0,036
0,2	0,05	2	34.000	250	0,002	0,054	30.000	200	0,002	0,045	27.000	160	0,001	0,036	13.500	160	0,001	0,036
0,3	0,02	1	36.500	730	0,006	0,108	32.500	560	0,005	0,090	30.500	480	0,003	0,072	15.250	480	0,003	0,072
0,3	0,02	1,5	33.000	600	0,004	0,090	30.000	470	0,003	0,075	28.000	410	0,002	0,060	14.000	410	0,002	0,060
0,3	0,02	2	30.000	510	0,002	0,073	27.000	390	0,002	0,061	25.500	340	0,001	0,049	12.750	340	0,001	0,049
0,3	0,02	2,5	26.500	400	0,002	0,073	24.000	320	0,002	0,061	22.500	280	0,001	0,049	11.250	280	0,001	0,049
0,3	0,02	3	23.000	190	0,001	0,066	21.000	150	0,001	0,055	19.500	130	0,001	0,044	9.750	130	0,001	0,044
0,3	0,05	1	36.500	730	0,006	0,108	32.500	560	0,005	0,090	30.500	480	0,003	0,072	15.250	480	0,003	0,072
0,3	0,05	1,5	33.000	600	0,004	0,090	30.000	470	0,003	0,075	28.000	410	0,002	0,060	14.000	410	0,002	0,060
0,3	0,05	2	30.000	510	0,002	0,073	27.000	390	0,002	0,061	25.500	340	0,001	0,049	12.750	340	0,001	0,049
0,3	0,05	2,5	26.500	400	0,002	0,073	24.000	320	0,002	0,061	22.500	280	0,001	0,049	11.250	280	0,001	0,049
0,3	0,05	3	23.000	190	0,001	0,066	21.000	150	0,001	0,055	19.500	130	0,001	0,044	9.750	130	0,001	0,044
0,4	0,02	1	29.500	1.130	0,008	0,144	26.000	870	0,007	0,120	24.500	710	0,004	0,096	12.250	710	0,004	0,096
0,4	0,02	1,5	29.500	1.130	0,008	0,144	26.000	870	0,007	0,120	24.500	710	0,004	0,096	12.250	710	0,004	0,096
0,4	0,02	2	27.500	1.020	0,006	0,122	24.500	780	0,005	0,102	23.000	630	0,003	0,082	11.500	630	0,003	0,082
0,4	0,02	2,5	25.000	860	0,004	0,106	22.500	660	0,003	0,088	21.000	530	0,002	0,070	10.500	530	0,002	0,070
0,4	0,02	3	23.000	710	0,002	0,090	20.000	540	0,002	0,075	19.000	440	0,001	0,060	9.500	440	0,001	0,060
0,4	0,02	4	21.000	570	0,001	0,043	18.500	440	0,001	0,036	17.500	360	0,001	0,029	8.750	360	0,001	0,029
0,4	0,05	1	29.500	1.130	0,008	0,144	26.000	870	0,007	0,120	24.500	710	0,004	0,096	12.250	710	0,004	0,096
0,4	0,05	1,5	29.500	1.130	0,008	0,144	26.000	870	0,007	0,120	24.500	710	0,004	0,096	12.250	710	0,004	0,096
0,4	0,05	2	27.500	1.020	0,006	0,122	24.500	780	0,005	0,102	23.000	630	0,003	0,082	11.500	630	0,003	0,082
0,4	0,05	2,5	25.000	860	0,004	0,106	22.500	660	0,003	0,088	21.000	530	0,002	0,070	10.500	530	0,002	0,070
0,4	0,05	3	23.000	710	0,002	0,090	20.000	540	0,002	0,075	19.000	440	0,001	0,060	9.500	440	0,001	0,060
0,4	0,05	4	21.000	570	0,001	0,043	18.500	440	0,001	0,036	17.500	360	0,001	0,029	8.750	360	0,001	0,029
0,4	0,1	1	29.500	1.130	0,012	0,144	26.000	870	0,010	0,120	24.500	710	0,006	0,096	12.250	710	0,006	0,096
0,4	0,1	2	27.500	1.020	0,010	0,122	24.500	780	0,008	0,102	23.000	630	0,005	0,082	11.500	630	0,005	0,082
0,4	0,1	3	23.000	710	0,004	0,090	20.000	540	0,003	0,075	19.000	440	0,002	0,060	9.500	440	0,002	0,060
0,4	0,1	4	21.000	570	0,002	0,043	18.500	440	0,002	0,036	17.500	360	0,001	0,029	8.750	360	0,001	0,029
0,5	0,02	1	29.000	1.230	0,008	0,180	26.000	1.010	0,007	0,150	26.000	930	0,004	0,120	13.000	930	0,004	0,120
0,5	0,02	2	29.000	1.230	0,008	0,180	26.000	1.010	0,007	0,150	26.000	930	0,004	0,120	13.000	930	0,004	0,120
0,5	0,02	3	27.500	1.050	0,004	0,126	24.500	860	0,003	0,105	24.500	800	0,002	0,084	12.250	800	0,002	0,084
0,5	0,02	4	22.500	770	0,002	0,108	20.000	630	0,002	0,090	20.000	590	0,001	0,072	10.000	590	0,001	0,072
0,5	0,02	5	21.000	630	0,001	0,054	18.500	510	0,001	0,045	18.500	480	0,001	0,036	9.250	480	0,001	0,036
0,5	0,02	6	19.500	540	0,001	0,036	17.000	450	0,001	0,030	17.000	410	0,001	0,024	8.500	410	0,001	0,024
0,5	0,05	1	29.000	1.230	0,008	0,180	26.000	1.010	0,007	0,150	26.000	930	0,004	0,120	13.000	930	0,004	0,120
0,5	0,05	2	29.000	1.230	0,008	0,180	26.000	1.010	0,007	0,150	26.000	930	0,004	0,120	13.000	930	0,004	0,120
0,5	0,05	3	27.500	1.050	0,004	0,126	24.500	860	0,003	0,105	24.500	800	0,002	0,084	12.250	800	0,002	0,084
0,5	0,05	4	22.500	770	0,002	0,108	20.000	630	0,002	0,090	20.000	590	0,001	0,072	10.000	590	0,001	0,072
0,5	0,05	5	21.000	630	0,001	0,054	18.500	510	0,001	0,045	18.500	480	0,001	0,036	9.250	480	0,001	0,036
0,5	0,05	6	19.500	540	0,001	0,036	17.000	450	0,001	0,030	17.000	410	0,001	0,024	8.500	410	0,001	0,024
0,5	0,1	1	29.000	1.230	0,012	0,180	26.000	1.010	0,010	0,150	26.000	930	0,006	0,120	13.000	930	0,006	0,120
0,5	0,1	2	29.000	1.230	0,012	0,180	26.000	1.010	0,010	0,150	26.000	930	0,006	0,120	13.000	930	0,006	0,120
0,5	0,1	3	27.500	1.050	0,006	0,126	24.500	860	0,005	0,105	24.500	800	0,003	0,084	12.250	800	0,003	0,084
0,5	0,1	4	22.500	770	0,004	0,108	20.000	630	0,003	0,090	20.000	590	0,002	0,072	10.000	590	0,002	0,072
0,5	0,1	5	21.000	630	0,002	0,054	18.500	510	0,002	0,045	18.500	480	0,001	0,036	9.250	480	0,001	0,036
0,5	0,1	6	19.500	540	0,001	0,036	17.000	450	0,001	0,030	17.000	410	0,001	0,024	8.500	410	0,001	0,024
0,6	0,05	1	29.000	1.470	0,007	0,216	26.000	1.220	0,006	0,180	21.500	930	0,004	0,144	10.750	930	0,004	0,144
0,6	0,05	2	29.000	1.470	0,007	0,216	26.000	1.220	0,006	0,180	21.500	930	0,004	0,144	10.750	930	0,004	0,144
0,6	0,05	4	24.500	1.050	0,003	0,146	21.500	860	0,003	0,122	18.000	660	0,002	0,098	9.000	660	0,002	0,098
0,6	0,05	6	21.000	750	0,001	0,065	18.500	620	0,001	0,054	15.500	480	0,001	0,043	7.750	480	0,001	0,043
0,6	0,1	1	29.000	1.470	0,014	0,216	26.000	1.220	0,012	0,180	21.500	930	0,007	0,144	10.750	930	0,007	0,144
0,6	0,1	2	29.000	1.470	0,014	0,216	26.000	1.220	0,012	0,180	21.500	930	0,007	0,144	10.750	930	0,007	0,144
0,6	0,1	4	24.500	1.050	0,006	0,146	21.500	860	0,005	0,122	18.000	660	0,003	0,098	9.000	660	0,003	0,098
0,6	0,1	6	21.000	750	0,002	0,065	18.500	620	0,002	0,054	15.500	480	0,001	0,043	7.750	480	0,001	0,043
0,7	0,02	1,5	27.000	1.580	0,008	0,264	23.500	1.280	0,007	0,220	19.500	970	0,004	0,176	9.750	970	0,004	0,176
0,7	0,02	2	27.000	1.580	0,008	0,264	23.500	1.280	0,007	0,220	19.500	970	0,004	0,176	9.750	970	0,004	0,176
0,7	0,02	4	24.000	1.300	0,004	0,192	21.000	1.040	0,003	0,160	17.500	790	0,002	0,128	8.750	790	0,002	0,128
0,7	0,02	6	20.000	900	0,002	0,096	17.500	740	0,002	0,080	14.500	550	0,001	0,064	7.250	550	0,001	0,064
0,7	0,05	1,5	27.000	1.580	0,012	0,264	23.500	1.280	0,010	0,220	19.500	970	0,006	0,176	9.750	970	0,006	0,176
0,7	0,05	2	27.000	1.580	0,012	0,264	23.500	1.280	0,010	0,220	19.500	970	0,006	0,176	9.750	970	0,006	0,176
0,7	0,05	4	24.000	1.300	0,006	0,192	21.000	1.040	0,005	0,160	17.500	790	0,003	0,128	8.750	790	0,003	0,128
0,7	0,05	6	20.000	900	0,004	0,096	17.500	740	0,003	0,080	14.500	550	0,002	0,064	7.250	550	0,002	0,064
0,7	0,1	2	27.000	1.580	0,022	0,264	23.500	1.280	0,018	0,220	19.500	970	0,011	0,176	9.750	970	0,011	0,176
0,7	0,1	4	24.000	1.300	0,012	0,192	21.000	1.040	0,010	0,160	17.500	790	0,006	0,128	8.750	790	0,006	0,128
0,7	0,1	6	20.000	900	0,006	0,096	17.500	740	0,005	0,080	14.500	550	0,003	0,064	7.250	550	0,003	0,064
0,8	0,05	2	25.000	1.700	0,012	0,288	22.500	1.400	0,010	0,240	19.000	1.050	0,006	0,192	9.500	1.050	0,006	0,192
0,8	0,05	4	23.500	1.500	0,096	0,288	20.500	1.200	0,080	0,240	17.000	860	0,048	0,192	8.500	860	0,048	0,192
0,8	0,05	6	19.500	1.050	0,042	0,288	16.500	840	0,035	0,240	14.000	590	0,021	0,192	7.000	590	0,021	0,192
0,8	0,1	2	25.000	1.700	0,024	0,288	22.500	1.400	0,020	0,240	19.000	1.050	0,012	0,192	9.500	1.050	0,012	0,192
0,8	0,1	4	23.500	1.500	0,019	0,288	20.500	1.200	0,016	0,240	17.000	860	0,010	0,192	8.500	860	0,010	0,192

CUTTING CONDITIONS

AE-CPR4-H

Regular Milling

			Hardened Steel • Prehardened Steel PX5 • SKD61 • NAK80• HPM1				Hardened Steel STAVAX • HPM38				Hardened Steel				DIN-1.2379 1.2379			
DC	RE	LU	~45HRC				45 ~ 50HRC				50 ~ 58HRC				58 ~ 65HRC			
		(mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)
0,8	0,1	6	19.500	1.050	0,008	0,288	16.500	840	0,007	0,240	14.000	590	0,004	0,192	7.000	590	0,004	0,192
0,8	0,2	2	25.000	1.700	0,048	0,288	22.500	1.400	0,040	0,240	19.000	1.050	0,024	0,192	9.500	1.050	0,024	0,192
0,8	0,2	4	23.500	1.500	0,038	0,288	20.500	1.200	0,032	0,240	17.000	860	0,019	0,192	8.500	860	0,019	0,192
0,8	0,2	6	19.500	1.050	0,017	0,288	16.500	840	0,014	0,240	14.000	590	0,008	0,192	7.000	590	0,008	0,192
0,8	0,2	8	18.000	860	0,010	0,259	15.500	680	0,008	0,216	13.000	480	0,005	0,173	6.500	480	0,005	0,173
0,9	0,1	4	23.000	1.730	0,022	0,324	20.000	1.380	0,018	0,270	17.000	1.000	0,011	0,216	8.500	1.000	0,011	0,216
0,9	0,1	8	18.000	1.190	0,006	0,276	15.500	930	0,005	0,230	13.000	660	0,003	0,184	6.500	660	0,003	0,184
1	0,02	2	25.500	2.250	0,007	0,360	22.500	1.850	0,006	0,300	18.500	1.320	0,004	0,240	9.250	1.320	0,004	0,240
1	0,02	3	23.000	1.950	0,007	0,360	20.000	1.580	0,006	0,300	17.000	1.140	0,004	0,240	8.500	1.140	0,004	0,240
1	0,02	4	23.000	1.950	0,005	0,360	20.000	1.580	0,004	0,300	17.000	1.140	0,002	0,240	8.500	1.140	0,002	0,240
1	0,02	6	20.500	1.580	0,002	0,252	18.000	1.260	0,002	0,210	15.500	920	0,001	0,168	7.750	920	0,001	0,168
1	0,02	8	18.000	1.200	0,001	0,216	15.500	980	0,001	0,180	13.500	710	0,001	0,144	6.750	710	0,001	0,144
1	0,02	10	16.500	980	0,001	0,108	14.500	800	0,001	0,090	12.500	570	0,001	0,072	6.250	570	0,001	0,072
1	0,05	2	25.500	2.250	0,018	0,360	22.500	1.850	0,015	0,300	18.500	1.320	0,009	0,240	9.250	1.320	0,009	0,240
1	0,05	3	23.000	1.950	0,018	0,360	20.000	1.580	0,015	0,300	17.000	1.140	0,009	0,240	8.500	1.140	0,009	0,240
1	0,05	4	23.000	1.950	0,012	0,360	20.000	1.580	0,010	0,300	17.000	1.140	0,006	0,240	8.500	1.140	0,006	0,240
1	0,05	6	20.500	1.580	0,006	0,252	18.000	1.260	0,005	0,210	15.500	920	0,003	0,168	7.750	920	0,003	0,168
1	0,05	8	18.000	1.200	0,004	0,216	15.500	980	0,003	0,180	13.500	710	0,002	0,144	6.750	710	0,002	0,144
1	0,05	10	16.500	980	0,002	0,108	14.500	800	0,002	0,090	12.500	570	0,001	0,072	6.250	570	0,001	0,072
1	0,05	12	15.500	860	0,001	0,072	13.500	690	0,001	0,060	11.500	510	0,001	0,048	5.750	510	0,001	0,048
1	0,1	2	25.500	2.250	0,036	0,360	22.500	1.850	0,030	0,300	18.500	1.320	0,018	0,240	9.250	1.320	0,018	0,240
1	0,1	3	23.000	1.950	0,036	0,360	20.000	1.580	0,030	0,300	17.000	1.140	0,018	0,240	8.500	1.140	0,018	0,240
1	0,1	4	23.000	1.950	0,024	0,360	20.000	1.580	0,020	0,300	17.000	1.140	0,012	0,240	8.500	1.140	0,012	0,240
1	0,1	6	20.500	1.580	0,012	0,252	18.000	1.260	0,010	0,210	15.500	920	0,006	0,168	7.750	920	0,006	0,168
1	0,1	8	18.000	1.200	0,007	0,216	15.500	980	0,006	0,180	13.500	710	0,004	0,144	6.750	710	0,004	0,144
1	0,1	10	16.500	980	0,005	0,108	14.500	800	0,004	0,090	12.500	570	0,002	0,072	6.250	570	0,002	0,072
1	0,1	12	15.500	860	0,004	0,072	13.500	690	0,003	0,060	11.500	510	0,002	0,048	5.750	510	0,002	0,048
1	0,1	16	12.000	600	0,002	0,036	10.500	500	0,002	0,030	9.150	360	0,001	0,024	4.575	360	0,001	0,024
1	0,1	20	10.000	440	0,002	0,029	8.900	350	0,002	0,024	7.650	260	0,001	0,019	3.825	260	0,001	0,019
1	0,2	2	25.500	2.250	0,072	0,360	22.500	1.850	0,060	0,300	18.500	1.320	0,036	0,240	9.250	1.320	0,036	0,240
1	0,2	3	23.000	1.950	0,072	0,360	20.000	1.580	0,060	0,300	17.000	1.140	0,036	0,240	8.500	1.140	0,036	0,240
1	0,2	4	23.000	1.950	0,048	0,360	20.000	1.580	0,040	0,300	17.000	1.140	0,024	0,240	8.500	1.140	0,024	0,240
1	0,2	6	20.500	1.580	0,024	0,252	18.000	1.260	0,020	0,210	15.500	920	0,012	0,168	7.750	920	0,012	0,168
1	0,2	8	18.000	1.200	0,014	0,216	15.500	980	0,012	0,180	13.500	710	0,007	0,144	6.750	710	0,007	0,144
1	0,2	10	16.500	980	0,010	0,108	14.500	800	0,008	0,090	12.500	570	0,005	0,072	6.250	570	0,005	0,072
1	0,2	12	15.500	860	0,007	0,072	13.500	690	0,006	0,060	11.500	510	0,004	0,048	5.750	510	0,004	0,048
1	0,2	16	12.000	600	0,005	0,036	10.500	500	0,004	0,030	9.150	360	0,002	0,024	4.575	360	0,002	0,024
1	0,2	20	10.000	440	0,004	0,029	8.900	350	0,003	0,024	7.650	260	0,002	0,019	3.825	260	0,002	0,019
1	0,3	2	25.500	2.250	0,090	0,360	22.500	1.850	0,075	0,300	18.500	1.320	0,045	0,240	9.250	1.320	0,045	0,240
1	0,3	3	23.000	1.950	0,090	0,360	20.000	1.580	0,075	0,300	17.000	1.140	0,045	0,240	8.500	1.140	0,045	0,240
1	0,3	4	23.000	1.950	0,060	0,360	20.000	1.580	0,050	0,300	17.000	1.140	0,030	0,240	8.500	1.140	0,030	0,240
1	0,3	6	20.500	1.580	0,030	0,252	18.000	1.260	0,025	0,210	15.500	920	0,015	0,168	7.750	920	0,015	0,168
1	0,3	8	18.000	1.200	0,018	0,216	15.500	980	0,015	0,180	13.500	710	0,009	0,144	6.750	710	0,009	0,144
1	0,3	10	16.500	980	0,012	0,108	14.500	800	0,010	0,090	12.500	570	0,006	0,072	6.250	570	0,006	0,072
1	0,3	12	15.500	860	0,008	0,072	13.500	690	0,007	0,060	11.500	510	0,004	0,048	5.750	510	0,004	0,048
1	0,3	16	12.000	600	0,006	0,036	10.500	500	0,005	0,030	9.150	360	0,003	0,024	4.575	360	0,003	0,024
1	0,3	20	10.000	440	0,005	0,029	8.900	350	0,004	0,024	7.650	260	0,002	0,019	3.825	260	0,002	0,019
1,2	0,2	6	19.000	1.800	0,038	0,432	18.000	1.580	0,032	0,360	14.500	1.110	0,019	0,288	7.250	1.110	0,019	0,288
1,2	0,2	8	17.000	1.460	0,022	0,302	16.000	1.280	0,018	0,252	13.000	870	0,011	0,202	6.500	870	0,011	0,202
1,2	0,2	10	16.000	1.280	0,013	0,259	15.000	1.110	0,011	0,216	12.000	770	0,007	0,173	6.000	770	0,007	0,173
1,2	0,3	6	19.000	1.800	0,048	0,432	18.000	1.580	0,040	0,360	14.500	1.110	0,024	0,288	7.250	1.110	0,024	0,288
1,2	0,3	8	17.000	1.460	0,026	0,302	16.000	1.280	0,022	0,252	13.000	870	0,013	0,202	6.500	870	0,013	0,202
1,2	0,3	10	16.000	1.280	0,017	0,259	15.000	1.110	0,014	0,216	12.000	770	0,008	0,173	6.000	770	0,008	0,173
1,5	0,05	3	18.000	2.450	0,018	0,540	17.000	2.100	0,015	0,450	14.500	1.450	0,009	0,360	7.250	1.450	0,009	0,360
1,5	0,05	4	18.000	2.450	0,015	0,540	17.000	2.100	0,013	0,450	14.500	1.450	0,008	0,360	7.250	1.450	0,008	0,360
1,5	0,05	6	17.000	2.180	0,012	0,540	16.000	1.880	0,010	0,450	13.500	1.320	0,006	0,360	6.750	1.320	0,006	0,360
1,5	0,05	8	16.000	1.880	0,008	0,458	15.500	1.650	0,007	0,382	12.500	1.130	0,004	0,306	6.250	1.130	0,004	0,306
1,5	0,05	10	14.500	1.500	0,005	0,350	13.500	1.350	0,005	0,292	11.000	950	0,003	0,234	5.500	950	0,003	0,234
1,5	0,05	12	13.500	1.350	0,004	0,324	12.500	1.190	0,003	0,270	10.500	830	0,002	0,216	5.250	830	0,002	0,216
1,5	0,05	16	9.150	800	0,002	0,134	8.650	690	0,002	0,112	7.150	480	0,001	0,090	3.575	480	0,001	0,090
1,5	0,1	3	18.000	2.450	0,036	0,540	17.000	2.100	0,030	0,450	14.500	1.450	0,018	0,360	7.250	1.450	0,018	0,360
1,5	0,1	4	18.000	2.450	0,030	0,540	17.000	2.100	0,025	0,450	14.500	1.450	0,015	0,360	7.250	1.450	0,015	0,360
1,5	0,1	6	17.000	2.180	0,024	0,540	16.000	1.880	0,020	0,450	13.500	1.320	0,012	0,360	6.750	1.320	0,012	0,360
1,5	0,1	8	16.000	1.880	0,016	0,458	15.500	1.650	0,013	0,382	12.500	1.130	0,008	0,306	6.250	1.130	0,008	0,306
1,5	0,1	10	14.500	1.500	0,011	0,350	13.500	1.350	0,009	0,292	11.000	950	0,005	0,234	5.500	950	0,005	0,234
1,5	0,1	12	13.500	1.350	0,007	0,324	12.500	1.190	0,006	0,270	10.500	830	0,004	0,216	5.250	830	0,004	0,216
1,5	0,1	16	9.150	800	0,004	0,134	8.650	690	0,004	0,112	7.150	480	0,002	0,090	3.575	480	0,002	0,090
1,5	0,2	3	18.000	2.450	0,072	0,540	17.000	2.100	0,060	0,450	14.500	1.450	0,036	0,360	7.250	1.450	0,036	0,360
1,5	0,2	4	18.000	2.450	0,060	0,540	17.000	2.100	0,050	0,450	14.500	1.450	0,030	0,360	7.250	1.450	0,030	0,360
1,5	0,2	6	17.000	2.180	0,048	0,540	16.000	1.880	0,040	0,450	13.500	1.320	0,024	0,360	6.750	1.320	0,024	0,360
1,5	0,2	8	16.000	1.880	0,031	0,458	15.500	1.650	0,026	0,382	12.500	1.130	0,016	0,306	6.250	1.130	0,016	0,306
1,5	0,2	10	14.500	1.500	0,022	0,350	13.500	1.350	0,018	0,292	11.000	950	0,011	0,234	5.500	950	0,011	0,234
1,5	0,2	12	13.500	1.350	0,014	0,324	12.500	1.190	0,012	0,270	10.500	830	0,007	0,216	5.250	830	0,007	0,216
1,5	0,2	16	9.150	800	0,008	0,134	8.650	690	0,007	0,112	7.150	480	0,004	0,090	3.575	480	0,004	0,090
1,5	0,3	3	18.000	2.450	0,108	0,540	17.000	2.100	0,090	0,450	14.500	1.450	0,054	0,360	7.250	1.450	0,054	0,360
1,5	0,3	4	18.000	2.450	0,090	0,540	17.000	2.100	0,075	0,450	14.500	1.450	0,045	0,360	7.250	1.450	0,045	0,360

CUTTING CONDITIONS

AE-CPR4-H

Regular Milling

			Hardened Steel • Prehardened Steel PX5 • SKD61 • NAK80• HPM1				Hardened Steel STAVAX • HPM38				Hardened Steel				DIN-1.2379 1.2379			
DC	RE	LU	~45HRC				45 ~ 50HRC				50 ~ 58HRC				58 ~ 65HRC			
		(mm)	S (min-1)	F (mm/min)	ap (mm)	ae (mm)	S (min-1)	F (mm/min)	ap (mm)	ae (mm)	S (min-1)	F (mm/min)	ap (mm)	ae (mm)	S (min-1)	F (mm/min)	ap (mm)	ae (mm)
1,5	0,3	6	17.000	2.180	0,072	0,540	16.000	1.880	0,060	0,450	13.500	1.320	0,036	0,360	6.750	1.320	0,036	0,360
1,5	0,3	8	16.000	1.880	0,047	0,458	15.500	1.650	0,039	0,382	12.500	1.130	0,023	0,306	6.250	1.130	0,023	0,306
1,5	0,3	10	14.500	1.500	0,032	0,350	13.500	1.350	0,027	0,292	11.000	950	0,016	0,234	5.500	950	0,016	0,234
1,5	0,3	12	13.500	1.350	0,022	0,324	12.500	1.190	0,018	0,270	10.500	830	0,011	0,216	5.250	830	0,011	0,216
1,5	0,3	16	9.150	800	0,012	0,134	8.650	690	0,010	0,112	7.150	480	0,006	0,090	3.575	480	0,006	0,090
1,5	0,5	3	18.000	2.450	0,180	0,540	17.000	2.100	0,150	0,450	14.500	1.450	0,090	0,360	7.250	1.450	0,090	0,360
1,5	0,5	4	18.000	2.450	0,150	0,540	17.000	2.100	0,125	0,450	14.500	1.450	0,075	0,360	7.250	1.450	0,075	0,360
1,5	0,5	6	17.000	2.180	0,120	0,540	16.000	1.880	0,100	0,450	13.500	1.320	0,060	0,360	6.750	1.320	0,060	0,360
1,5	0,5	8	16.000	1.880	0,078	0,458	15.500	1.650	0,065	0,382	12.500	1.130	0,039	0,306	6.250	1.130	0,039	0,306
1,5	0,5	10	14.500	1.500	0,054	0,350	13.500	1.350	0,045	0,292	11.000	950	0,027	0,234	5.500	950	0,027	0,234
1,5	0,5	12	13.500	1.350	0,036	0,324	12.500	1.190	0,030	0,270	10.500	830	0,018	0,216	5.250	830	0,018	0,216
1,5	0,5	16	9.150	800	0,020	0,134	8.650	690	0,017	0,112	7.150	480	0,010	0,090	3.575	480	0,010	0,090
2	0,05	4	15.000	2.600	0,018	0,720	15.000	2.350	0,015	0,600	13.000	1.650	0,009	0,480	6.500	1.650	0,009	0,480
2	0,05	6	14.000	2.500	0,015	0,720	14.000	2.180	0,013	0,600	12.000	1.600	0,008	0,480	6.000	1.600	0,008	0,480
2	0,05	8	13.000	2.180	0,012	0,720	13.000	1.950	0,010	0,600	11.500	1.500	0,006	0,480	5.750	1.500	0,006	0,480
2	0,05	10	12.000	1.950	0,010	0,612	12.000	1.730	0,008	0,510	11.000	1.370	0,005	0,408	5.500	1.370	0,005	0,408
2	0,05	12	11.500	1.730	0,006	0,504	11.500	1.580	0,005	0,420	10.000	1.220	0,003	0,336	5.000	1.220	0,003	0,336
2	0,05	16	10.000	1.350	0,004	0,432	10.000	1.200	0,003	0,360	8.900	950	0,002	0,288	4.450	950	0,002	0,288
2	0,05	20	9.300	1.100	0,002	0,216	9.300	980	0,002	0,180	8.250	770	0,001	0,144	4.125	770	0,001	0,144
2	0,1	4	15.000	2.600	0,036	0,720	15.000	2.350	0,030	0,600	13.000	1.650	0,018	0,480	6.500	1.650	0,018	0,480
2	0,1	6	14.000	2.500	0,030	0,720	14.000	2.180	0,025	0,600	12.000	1.600	0,015	0,480	6.000	1.600	0,015	0,480
2	0,1	8	13.000	2.180	0,024	0,720	13.000	1.950	0,020	0,600	11.500	1.500	0,012	0,480	5.750	1.500	0,012	0,480
2	0,1	10	12.000	1.950	0,019	0,612	12.000	1.730	0,016	0,510	11.000	1.370	0,010	0,408	5.500	1.370	0,010	0,408
2	0,1	12	11.500	1.730	0,012	0,504	11.500	1.580	0,010	0,420	10.000	1.220	0,006	0,336	5.000	1.220	0,006	0,336
2	0,1	16	10.000	1.350	0,007	0,432	10.000	1.200	0,006	0,360	8.900	950	0,004	0,288	4.450	950	0,004	0,288
2	0,1	20	9.300	1.100	0,005	0,216	9.300	980	0,004	0,180	8.250	770	0,002	0,144	4.125	770	0,002	0,144
2	0,1	25	8.600	950	0,002	0,144	8.600	840	0,002	0,120	7.650	660	0,001	0,096	3.825	660	0,001	0,096
2	0,2	4	15.000	2.600	0,072	0,720	15.000	2.350	0,060	0,600	13.000	1.650	0,036	0,480	6.500	1.650	0,036	0,480
2	0,2	6	14.000	2.500	0,066	0,720	14.000	2.180	0,055	0,600	12.000	1.600	0,033	0,480	6.000	1.600	0,033	0,480
2	0,2	8	13.000	2.180	0,048	0,720	13.000	1.950	0,040	0,600	11.500	1.500	0,024	0,480	5.750	1.500	0,024	0,480
2	0,2	10	12.000	1.950	0,038	0,612	12.000	1.730	0,032	0,510	11.000	1.370	0,019	0,408	5.500	1.370	0,019	0,408
2	0,2	12	11.500	1.730	0,024	0,504	11.500	1.580	0,020	0,420	10.000	1.220	0,012	0,336	5.000	1.220	0,012	0,336
2	0,2	16	10.000	1.350	0,014	0,432	10.000	1.200	0,012	0,360	8.900	950	0,007	0,288	4.450	950	0,007	0,288
2	0,2	20	9.300	1.100	0,010	0,216	9.300	980	0,008	0,180	8.250	770	0,005	0,144	4.125	770	0,005	0,144
2	0,2	25	8.600	950	0,005	0,144	8.600	840	0,004	0,120	7.650	660	0,002	0,096	3.825	660	0,002	0,096
2	0,3	4	15.000	2.600	0,108	0,720	15.000	2.350	0,090	0,600	13.000	1.650	0,054	0,480	6.500	1.650	0,054	0,480
2	0,3	6	14.000	2.500	0,090	0,720	14.000	2.180	0,075	0,600	12.000	1.600	0,045	0,480	6.000	1.600	0,045	0,480
2	0,3	8	13.000	2.180	0,072	0,720	13.000	1.950	0,060	0,600	11.500	1.500	0,036	0,480	5.750	1.500	0,036	0,480
2	0,3	10	12.000	1.950	0,058	0,612	12.000	1.730	0,048	0,510	11.000	1.370	0,029	0,408	5.500	1.370	0,029	0,408
2	0,3	12	11.500	1.730	0,036	0,504	11.500	1.580	0,030	0,420	10.000	1.220	0,018	0,336	5.000	1.220	0,018	0,336
2	0,3	16	10.000	1.350	0,022	0,432	10.000	1.200	0,018	0,360	8.900	950	0,011	0,288	4.450	950	0,011	0,288
2	0,3	20	9.300	1.100	0,014	0,216	9.300	980	0,012	0,180	8.250	770	0,007	0,144	4.125	770	0,007	0,144
2	0,5	4	15.000	2.600	0,150	0,720	15.000	2.350	0,125	0,600	13.000	1.650	0,075	0,480	6.500	1.650	0,075	0,480
2	0,5	6	14.000	2.500	0,120	0,720	14.000	2.180	0,100	0,600	12.000	1.600	0,060	0,480	6.000	1.600	0,060	0,480
2	0,5	8	13.000	2.180	0,090	0,720	13.000	1.950	0,075	0,600	11.500	1.500	0,045	0,480	5.750	1.500	0,045	0,480
2	0,5	10	12.000	1.950	0,072	0,612	12.000	1.730	0,060	0,510	11.000	1.370	0,036	0,408	5.500	1.370	0,036	0,408
2	0,5	12	11.500	1.730	0,044	0,504	11.500	1.580	0,037	0,420	10.000	1.220	0,022	0,336	5.000	1.220	0,022	0,336
2	0,5	16	10.000	1.350	0,026	0,432	10.000	1.200	0,022	0,360	8.900	950	0,013	0,288	4.450	950	0,013	0,288
2	0,5	20	9.300	1.100	0,018	0,216	9.300	980	0,015	0,180	8.250	770	0,009	0,144	4.125	770	0,009	0,144
2	0,5	25	8.600	950	0,011	0,144	8.600	840	0,009	0,120	7.650	660	0,005	0,096	3.825	660	0,005	0,096
2,5	0,1	10	11.500	2.400	0,024	0,900	10.500	1.800	0,020	0,750	10.500	1.800	0,012	0,600	5.250	1.800	0,012	0,600
2,5	0,1	20	8.900	1.500	0,012	0,540	8.000	1.110	0,010	0,450	8.000	1.110	0,006	0,360	4.000	1.110	0,006	0,360
2,5	0,1	30	7.650	1.050	0,006	0,180	6.850	780	0,005	0,150	6.850	780	0,003	0,120	3.425	780	0,003	0,120
2,5	0,2	10	11.500	2.400	0,048	0,900	10.500	1.800	0,040	0,750	10.500	1.800	0,024	0,600	5.250	1.800	0,024	0,600
2,5	0,2	20	8.900	1.500	0,024	0,540	8.000	1.110	0,020	0,450	8.000	1.110	0,012	0,360	4.000	1.110	0,012	0,360
2,5	0,2	30	7.650	1.050	0,012	0,180	6.850	780	0,010	0,150	6.850	780	0,006	0,120	3.425	780	0,006	0,120
2,5	0,3	10	11.500	2.400	0,072	0,900	10.500	1.800	0,060	0,750	10.500	1.800	0,036	0,600	5.250	1.800	0,036	0,600
2,5	0,3	20	8.900	1.500	0,036	0,540	8.000	1.110	0,030	0,450	8.000	1.110	0,018	0,360	4.000	1.110	0,018	0,360
2,5	0,3	30	7.650	1.050	0,018	0,180	6.850	780	0,015	0,150	6.850	780	0,009	0,120	3.425	780	0,009	0,120
2,5	0,5	10	11.500	2.400	0,090	0,900	10.500	1.800	0,075	0,750	10.500	1.800	0,045	0,600	5.250	1.800	0,045	0,600
2,5	0,5	20	8.900	1.500	0,044	0,540	8.000	1.110	0,037	0,450	8.000	1.110	0,022	0,360	4.000	1.110	0,022	0,360
2,5	0,5	30	7.650	1.050	0,013	0,180	6.850	780	0,011	0,150	6.850	780	0,007	0,120	3.425	780	0,007	0,120
3	0,1	4	10.500	2.600	0,036	1,080	9.300	2.350	0,030	0,900	8.600	1.650	0,018	0,720	4.300	1.650	0,018	0,720
3	0,1	6	10.500	2.600	0,030	1,080	9.300	2.350	0,025	0,900	8.600	1.650	0,015	0,720	4.300	1.650	0,015	0,720
3	0,1	8	9.550	2.250	0,024	1,080	8.600	1.730	0,020	0,900	7.650	1.250	0,012	0,720	3.825	1.250	0,012	0,720
3	0,1	10	9.550	2.250	0,024	1,080	8.600	1.730	0,020	0,900	7.650	1.250	0,012	0,720	3.825	1.250	0,012	0,720
3	0,1	12	9.550	2.250	0,024	1,080	8.600	1.730	0,020	0,900	7.650	1.250	0,012	0,720	3.825	1.250	0,012	0,720
3	0,1	16	8.500	1.800	0,017	0,864	7.650	1.370	0,014	0,720	6.800	990	0,008	0,576	3.400	990	0,008	0,576
3	0,1	20	7.400	1.490	0,011	0,734	6.700	1.130	0,009	0,612	5.950	830	0,005	0,490	2.975	830	0,005	0,490
3	0,1	25	7.100	1.250	0,007	0,648	6.400	960	0,006	0,540	5.700	690	0,004	0,432	2.850	690	0,004	0,432
3	0,2	4	10.500	2.600	0,072	1,080	9.300	2.350	0,060	0,900	8.600	1.650	0,036	0,720	4.300	1.650	0,036	0,720
3	0,2	6	10.500	2.600	0,060	1,080	9.300	2.350	0,050	0,900	8.600	1.650	0,030	0,720	4.300	1.650	0,030	0,720
3	0,2	8	9.550	2.250	0,048	1,080	8.600	1.730	0,040	0,900	7.650	1.250	0,024	0,720	3.825	1.250	0,024	0,720
3	0,2	10	9.550	2.250	0,048	1,080	8.600	1.730	0,040	0,900	7.650	1.250	0,024	0,720	3.825	1.250	0,024	0,720
3	0,2	12	9.550	2.250	0,048	1,080	8.600	1.730	0,040	0,900	7.650	1.250	0,024	0,720	3.825	1.250	0,024	0,720
3	0,2	16	8.500	1.800	0,034	0,864	7.650	1.370	0,028	0,720	6.800	990	0,017	0,576	3.400	990	0,017	0,576

AE-CPR4-H

Regular Milling

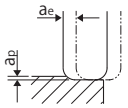
			Hardened Steel • Prehardened Steel PX5 • SKD61 • NAK80• HPM1				Hardened Steel STAVAX • HPM38				Hardened Steel				DIN-1.2379 1.2379			
DC	RE	LU	~45HRC				45 ~ 50HRC				50 ~ 58HRC				58 ~ 65HRC			
		(mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)
3	0,2	20	7.400	1.490	0,022	0,734	6.700	1.130	0,018	0,612	5.950	830	0,011	0,490	2.975	830	0,011	0,490
3	0,2	25	7.100	1.250	0,014	0,648	6.400	960	0,012	0,540	5.700	690	0,007	0,432	2.850	690	0,007	0,432
3	0,2	30	6.900	1.140	0,010	0,324	6.200	870	0,008	0,270	5.500	630	0,005	0,216	2.750	630	0,005	0,216
3	0,2	35	6.350	990	0,007	0,216	5.700	750	0,006	0,180	5.100	560	0,004	0,144	2.550	560	0,004	0,144
3	0,3	4	10.500	2.600	0,108	1,080	9.300	2.350	0,090	0,900	8.600	1.650	0,054	0,720	4.300	1.650	0,054	0,720
3	0,3	6	10.500	2.600	0,090	1,080	9.300	2.350	0,075	0,900	8.600	1.650	0,045	0,720	4.300	1.650	0,045	0,720
3	0,3	8	9.550	2.250	0,072	1,080	8.600	1.730	0,060	0,900	7.650	1.250	0,036	0,720	3.825	1.250	0,036	0,720
3	0,3	10	9.550	2.250	0,072	1,080	8.600	1.730	0,060	0,900	7.650	1.250	0,036	0,720	3.825	1.250	0,036	0,720
3	0,3	12	9.550	2.250	0,072	1,080	8.600	1.730	0,060	0,900	7.650	1.250	0,036	0,720	3.825	1.250	0,036	0,720
3	0,3	16	8.500	1.800	0,050	0,864	7.650	1.370	0,042	0,720	6.800	990	0,025	0,576	3.400	990	0,025	0,576
3	0,3	20	7.400	1.490	0,032	0,734	6.700	1.130	0,027	0,612	5.950	830	0,016	0,490	2.975	830	0,016	0,490
3	0,3	25	7.100	1.250	0,022	0,648	6.400	960	0,018	0,540	5.700	690	0,011	0,432	2.850	690	0,011	0,432
3	0,3	30	6.900	1.140	0,014	0,324	6.200	870	0,012	0,270	5.500	630	0,007	0,216	2.750	630	0,007	0,216
3	0,3	35	6.350	990	0,011	0,216	5.700	750	0,009	0,180	5.100	560	0,005	0,144	2.550	560	0,005	0,144
3	0,5	4	10.500	2.600	0,180	1,080	9.300	2.350	0,150	0,900	8.600	1.650	0,090	0,720	4.300	1.650	0,090	0,720
3	0,5	6	10.500	2.600	0,150	1,080	9.300	2.350	0,125	0,900	8.600	1.650	0,075	0,720	4.300	1.650	0,075	0,720
3	0,5	8	9.550	2.250	0,120	1,080	8.600	1.730	0,100	0,900	7.650	1.250	0,060	0,720	3.825	1.250	0,060	0,720
3	0,5	10	9.550	2.250	0,120	1,080	8.600	1.730	0,100	0,900	7.650	1.250	0,060	0,720	3.825	1.250	0,060	0,720
3	0,5	12	9.550	2.250	0,090	1,080	8.600	1.730	0,075	0,900	7.650	1.250	0,045	0,720	3.825	1.250	0,045	0,720
3	0,5	16	8.500	1.800	0,062	0,864	7.650	1.370	0,052	0,720	6.800	990	0,031	0,576	3.400	990	0,031	0,576
3	0,5	20	7.400	1.490	0,040	0,734	6.700	1.130	0,033	0,612	5.950	830	0,020	0,490	2.975	830	0,020	0,490
3	0,5	25	7.100	1.250	0,026	0,648	6.400	960	0,022	0,540	5.700	690	0,013	0,432	2.850	690	0,013	0,432
3	0,5	30	6.900	1.140	0,018	0,324	6.200	870	0,015	0,270	5.500	630	0,009	0,216	2.750	630	0,009	0,216
3	0,5	35	6.350	990	0,013	0,216	5.700	750	0,011	0,180	5.100	560	0,007	0,144	2.550	560	0,007	0,144
4	0,1	8	8.650	2.550	0,030	1,440	7.800	1.920	0,025	1,200	6.100	1.200	0,015	0,960	3.050	1.200	0,015	0,960
4	0,1	12	8.650	2.550	0,027	1,440	7.800	1.920	0,023	1,200	6.100	1.200	0,014	0,960	3.050	1.200	0,014	0,960
4	0,1	16	7.150	2.050	0,024	1,440	6.450	1.550	0,020	1,200	5.000	970	0,012	0,960	2.500	970	0,012	0,960
4	0,1	20	6.750	1.950	0,019	1,224	6.100	1.450	0,016	1,020	4.750	910	0,010	0,816	2.375	910	0,010	0,816
4	0,1	25	5.950	1.700	0,012	0,979	5.350	1.300	0,010	0,816	4.150	800	0,006	0,653	2.075	800	0,006	0,653
4	0,1	30	5.550	1.600	0,008	0,893	5.000	1.200	0,007	0,744	3.900	750	0,004	0,595	1.950	750	0,004	0,595
4	0,2	8	8.650	2.550	0,060	1,440	7.800	1.920	0,050	1,200	6.100	1.200	0,030	0,960	3.050	1.200	0,030	0,960
4	0,2	12	8.650	2.550	0,054	1,440	7.800	1.920	0,045	1,200	6.100	1.200	0,027	0,960	3.050	1.200	0,027	0,960
4	0,2	16	7.150	2.050	0,048	1,440	6.450	1.550	0,040	1,200	5.000	970	0,024	0,960	2.500	970	0,024	0,960
4	0,2	20	6.750	1.950	0,038	1,224	6.100	1.450	0,032	1,020	4.750	910	0,019	0,816	2.375	910	0,019	0,816
4	0,2	25	5.950	1.700	0,024	0,979	5.350	1.300	0,020	0,816	4.150	800	0,012	0,653	2.075	800	0,012	0,653
4	0,2	30	5.550	1.600	0,017	0,893	5.000	1.200	0,014	0,744	3.900	750	0,008	0,595	1.950	750	0,008	0,595
4	0,2	40	5.150	1.500	0,010	0,432	4.650	1.100	0,008	0,360	3.600	700	0,005	0,288	1.800	700	0,005	0,288
4	0,3	8	8.650	2.550	0,090	1,440	7.800	1.920	0,075	1,200	6.100	1.200	0,045	0,960	3.050	1.200	0,045	0,960
4	0,3	12	8.650	2.550	0,080	1,440	7.800	1.920	0,067	1,200	6.100	1.200	0,040	0,960	3.050	1.200	0,040	0,960
4	0,3	16	7.150	2.050	0,072	1,440	6.450	1.550	0,060	1,200	5.000	970	0,036	0,960	2.500	970	0,036	0,960
4	0,3	20	6.750	1.950	0,058	1,224	6.100	1.450	0,048	1,020	4.750	910	0,029	0,816	2.375	910	0,029	0,816
4	0,3	25	5.950	1.700	0,036	0,979	5.350	1.300	0,030	0,816	4.150	800	0,018	0,653	2.075	800	0,018	0,653
4	0,3	30	5.550	1.600	0,025	0,893	5.000	1.200	0,021	0,744	3.900	750	0,013	0,595	1.950	750	0,013	0,595
4	0,3	40	5.150	1.500	0,014	0,432	4.650	1.100	0,012	0,360	3.600	700	0,007	0,288	1.800	700	0,007	0,288
4	0,5	8	8.650	2.550	0,120	1,440	7.800	1.920	0,100	1,200	6.100	1.200	0,060	0,960	3.050	1.200	0,060	0,960
4	0,5	12	8.650	2.550	0,106	1,440	7.800	1.920	0,088	1,200	6.100	1.200	0,053	0,960	3.050	1.200	0,053	0,960
4	0,5	16	7.150	2.050	0,090	1,440	6.450	1.550	0,075	1,200	5.000	970	0,045	0,960	2.500	970	0,045	0,960
4	0,5	20	6.750	1.950	0,072	1,224	6.100	1.450	0,060	1,020	4.750	910	0,036	0,816	2.375	910	0,036	0,816
4	0,5	25	5.950	1.700	0,044	0,979	5.350	1.300	0,037	0,816	4.150	800	0,022	0,653	2.075	800	0,022	0,653
4	0,5	30	5.550	1.600	0,031	0,893	5.000	1.200	0,026	0,744	3.900	750	0,016	0,595	1.950	750	0,016	0,595
4	0,5	40	5.150	1.500	0,018	0,432	4.650	1.100	0,015	0,360	3.600	700	0,009	0,288	1.800	700	0,009	0,288
4	0,5	50	4.550	1.300	0,011	0,259	4.100	980	0,009	0,216	3.150	610	0,005	0,173	1.575	610	0,005	0,173
4	1	8	8.650	2.550	0,240	1,440	7.800	1.920	0,200	1,200	6.100	1.200	0,120	0,960	3.050	1.200	0,120	0,960
4	1	12	8.650	2.550	0,210	1,440	7.800	1.920	0,175	1,200	6.100	1.200	0,105	0,960	3.050	1.200	0,105	0,960
4	1	16	7.150	2.050	0,144	1,440	6.450	1.550	0,120	1,200	5.000	970	0,072	0,960	2.500	970	0,072	0,960
4	1	20	6.750	1.950	0,120	1,224	6.100	1.450	0,100	1,020	4.750	910	0,060	0,816	2.375	910	0,060	0,816
4	1	25	5.950	1.700	0,072	0,979	5.350	1.300	0,060	0,816	4.150	800	0,036	0,653	2.075	800	0,036	0,653
4	1	30	5.550	1.600	0,048	0,893	5.000	1.200	0,040	0,744	3.900	750	0,024	0,595	1.950	750	0,024	0,595
4	1	40	5.150	1.500	0,029	0,432	4.650	1.100	0,024	0,360	3.600	700	0,014	0,288	1.800	700	0,014	0,288
6	0,1	12	7.200	2.900	0,024	2,160	6.500	2.150	0,020	1,800	5.050	1.400	0,012	1,440	2.525	1.400	0,012	1,440
6	0,1	18	6.100	2.400	0,019	1,800	5.500	1.800	0,016	1,500	4.250	1.150	0,010	1,200	2.125	1.150	0,010	1,200
6	0,1	24	5.550	2.000	0,010	1,620	5.000	1.500	0,008	1,350	3.850	950	0,005	1,080	1.925	950	0,005	1,080
6	0,1	30	4.800	1.750	0,007	1,440	4.300	1.300	0,006	1,200	3.350	850	0,004	0,960	1.675	850	0,004	0,960
6	0,1	48	2.800	1.000	0,005	0,600	2.500	750	0,004	0,500	1.950	500	0,002	0,400	975	500	0,002	0,400
6	0,2	12	7.200	2.900	0,048	2,160	6.500	2.150	0,040	1,800	5.050	1.400	0,024	1,440	2.525	1.400	0,024	1,440
6	0,2	18	6.100	2.400	0,038	1,800	5.500	1.800	0,032	1,500	4.250	1.150	0,019	1,200	2.125	1.150	0,019	1,200
6	0,2	24	5.550	2.000	0,019	1,620	5.000	1.500	0,016	1,350	3.850	950	0,010	1,080	1.925	950	0,010	1,080
6	0,2	30	4.800	1.750	0,014	1,440	4.300	1.300	0,012	1,200	3.350	850	0,007	0,960	1.675	850	0,007	0,960
6	0,2	48	2.800	1.000	0,010	0,600	2.500	750	0,008	0,500	1.950	500	0,005	0,400	975	500	0,005	0,400
6	0,3	12	7.200	2.900	0,072	2,160	6.500	2.150	0,060	1,800	5.050	1.400	0,036	1,440	2.525	1.400	0,036	1,440
6	0,3	18	6.100	2.400	0,058	1,800	5.500	1.800	0,048	1,500	4.250	1.150	0,029	1,200	2.125	1.150	0,029	1,200
6	0,3	24	5.550	2.000	0,029	1,620	5.000	1.500	0,024	1,350	3.850	950	0,014	1,080	1.925	950	0,014	1,080
6	0,3	30	4.800	1.750	0,022	1,440	4.300	1.300	0,018	1,200	3.350	850	0,011	0,960	1.675	850	0,011	0,960
6	0,3	48	2.800	1.000	0,014	0,600	2.500	750	0,012	0,500	1.950	500	0,007	0,400	975	500	0,007	0,400
6	0,5	12	7.200	2.900	0,120	2,160	6.500	2.150	0,100	1,800	5.050	1.400	0,060	1,440	2.525	1.400	0,060	1,440
6	0,5	18	6.100	2.400	0,096	1,800	5.500	1.800	0,080	1,500	4.250	1.150	0,048	1,200	2.125	1.150	0,048	1,200

AE-CPR4-H

Regular Milling

			Hardened Steel • Prehardened Steel PX5 • SKD61 • NAK80• HPM1				Hardened Steel STAVAX • HPM38				Hardened Steel				DIN-1.2379 1.2379			
DC	RE	LU	~45HRC				45 ~ 50HRC				50 ~ 58HRC				58 ~ 65HRC			
		(mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)
6	0,5	24	5.550	2.000	0,048	1,620	5.000	1.500	0,040	1,350	3.850	950	0,024	1,080	1.925	950	0,024	1,080
6	0,5	30	4.800	1.750	0,036	1,440	4.300	1.300	0,030	1,200	3.350	850	0,018	0,960	1.675	850	0,018	0,960
6	0,5	48	2.800	1.000	0,240	0,600	2.500	750	0,200	0,500	1.950	500	0,120	0,400	975	500	0,120	0,400
6	1	12	7.200	2.900	0,240	2,160	6.500	2.150	0,200	1,800	5.050	1.400	0,120	1,440	2.525	1.400	0,120	1,440
6	1	18	6.100	2.400	0,192	1,800	5.500	1.800	0,160	1,500	4.250	1.150	0,096	1,200	2.125	1.150	0,096	1,200
6	1	24	5.550	2.000	0,096	1,620	5.000	1.500	0,080	1,350	3.850	950	0,048	1,080	1.925	950	0,048	1,080
6	1	30	4.800	1.750	0,072	1,440	4.300	1.300	0,060	1,200	3.350	850	0,036	0,960	1.675	850	0,036	0,960
6	1	48	2.800	1.000	0,480	0,600	2.500	750	0,400	0,500	1.950	500	0,240	0,400	975	500	0,240	0,400

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL(Minimum Quantity Lubrication / mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation(side milling) with a low machining load.
   If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommended during the approach of a Z cut.
6. When using a tool with a diameter of θ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage. Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.



AE-CPR4-H

Side Milling (Contour Line Finish Milling)



			Hardened Steel • Prehardened Steel PX5 • SKD61 • NAK80• HPM1				Hardened Steel STAVAX • HPM38				Hardened Steel				DIN-1.2379 1.2379			
DC	RE	LU	~45HRC				45 ~ 50HRC				50 ~ 58HRC				58 ~ 65HRC			
		(mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)
0,2	0,02	0,5	50.000	700	0,006	0,007	43.000	550	0,005	0,006	43.000	520	0,003	0,005	21.500	520	0,003	0,005
0,2	0,02	1	47.500	680	0,006	0,007	40.500	520	0,005	0,006	40.500	490	0,003	0,005	20.250	490	0,003	0,005
0,2	0,02	1,5	45.000	540	0,005	0,006	38.000	420	0,004	0,005	38.000	400	0,002	0,004	19.000	400	0,002	0,004
0,2	0,02	2	42.000	300	0,004	0,006	35.500	230	0,003	0,005	35.500	220	0,002	0,004	17.750	220	0,002	0,004
0,2	0,05	0,5	50.000	700	0,006	0,007	43.000	550	0,005	0,006	43.000	520	0,003	0,005	21.500	520	0,003	0,005
0,2	0,05	1	47.500	680	0,006	0,007	40.500	520	0,005	0,006	40.500	490	0,003	0,005	20.250	490	0,003	0,005
0,2	0,05	1,5	45.000	540	0,005	0,006	38.000	420	0,004	0,005	38.000	400	0,002	0,004	19.000	400	0,002	0,004
0,2	0,05	2	42.000	300	0,004	0,006	35.500	230	0,003	0,005	35.500	220	0,002	0,004	17.750	220	0,002	0,004
0,3	0,02	1	43.000	850	0,006	0,011	38.000	690	0,005	0,009	33.500	530	0,003	0,007	16.750	530	0,003	0,007
0,3	0,02	1,5	40.000	740	0,006	0,011	35.000	590	0,005	0,009	30.500	440	0,003	0,007	15.250	440	0,003	0,007
0,3	0,02	2	36.000	610	0,005	0,010	32.000	500	0,004	0,008	28.000	370	0,002	0,006	14.000	370	0,002	0,006
0,3	0,02	2,5	32.000	480	0,004	0,010	28.000	380	0,003	0,008	24.500	290	0,002	0,006	12.250	290	0,002	0,006
0,3	0,02	3	28.000	220	0,002	0,008	24.500	180	0,002	0,007	21.500	130	0,001	0,006	10.750	130	0,001	0,006
0,3	0,05	1	43.000	850	0,006	0,011	38.000	690	0,005	0,009	33.500	530	0,003	0,007	16.750	530	0,003	0,007
0,3	0,05	1,5	40.000	740	0,006	0,011	35.000	590	0,005	0,009	30.500	440	0,003	0,007	15.250	440	0,003	0,007
0,3	0,05	2	36.000	610	0,005	0,010	32.000	500	0,004	0,008	28.000	370	0,002	0,006	14.000	370	0,002	0,006
0,3	0,05	2,5	32.000	480	0,004	0,010	28.000	380	0,003	0,008	24.500	290	0,002	0,006	12.250	290	0,002	0,006
0,3	0,05	3	28.000	220	0,002	0,008	24.500	180	0,002	0,007	21.500	130	0,001	0,006	10.750	130	0,001	0,006
0,4	0,02	1	39.500	1.510	0,007	0,014	32.000	1.170	0,006	0,012	28.500	820	0,004	0,010	14.250	820	0,004	0,010
0,4	0,02	1,5	39.500	1.510	0,007	0,014	32.000	1.170	0,006	0,012	28.500	820	0,004	0,010	14.250	820	0,004	0,010
0,4	0,02	2	37.000	1.370	0,007	0,014	30.500	1.050	0,006	0,012	27.000	750	0,004	0,010	13.500	750	0,004	0,010
0,4	0,02	2,5	33.500	1.130	0,006	0,012	27.500	870	0,005	0,010	24.500	620	0,003	0,008	12.250	620	0,003	0,008
0,4	0,02	3	30.500	950	0,005	0,010	25.000	720	0,004	0,008	22.500	510	0,002	0,006	11.250	510	0,002	0,006
0,4	0,02	4	28.500	760	0,002	0,007	23.500	590	0,002	0,006	20.500	420	0,001	0,005	10.250	420	0,001	0,005
0,4	0,05	1	39.500	1.510	0,007	0,014	32.000	1.170	0,006	0,012	28.500	820	0,004	0,010	14.250	820	0,004	0,010
0,4	0,05	1,5	39.500	1.510	0,007	0,014	32.000	1.170	0,006	0,012	28.500	820	0,004	0,010	14.250	820	0,004	0,010
0,4	0,05	2	37.000	1.370	0,007	0,014	30.500	1.050	0,006	0,012	27.000	750	0,004	0,010	13.500	750	0,004	0,010
0,4	0,05	2,5	33.500	1.130	0,006	0,012	27.500	870	0,005	0,010	24.500	620	0,003	0,008	12.250	620	0,003	0,008
0,4	0,05	3	30.500	950	0,005	0,010	25.000	720	0,004	0,008	22.500	510	0,002	0,006	11.250	510	0,002	0,006
0,4	0,05	4	28.500	760	0,002	0,007	23.500	590	0,002	0,006	20.500	420	0,001	0,005	10.250	420	0,001	0,005
0,4	0,1	1	39.500	1.510	0,012	0,014	32.000	1.170	0,010	0,012	28.500	820	0,006	0,010	14.250	820	0,006	0,010
0,4	0,1	2	37.000	1.370	0,012	0,014	30.500	1.050	0,010	0,012	27.000	750	0,006	0,010	13.500	750	0,006	0,010
0,4	0,1	3	30.500	950	0,008	0,010	25.000	720	0,007	0,008	22.500	510	0,004	0,006	11.250	510	0,004	0,006
0,4	0,1	4	28.500	760	0,005	0,007	23.500	590	0,004	0,006	20.500	420	0,002	0,005	10.250	420	0,002	0,005
0,5	0,02	1	34.500	1.460	0,007	0,018	28.500	1.170	0,006	0,015	24.000	870	0,004	0,012	12.000	870	0,004	0,012
0,5	0,02	2	34.500	1.460	0,007	0,018	28.500	1.170	0,006	0,015	24.000	870	0,004	0,012	12.000	870	0,004	0,012
0,5	0,02	3	32.500	1.230	0,007	0,016	27.000	990	0,006	0,013	22.500	740	0,004	0,010	11.250	740	0,004	0,010
0,5	0,02	4	26.500	900	0,004	0,012	22.500	720	0,003	0,010	18.500	540	0,002	0,008	9.250	540	0,002	0,008
0,5	0,02	5	25.000	740	0,002	0,008	20.500	590	0,002	0,007	17.500	440	0,001	0,006	8.750	440	0,001	0,006
0,5	0,02	6	23.000	650	0,001	0,007	19.000	510	0,001	0,006	16.000	390	0,001	0,005	8.000	390	0,001	0,005
0,5	0,05	1	34.500	1.460	0,007	0,018	28.500	1.170	0,006	0,015	24.000	870	0,004	0,012	12.000	870	0,004	0,012
0,5	0,05	2	34.500	1.460	0,007	0,018	28.500	1.170	0,006	0,015	24.000	870	0,004	0,012	12.000	870	0,004	0,012
0,5	0,05	3	32.500	1.230	0,007	0,016	27.000	990	0,006	0,013	22.500	740	0,004	0,010	11.250	740	0,004	0,010
0,5	0,05	4	26.500	900	0,004	0,012	22.500	720	0,003	0,010	18.500	540	0,002	0,008	9.250	540	0,002	0,008
0,5	0,05	5	25.000	740	0,002	0,008	20.500	590	0,002	0,007	17.500	440	0,001	0,006	8.750	440	0,001	0,006
0,5	0,05	6	23.000	650	0,001	0,007	19.000	510	0,001	0,006	16.000	390	0,001	0,005	8.000	390	0,001	0,005
0,5	0,1	1	34.500	1.460	0,012	0,018	28.500	1.170	0,010	0,015	24.000	870	0,006	0,012	12.000	870	0,006	0,012
0,5	0,1	2	34.500	1.460	0,012	0,018	28.500	1.170	0,010	0,015	24.000	870	0,006	0,012	12.000	870	0,006	0,012
0,5	0,1	3	32.500	1.230	0,012	0,016	27.000	990	0,010	0,013	22.500	740	0,006	0,010	11.250	740	0,006	0,010
0,5	0,1	4	26.500	900	0,007	0,012	22.500	720	0,006	0,010	18.500	540	0,004	0,008	9.250	540	0,004	0,008
0,5	0,1	5	25.000	740	0,005	0,008	20.500	590	0,004	0,007	17.500	440	0,002	0,006	8.750	440	0,002	0,006
0,5	0,1	6	23.000	650	0,004	0,007	19.000	510	0,003	0,006	16.000	390	0,002	0,005	8.000	390	0,002	0,005
0,6	0,05	1	31.000	1.580	0,007	0,022	26.500	1.280	0,006	0,018	24.000	1.040	0,004	0,014	12.000	1.040	0,004	0,014
0,6	0,05	2	31.000	1.580	0,007	0,022	26.500	1.280	0,006	0,018	24.000	1.040	0,004	0,014	12.000	1.040	0,004	0,014
0,6	0,05	4	26.000	1.110	0,006	0,014	22.000	900	0,005	0,012	20.000	740	0,003	0,010	10.000	740	0,003	0,010
0,6	0,05	6	22.500	800	0,002	0,011	19.000	650	0,002	0,009	17.000	530	0,001	0,007	8.500	530	0,001	0,007
0,6	0,1	1	31.000	1.580	0,014	0,022	26.500	1.280	0,012	0,018	24.000	1.040	0,007	0,014	12.000	1.040	0,007	0,014
0,6	0,1	2	31.000	1.580	0,014	0,022	26.500	1.280	0,012	0,018	24.000	1.040	0,007	0,014	12.000	1.040	0,007	0,014
0,6	0,1	4	26.000	1.110	0,011	0,014	22.000	900	0,009	0,012	20.000	740	0,005	0,010	10.000	740	0,005	0,010
0,6	0,1	6	22.500	800	0,005	0,011	19.000	650	0,004	0,009	17.000	530	0,002	0,007	8.500	530	0,002	0,007
0,7	0,02	1,5	30.000	1.800	0,007	0,026	26.000	1.560	0,006	0,022	24.000	1.220	0,004	0,018	12.000	1.220	0,004	0,018
0,7	0,02	2	30.000	1.800	0,007	0,026	26.000	1.560	0,006	0,022	24.000	1.220	0,004	0,018	12.000	1.220	0,004	0,018
0,7	0,02	4	27.000	1.420	0,005	0,019	23.500	1.210	0,004	0,016	21.500	940	0,002	0,013	10.750	940	0,002	0,013
0,7	0,02	6	22.500	980	0,002	0,012	19.500	830	0,002	0,010	18.000	650	0,001	0,008	9.000	650	0,001	0,008
0,7	0,05	1,5	30.000	1.800	0,007	0,026	26.000	1.560	0,006	0,022	24.000	1.220	0,004	0,018	12.000	1.220	0,004	0,018
0,7	0,05	2	30.000	1.800	0,007	0,026	26.000	1.560	0,006	0,022	24.000	1.220	0,004	0,018	12.000	1.220	0,004	0,018
0,7	0,05	4	27.000	1.420	0,005	0,019	23.500	1.210	0,004	0,016	21.500	940	0,002	0,013	10.750	940	0,002	0,013
0,7	0,05	6	22.500	980	0,002	0,012	19.500	830	0,002	0,010	18.000	650	0,001	0,008	9.000	650	0,001	0,008
0,7	0,1	2	30.000	1.800	0,018	0,026	26.000	1.560	0,015	0,022	24.000	1.220	0,009	0,018	12.000	1.220	0,009	0,018
0,7	0,1	4	27.000	1.420	0,014	0,019	23.500	1.210	0,012	0,016	21.500	940	0,007	0,013	10.750	940	0,007	0,013
0,7	0,1	6	22.500	980	0,011	0,012	19.500	830	0,009	0,010	18.000	650	0,005	0,008	9.000	650	0,005	0,008
0,8	0,05	2	31.000	2.200	0,012	0,024	27.500	1.880	0,010	0,020	25.500	1.400	0,006	0,016	12.750	1.400	0,006	0,016
0,8	0,05	4	29.000	1.800	0,010	0,024	25.500	1.580	0,008	0,020	23.500	1.190	0,005	0,016	11.750	1.190	0,005	0,016
0,8	0,05	6	23.500	1.280	0,007	0,017	21.000	1.080	0,006	0,014	19.500	830	0,004	0,011	9.750	830	0,004	0,011
0,8	0,1	2	31.000	2.200	0,022	0,024	27.500	1.880	0,018	0,020	25.500	1.400	0,011	0,016	12.750	1.400	0,011	0,016
0,8	0,1	4	29.000	1.800	0,018	0,024	25.500	1.580	0,015	0,020	23.500	1.190	0,009	0,016	11.750	1.190	0,009	0,016

CUTTING CONDITIONS

AE-CPR4-H

Side Milling (Contour Line Finish Milling)



			Hardened Steel • Prehardened Steel PX5 • SKD61 • NAK80• HPM1				Hardened Steel STAVAX • HPM38				Hardened Steel				DIN-1.2379 1.2379			
DC	RE	LU	~45HRC				45 ~ 50HRC				50 ~ 58HRC				58 ~ 65HRC			
		(mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)
0,8	0,1	6	23.500	1.280	0,014	0,017	21.000	1.080	0,012	0,014	19.500	830	0,007	0,011	9.750	830	0,007	0,011
0,8	0,2	2	31.000	2.200	0,029	0,024	27.500	1.880	0,024	0,020	25.500	1.400	0,014	0,016	12.750	1.400	0,014	0,016
0,8	0,2	4	29.000	1.800	0,024	0,024	25.500	1.580	0,020	0,020	23.500	1.190	0,012	0,016	11.750	1.190	0,012	0,016
0,8	0,2	6	23.500	1.280	0,019	0,017	21.000	1.080	0,016	0,014	19.500	830	0,010	0,011	9.750	830	0,010	0,011
0,8	0,2	8	22.000	1.040	0,010	0,012	19.500	890	0,008	0,010	18.000	680	0,005	0,008	9.000	680	0,005	0,008
0,9	0,1	4	28.000	2.020	0,018	0,030	25.000	1.690	0,015	0,025	23.000	1.330	0,009	0,020	11.500	1.330	0,009	0,020
0,9	0,1	8	21.500	1.360	0,011	0,024	19.000	1.140	0,009	0,020	17.500	890	0,005	0,016	8.750	890	0,005	0,016
1	0,02	2	29.500	2.520	0,010	0,036	26.500	2.120	0,008	0,030	24.500	1.700	0,005	0,024	12.250	1.700	0,005	0,024
1	0,02	3	27.000	2.250	0,010	0,036	24.500	1.880	0,008	0,030	22.500	1.500	0,005	0,024	11.250	1.500	0,005	0,024
1	0,02	4	27.000	2.250	0,007	0,036	24.500	1.880	0,006	0,030	22.500	1.500	0,004	0,024	11.250	1.500	0,004	0,024
1	0,02	6	24.000	1.800	0,007	0,032	21.500	1.500	0,006	0,027	20.000	1.200	0,004	0,022	10.000	1.200	0,004	0,022
1	0,02	8	21.000	1.430	0,004	0,025	19.000	1.190	0,003	0,021	17.500	930	0,002	0,017	8.750	930	0,002	0,017
1	0,02	10	19.500	1.160	0,004	0,018	17.500	960	0,003	0,015	16.500	770	0,002	0,012	8.250	770	0,002	0,012
1	0,05	2	29.500	2.520	0,010	0,036	26.500	2.120	0,008	0,030	24.500	1.700	0,005	0,024	12.250	1.700	0,005	0,024
1	0,05	3	27.000	2.250	0,010	0,036	24.500	1.880	0,008	0,030	22.500	1.500	0,005	0,024	11.250	1.500	0,005	0,024
1	0,05	4	27.000	2.250	0,007	0,036	24.500	1.880	0,006	0,030	22.500	1.500	0,004	0,024	11.250	1.500	0,004	0,024
1	0,05	6	24.000	1.800	0,007	0,032	21.500	1.500	0,006	0,027	20.000	1.200	0,004	0,022	10.000	1.200	0,004	0,022
1	0,05	8	21.000	1.430	0,004	0,025	19.000	1.190	0,003	0,021	17.500	930	0,002	0,017	8.750	930	0,002	0,017
1	0,05	10	19.500	1.160	0,004	0,018	17.500	960	0,003	0,015	16.500	770	0,002	0,012	8.250	770	0,002	0,012
1	0,05	12	18.000	1.010	0,004	0,016	16.000	840	0,003	0,013	15.000	660	0,002	0,010	7.500	660	0,002	0,010
1	0,1	2	29.500	2.520	0,024	0,036	26.500	2.120	0,020	0,030	24.500	1.700	0,012	0,024	12.250	1.700	0,012	0,024
1	0,1	3	27.000	2.250	0,024	0,036	24.500	1.880	0,020	0,030	22.500	1.500	0,012	0,024	11.250	1.500	0,012	0,024
1	0,1	4	27.000	2.250	0,018	0,036	24.500	1.880	0,015	0,030	22.500	1.500	0,009	0,024	11.250	1.500	0,009	0,024
1	0,1	6	24.000	1.800	0,018	0,032	21.500	1.500	0,015	0,027	20.000	1.200	0,009	0,022	10.000	1.200	0,009	0,022
1	0,1	8	21.000	1.430	0,011	0,025	19.000	1.190	0,009	0,021	17.500	930	0,005	0,017	8.750	930	0,005	0,017
1	0,1	10	19.500	1.160	0,007	0,018	17.500	960	0,006	0,015	16.500	770	0,004	0,012	8.250	770	0,004	0,012
1	0,1	12	18.000	1.010	0,005	0,016	16.000	840	0,004	0,013	15.000	660	0,002	0,010	7.500	660	0,002	0,010
1	0,1	16	14.500	710	0,004	0,012	13.000	590	0,003	0,010	12.000	480	0,002	0,008	6.000	480	0,002	0,008
1	0,1	20	12.000	510	0,002	0,011	11.000	420	0,002	0,009	10.000	340	0,001	0,007	5.000	340	0,001	0,007
1	0,2	2	29.500	2.520	0,036	0,036	26.500	2.120	0,030	0,030	24.500	1.700	0,018	0,024	12.250	1.700	0,018	0,024
1	0,2	3	27.000	2.250	0,036	0,036	24.500	1.880	0,030	0,030	22.500	1.500	0,018	0,024	11.250	1.500	0,018	0,024
1	0,2	4	27.000	2.250	0,024	0,036	24.500	1.880	0,020	0,030	22.500	1.500	0,012	0,024	11.250	1.500	0,012	0,024
1	0,2	6	24.000	1.800	0,024	0,032	21.500	1.500	0,020	0,027	20.000	1.200	0,012	0,022	10.000	1.200	0,012	0,022
1	0,2	8	21.000	1.430	0,014	0,025	19.000	1.190	0,012	0,021	17.500	930	0,007	0,017	8.750	930	0,007	0,017
1	0,2	10	19.500	1.160	0,010	0,018	17.500	960	0,008	0,015	16.500	770	0,005	0,012	8.250	770	0,005	0,012
1	0,2	12	18.000	1.010	0,007	0,016	16.000	840	0,006	0,013	15.000	660	0,004	0,010	7.500	660	0,004	0,010
1	0,2	16	14.500	710	0,005	0,012	13.000	590	0,004	0,010	12.000	470	0,002	0,008	6.000	470	0,002	0,008
1	0,2	20	12.000	510	0,004	0,011	11.000	420	0,003	0,009	10.000	330	0,002	0,007	5.000	330	0,002	0,007
1	0,3	2	29.500	2.520	0,043	0,036	26.500	2.120	0,036	0,030	24.500	1.700	0,022	0,024	12.250	1.700	0,022	0,024
1	0,3	3	27.000	2.250	0,043	0,036	24.500	1.880	0,036	0,030	22.500	1.500	0,022	0,024	11.250	1.500	0,022	0,024
1	0,3	4	27.000	2.250	0,036	0,036	24.500	1.880	0,030	0,030	22.500	1.500	0,018	0,024	11.250	1.500	0,018	0,024
1	0,3	6	24.000	1.800	0,036	0,032	21.500	1.500	0,030	0,027	20.000	1.200	0,018	0,022	10.000	1.200	0,018	0,022
1	0,3	8	21.000	1.430	0,022	0,025	19.000	1.190	0,018	0,021	17.500	930	0,011	0,017	8.750	930	0,011	0,017
1	0,3	10	19.500	1.160	0,014	0,018	17.500	960	0,012	0,015	16.500	770	0,007	0,012	8.250	770	0,007	0,012
1	0,3	12	18.000	1.010	0,011	0,016	16.000	840	0,009	0,013	15.000	660	0,005	0,010	7.500	660	0,005	0,010
1	0,3	16	14.500	710	0,007	0,012	13.000	590	0,006	0,010	12.000	470	0,004	0,008	6.000	470	0,004	0,008
1	0,3	20	12.000	510	0,006	0,011	11.000	420	0,005	0,009	10.000	330	0,003	0,007	5.000	330	0,003	0,007
1,2	0,2	6	22.500	2.180	0,019	0,043	21.000	1.880	0,016	0,036	19.000	1.440	0,010	0,029	9.500	1.440	0,010	0,029
1,2	0,2	8	20.000	1.730	0,011	0,034	18.500	1.470	0,009	0,028	17.000	1.140	0,005	0,022	8.500	1.140	0,005	0,022
1,2	0,2	10	18.500	1.500	0,006	0,025	17.500	1.290	0,005	0,021	16.000	1.010	0,003	0,017	8.000	1.010	0,003	0,017
1,2	0,3	6	22.500	2.180	0,029	0,043	21.000	1.880	0,024	0,036	19.000	1.440	0,014	0,029	9.500	1.440	0,014	0,029
1,2	0,3	8	20.000	1.730	0,016	0,034	18.500	1.470	0,013	0,028	17.000	1.140	0,008	0,022	8.500	1.140	0,008	0,022
1,2	0,3	10	18.500	1.500	0,010	0,025	17.500	1.290	0,008	0,021	16.000	1.010	0,005	0,017	8.000	1.010	0,005	0,017
1,5	0,05	3	22.000	2.900	0,007	0,054	19.500	2.420	0,006	0,045	17.000	1.740	0,004	0,036	8.500	1.740	0,004	0,036
1,5	0,05	4	22.000	2.900	0,007	0,054	19.500	2.420	0,006	0,045	17.000	1.740	0,004	0,036	8.500	1.740	0,004	0,036
1,5	0,05	6	21.000	2.630	0,006	0,054	18.500	2.180	0,005	0,045	16.000	1.580	0,003	0,036	8.000	1.580	0,003	0,036
1,5	0,05	8	20.000	2.250	0,006	0,054	17.500	1.880	0,005	0,045	15.500	1.370	0,003	0,036	7.750	1.370	0,003	0,036
1,5	0,05	10	17.500	1.880	0,048	0,043	15.500	1.580	0,040	0,036	13.500	1.140	0,024	0,029	6.750	1.140	0,024	0,029
1,5	0,05	12	16.500	1.650	0,036	0,037	14.500	1.370	0,030	0,031	12.500	1.010	0,018	0,025	6.250	1.010	0,018	0,025
1,5	0,05	16	11.000	960	0,024	0,026	10.000	800	0,020	0,022	8.650	590	0,012	0,018	4.325	590	0,012	0,018
1,5	0,1	3	22.000	2.900	0,014	0,054	19.500	2.420	0,012	0,045	17.000	1.740	0,007	0,036	8.500	1.740	0,007	0,036
1,5	0,1	4	22.000	2.900	0,014	0,054	19.500	2.420	0,012	0,045	17.000	1.740	0,007	0,036	8.500	1.740	0,007	0,036
1,5	0,1	6	21.000	2.630	0,012	0,054	18.500	2.180	0,010	0,045	16.000	1.580	0,006	0,036	8.000	1.580	0,006	0,036
1,5	0,1	8	20.000	2.250	0,012	0,054	17.500	1.880	0,010	0,045	15.500	1.370	0,006	0,036	7.750	1.370	0,006	0,036
1,5	0,1	10	17.500	1.880	0,108	0,043	15.500	1.580	0,090	0,036	13.500	1.140	0,054	0,029	6.750	1.140	0,054	0,029
1,5	0,1	12	16.500	1.650	0,072	0,037	14.500	1.370	0,060	0,031	12.500	1.010	0,036	0,025	6.250	1.010	0,036	0,025
1,5	0,1	16	11.000	960	0,048	0,026	10.000	800	0,040	0,022	8.650	590	0,024	0,018	4.325	590	0,024	0,018
1,5	0,2	3	22.000	2.900	0,029	0,054	19.500	2.420	0,024	0,045	17.000	1.740	0,014	0,036	8.500	1.740	0,014	0,036
1,5	0,2	4	22.000	2.900	0,029	0,054	19.500	2.420	0,024	0,045	17.000	1.740	0,014	0,036	8.500	1.740	0,014	0,036
1,5	0,2	6	21.000	2.630	0,024	0,054	18.500	2.180	0,020	0,045	16.000	1.580	0,012	0,036	8.000	1.580	0,012	0,036
1,5	0,2	8	20.000	2.250	0,024	0,054	17.500	1.880	0,020	0,045	15.500	1.370	0,012	0,036	7.750	1.370	0,012	0,036
1,5	0,2	10	17.500	1.880	0,022	0,043	15.500	1.580	0,018	0,036	13.500	1.140	0,011	0,029	6.750	1.140	0,011	0,029
1,5	0,2	12	16.500	1.650	0,014	0,037	14.500	1.370	0,012	0,031	12.500	1.010	0,007	0,025	6.250	1.010	0,007	0,025
1,5	0,2	16	11.000	960	0,010	0,026	10.000	800	0,008	0,022	8.650	590	0,005	0,018	4.325	590	0,005	0,018
1,5	0,3	3	22.000	2.900	0,043	0,054	19.500	2.420	0,036	0,045	17.000	1.740	0,022	0,036	8.500	1.740	0,022	0,036
1,5	0,3	4	22.000	2.900	0,043	0,054	19.500	2.420	0,036	0,045	17.000	1.740	0,022	0,036	8.500	1.740	0,022	0,036

AE-CPR4-H

Side Milling (Contour Line Finish Milling)



			Hardened Steel • Prehardened Steel PX5 • SKD61 • NAK80• HPM1				Hardened Steel STAVAX • HPM38				Hardened Steel				DIN-1.2379 1.2379			
DC	RE	LU	~45HRC				45 ~ 50HRC				50 ~ 58HRC				58 ~ 65HRC			
		(mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)
1,5	0,3	6	21.000	2.630	0,036	0,054	18.500	2.180	0,030	0,045	16.000	1.580	0,018	0,036	8.000	1.580	0,018	0,036
1,5	0,3	8	20.000	2.250	0,036	0,054	17.500	1.880	0,030	0,045	15.500	1.370	0,018	0,036	7.750	1.370	0,018	0,036
1,5	0,3	10	17.500	1.880	0,032	0,043	15.500	1.580	0,027	0,036	13.500	1.140	0,016	0,029	6.750	1.140	0,016	0,029
1,5	0,3	12	16.500	1.650	0,022	0,037	14.500	1.370	0,018	0,031	12.500	1.010	0,011	0,025	6.250	1.010	0,011	0,025
1,5	0,3	16	11.000	960	0,014	0,026	10.000	800	0,012	0,022	8.650	590	0,007	0,018	4.325	590	0,007	0,018
1,5	0,5	3	22.000	2.900	0,072	0,054	19.500	2.420	0,060	0,045	17.000	1.740	0,036	0,036	8.500	1.740	0,036	0,036
1,5	0,5	4	22.000	2.900	0,072	0,054	19.500	2.420	0,060	0,045	17.000	1.740	0,036	0,036	8.500	1.740	0,036	0,036
1,5	0,5	6	21.000	2.630	0,060	0,054	18.500	2.180	0,050	0,045	16.000	1.580	0,030	0,036	8.000	1.580	0,030	0,036
1,5	0,5	8	20.000	2.250	0,060	0,054	17.500	1.880	0,050	0,045	15.500	1.370	0,030	0,036	7.750	1.370	0,030	0,036
1,5	0,5	10	17.500	1.880	0,054	0,043	15.500	1.580	0,045	0,036	13.500	1.140	0,027	0,029	6.750	1.140	0,027	0,029
1,5	0,5	12	16.500	1.650	0,036	0,037	14.500	1.370	0,030	0,031	12.500	1.010	0,018	0,025	6.250	1.010	0,018	0,025
1,5	0,5	16	11.000	960	0,024	0,026	10.000	800	0,020	0,022	8.650	590	0,012	0,018	4.325	590	0,012	0,018
2	0,05	4	18.000	3.300	0,010	0,072	17.500	2.900	0,008	0,060	16.500	2.450	0,005	0,048	8.250	2.450	0,005	0,048
2	0,05	6	17.500	3.100	0,010	0,072	17.000	2.700	0,008	0,060	16.000	2.300	0,005	0,048	8.000	2.300	0,005	0,048
2	0,05	8	16.500	2.780	0,010	0,072	16.000	2.400	0,008	0,060	15.000	2.030	0,005	0,048	7.500	2.030	0,005	0,048
2	0,05	10	15.500	2.480	0,010	0,072	15.500	2.180	0,008	0,060	14.500	1.800	0,005	0,048	7.250	1.800	0,005	0,048
2	0,05	12	14.500	2.250	0,010	0,065	14.500	1.950	0,008	0,054	13.500	1.580	0,005	0,043	6.750	1.580	0,005	0,043
2	0,05	16	13.000	1.730	0,006	0,050	12.500	1.500	0,005	0,042	12.000	1.250	0,003	0,034	6.000	1.250	0,003	0,034
2	0,05	20	12.000	1.410	0,004	0,036	11.500	1.230	0,003	0,030	11.000	1.020	0,002	0,024	5.500	1.020	0,002	0,024
2	0,1	4	18.000	3.300	0,018	0,072	17.500	2.900	0,015	0,060	16.500	2.450	0,009	0,048	8.250	2.450	0,009	0,048
2	0,1	6	17.500	3.100	0,018	0,072	17.000	2.700	0,015	0,060	16.000	2.300	0,009	0,048	8.000	2.300	0,009	0,048
2	0,1	8	16.500	2.780	0,018	0,072	16.000	2.400	0,015	0,060	15.000	2.030	0,009	0,048	7.500	2.030	0,009	0,048
2	0,1	10	15.500	2.480	0,018	0,072	15.500	2.180	0,015	0,060	14.500	1.800	0,009	0,048	7.250	1.800	0,009	0,048
2	0,1	12	14.500	2.250	0,018	0,065	14.500	1.950	0,015	0,054	13.500	1.580	0,009	0,043	6.750	1.580	0,009	0,043
2	0,1	16	13.000	1.730	0,011	0,050	12.500	1.500	0,009	0,042	12.000	1.250	0,005	0,034	6.000	1.250	0,005	0,034
2	0,1	20	12.000	1.410	0,007	0,036	11.500	1.230	0,006	0,030	11.000	1.020	0,004	0,024	5.500	1.020	0,004	0,024
2	0,1	25	11.000	1.200	0,005	0,032	11.000	1.050	0,004	0,027	10.000	870	0,002	0,022	5.000	870	0,002	0,022
2	0,2	4	18.000	3.300	0,024	0,072	17.500	2.900	0,020	0,060	16.500	2.450	0,012	0,048	8.250	2.450	0,012	0,048
2	0,2	6	17.500	3.100	0,024	0,072	17.000	2.700	0,020	0,060	16.000	2.300	0,012	0,048	8.000	2.300	0,012	0,048
2	0,2	8	16.500	2.780	0,024	0,072	16.000	2.400	0,020	0,060	15.000	2.030	0,012	0,048	7.500	2.030	0,012	0,048
2	0,2	10	15.500	2.480	0,024	0,072	15.500	2.180	0,020	0,060	14.500	1.800	0,012	0,048	7.250	1.800	0,012	0,048
2	0,2	12	14.500	2.250	0,024	0,065	14.500	1.950	0,020	0,054	13.500	1.580	0,012	0,043	6.750	1.580	0,012	0,043
2	0,2	16	13.000	1.730	0,014	0,050	12.500	1.500	0,012	0,042	12.000	1.250	0,007	0,034	6.000	1.250	0,007	0,034
2	0,2	20	12.000	1.410	0,010	0,036	11.500	1.230	0,008	0,030	11.000	1.020	0,005	0,024	5.500	1.020	0,005	0,024
2	0,2	25	11.000	1.200	0,007	0,032	11.000	1.050	0,006	0,027	10.000	870	0,004	0,022	5.000	870	0,004	0,022
2	0,3	4	18.000	3.300	0,036	0,072	17.500	2.900	0,030	0,060	16.500	2.450	0,018	0,048	8.250	2.450	0,018	0,048
2	0,3	6	17.500	3.100	0,036	0,072	17.000	2.700	0,030	0,060	16.000	2.300	0,018	0,048	8.000	2.300	0,018	0,048
2	0,3	8	16.500	2.780	0,036	0,072	16.000	2.400	0,030	0,060	15.000	2.030	0,018	0,048	7.500	2.030	0,018	0,048
2	0,3	10	15.500	2.480	0,036	0,072	15.500	2.180	0,030	0,060	14.500	1.800	0,018	0,048	7.250	1.800	0,018	0,048
2	0,3	12	14.500	2.250	0,036	0,065	14.500	1.950	0,030	0,054	13.500	1.580	0,018	0,043	6.750	1.580	0,018	0,043
2	0,3	16	13.000	1.730	0,022	0,050	12.500	1.500	0,018	0,042	12.000	1.250	0,011	0,034	6.000	1.250	0,011	0,034
2	0,3	20	12.000	1.410	0,014	0,036	11.500	1.230	0,012	0,030	11.000	1.020	0,007	0,024	5.500	1.020	0,007	0,024
2	0,5	4	18.000	3.300	0,060	0,072	17.500	2.900	0,050	0,060	16.500	2.450	0,030	0,048	8.250	2.450	0,030	0,048
2	0,5	6	17.500	3.100	0,060	0,072	17.000	2.700	0,050	0,060	16.000	2.300	0,030	0,048	8.000	2.300	0,030	0,048
2	0,5	8	16.500	2.780	0,060	0,072	16.000	2.400	0,050	0,060	15.000	2.030	0,030	0,048	7.500	2.030	0,030	0,048
2	0,5	10	15.500	2.480	0,060	0,072	15.500	2.180	0,050	0,060	14.500	1.800	0,030	0,048	7.250	1.800	0,030	0,048
2	0,5	12	14.500	2.250	0,060	0,065	14.500	1.950	0,050	0,054	13.500	1.580	0,030	0,043	6.750	1.580	0,030	0,043
2	0,5	16	13.000	1.730	0,036	0,050	12.500	1.500	0,030	0,042	12.000	1.250	0,018	0,034	6.000	1.250	0,018	0,034
2	0,5	20	12.000	1.410	0,024	0,036	11.500	1.230	0,020	0,030	11.000	1.020	0,012	0,024	5.500	1.020	0,012	0,024
2	0,5	25	11.000	1.200	0,018	0,032	11.000	1.050	0,015	0,027	10.000	870	0,009	0,022	5.000	870	0,009	0,022
2,5	0,1	10	13.000	2.780	0,012	0,090	13.000	2.100	0,010	0,075	12.000	2.030	0,006	0,060	6.000	2.030	0,006	0,060
2,5	0,1	20	10.000	1.730	0,007	0,062	10.000	1.340	0,006	0,052	9.450	1.250	0,004	0,042	4.725	1.250	0,004	0,042
2,5	0,1	30	8.500	1.400	0,004	0,036	8.500	1.080	0,003	0,030	8.000	1.000	0,002	0,024	4.000	1.000	0,002	0,024
2,5	0,2	10	13.000	2.780	0,024	0,090	13.000	2.100	0,020	0,075	12.000	2.030	0,012	0,060	6.000	2.030	0,012	0,060
2,5	0,2	20	10.000	1.730	0,014	0,062	10.000	1.340	0,012	0,052	9.450	1.250	0,007	0,042	4.725	1.250	0,007	0,042
2,5	0,2	30	8.500	1.400	0,007	0,036	8.500	1.080	0,006	0,030	8.000	1.000	0,004	0,024	4.000	1.000	0,004	0,024
2,5	0,3	10	13.000	2.780	0,036	0,090	13.000	2.100	0,030	0,075	12.000	2.030	0,018	0,060	6.000	2.030	0,018	0,060
2,5	0,3	20	10.000	1.730	0,022	0,062	10.000	1.340	0,018	0,052	9.450	1.250	0,011	0,042	4.725	1.250	0,011	0,042
2,5	0,3	30	8.500	1.400	0,011	0,036	8.500	1.080	0,009	0,030	8.000	1.000	0,005	0,024	4.000	1.000	0,005	0,024
2,5	0,5	10	13.000	2.780	0,060	0,090	13.000	2.100	0,050	0,075	12.000	2.030	0,030	0,060	6.000	2.030	0,030	0,060
2,5	0,5	20	10.000	1.730	0,036	0,062	10.000	1.340	0,030	0,052	9.450	1.250	0,018	0,042	4.725	1.250	0,018	0,042
2,5	0,5	30	8.500	1.400	0,018	0,036	8.500	1.080	0,015	0,030	8.000	1.000	0,009	0,024	4.000	1.000	0,009	0,024
3	0,1	4	14.000	4.100	0,012	0,108	13.000	2.850	0,010	0,090	12.000	2.250	0,006	0,072	6.000	2.250	0,006	0,072
3	0,1	6	12.500	3.600	0,012	0,108	11.500	2.500	0,010	0,090	10.500	1.950	0,006	0,072	5.250	1.950	0,006	0,072
3	0,1	8	12.000	3.000	0,012	0,096	11.000	2.100	0,010	0,080	10.000	1.650	0,006	0,064	5.000	1.650	0,006	0,064
3	0,1	10	12.000	3.000	0,012	0,096	11.000	2.100	0,010	0,080	10.000	1.650	0,006	0,064	5.000	1.650	0,006	0,064
3	0,1	12	12.000	3.000	0,012	0,096	11.000	2.100	0,010	0,080	10.000	1.650	0,006	0,064	5.000	1.650	0,006	0,064
3	0,1	16	10.500	2.400	0,012	0,096	9.600	1.730	0,010	0,080	9.000	1.320	0,006	0,064	4.500	1.320	0,006	0,064
3	0,1	20	9.300	2.030	0,012	0,077	8.400	1.410	0,010	0,064	7.850	1.100	0,006	0,051	3.925	1.100	0,006	0,051
3	0,1	25	8.900	1.650	0,007	0,058	8.050	1.200	0,006	0,048	7.550	920	0,004	0,038	3.775	920	0,004	0,038
3	0,2	4	14.000	4.100	0,024	0,108	13.000	2.850	0,020	0,090	12.000	2.250	0,012	0,072	6.000	2.250	0,012	0,072
3	0,2	6	12.500	3.600	0,024	0,108	11.500	2.500	0,020	0,090	10.500	1.950	0,012	0,072	5.250	1.950	0,012	0,072
3	0,2	8	12.000	3.000	0,024	0,096	11.000	2.100	0,020	0,080	10.000	1.650	0,012	0,064	5.000	1.650	0,012	0,064
3	0,2	10	12.000	3.000	0,024	0,096	11.000	2.100	0,020	0,080	10.000	1.650	0,012	0,064	5.000	1.650	0,012	0,064
3	0,2	12	12.000	3.000	0,024	0,096	11.000	2.100	0,020	0,080	10.000	1.650	0,012	0,064	5.000	1.650	0,012	0,064
3	0,2	16	10.500	2.400	0,024	0,096	9.600	1.730	0,020	0,080	9.000	1.320	0,012	0,064	4.500	1.320	0,012	0,064

AE-CPR4-H

Side Milling (Contour Line Finish Milling)



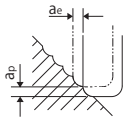
			Hardened Steel • Prehardened Steel PX5 • SKD61 • NAK80• HPM1				Hardened Steel STAVAX • HPM38				Hardened Steel				DIN-1.2379 1.2379			
DC	RE	LU	~45HRC				45 ~ 50HRC				50 ~ 58HRC				58 ~ 65HRC			
		(mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)
3	0,2	20	9.300	2.030	0,024	0,077	8.400	1.410	0,020	0,064	7.850	1.100	0,012	0,051	3.925	1.100	0,012	0,051
3	0,2	25	8.900	1.650	0,014	0,058	8.050	1.200	0,012	0,048	7.550	920	0,007	0,038	3.775	920	0,007	0,038
3	0,2	30	8.600	1.500	0,010	0,048	7.800	1.080	0,008	0,040	7.300	840	0,005	0,032	3.650	840	0,005	0,032
3	0,2	35	7.950	1.320	0,007	0,043	7.200	950	0,006	0,036	6.750	720	0,004	0,029	3.375	720	0,004	0,029
3	0,3	4	14.000	4.100	0,036	0,108	13.000	2.850	0,030	0,090	12.000	2.250	0,018	0,072	6.000	2.250	0,018	0,072
3	0,3	6	12.500	3.600	0,036	0,108	11.500	2.500	0,030	0,090	10.500	1.950	0,018	0,072	5.250	1.950	0,018	0,072
3	0,3	8	12.000	3.000	0,036	0,096	11.000	2.100	0,030	0,080	10.000	1.650	0,018	0,064	5.000	1.650	0,018	0,064
3	0,3	10	12.000	3.000	0,036	0,096	11.000	2.100	0,030	0,080	10.000	1.650	0,018	0,064	5.000	1.650	0,018	0,064
3	0,3	12	12.000	3.000	0,036	0,096	11.000	2.100	0,030	0,080	10.000	1.650	0,018	0,064	5.000	1.650	0,018	0,064
3	0,3	16	10.500	2.400	0,036	0,096	9.600	1.730	0,030	0,080	9.000	1.320	0,018	0,064	4.500	1.320	0,018	0,064
3	0,3	20	9.300	2.030	0,036	0,077	8.400	1.410	0,030	0,064	7.850	1.100	0,018	0,051	3.925	1.100	0,018	0,051
3	0,3	25	8.900	1.650	0,022	0,058	8.050	1.200	0,018	0,048	7.550	920	0,011	0,038	3.775	920	0,011	0,038
3	0,3	30	8.600	1.500	0,014	0,048	7.800	1.080	0,012	0,040	7.300	840	0,007	0,032	3.650	840	0,007	0,032
3	0,3	35	7.950	1.320	0,011	0,043	7.200	950	0,009	0,036	6.750	720	0,005	0,029	3.375	720	0,005	0,029
3	0,5	4	14.000	4.100	0,060	0,108	13.000	2.850	0,050	0,090	12.000	2.250	0,030	0,072	6.000	2.250	0,030	0,072
3	0,5	6	12.500	3.600	0,060	0,108	11.500	2.500	0,050	0,090	10.500	1.950	0,030	0,072	5.250	1.950	0,030	0,072
3	0,5	8	12.000	3.000	0,060	0,096	11.000	2.100	0,050	0,080	10.000	1.650	0,030	0,064	5.000	1.650	0,030	0,064
3	0,5	10	12.000	3.000	0,060	0,096	11.000	2.100	0,050	0,080	10.000	1.650	0,030	0,064	5.000	1.650	0,030	0,064
3	0,5	12	12.000	3.000	0,060	0,096	11.000	2.100	0,050	0,080	10.000	1.650	0,030	0,064	5.000	1.650	0,030	0,064
3	0,5	16	10.500	2.400	0,060	0,096	9.600	1.730	0,050	0,080	9.000	1.320	0,030	0,064	4.500	1.320	0,030	0,064
3	0,5	20	9.300	2.030	0,060	0,077	8.400	1.410	0,050	0,064	7.850	1.100	0,030	0,051	3.925	1.100	0,030	0,051
3	0,5	25	8.900	1.650	0,036	0,058	8.050	1.200	0,030	0,048	7.550	920	0,018	0,038	3.775	920	0,018	0,038
3	0,5	30	8.600	1.500	0,024	0,048	7.800	1.080	0,020	0,040	7.300	840	0,012	0,032	3.650	840	0,012	0,032
3	0,5	35	7.950	1.320	0,018	0,043	7.200	950	0,015	0,036	6.750	720	0,009	0,029	3.375	720	0,009	0,029
4	0,1	8	9.500	3.100	0,012	0,144	8.650	2.550	0,010	0,120	7.800	1.800	0,006	0,096	3.900	1.800	0,006	0,096
4	0,1	12	9.500	3.100	0,012	0,144	8.650	2.550	0,010	0,120	7.800	1.800	0,006	0,096	3.900	1.800	0,006	0,096
4	0,1	16	7.900	2.500	0,012	0,096	7.150	2.050	0,010	0,080	6.450	1.450	0,006	0,064	3.225	1.450	0,006	0,064
4	0,1	20	7.450	2.400	0,012	0,096	6.750	1.950	0,010	0,080	6.100	1.350	0,006	0,064	3.050	1.350	0,006	0,064
4	0,1	25	6.550	2.000	0,012	0,086	5.950	1.650	0,010	0,072	5.350	1.150	0,006	0,058	2.675	1.150	0,006	0,058
4	0,1	30	6.100	1.650	0,008	0,067	5.550	1.350	0,007	0,056	5.000	960	0,004	0,045	2.500	960	0,004	0,045
4	0,2	8	9.500	3.100	0,024	0,144	8.650	2.550	0,020	0,120	7.800	1.800	0,012	0,096	3.900	1.800	0,012	0,096
4	0,2	12	9.500	3.100	0,024	0,144	8.650	2.550	0,020	0,120	7.800	1.800	0,012	0,096	3.900	1.800	0,012	0,096
4	0,2	16	7.900	2.500	0,024	0,096	7.150	2.050	0,020	0,080	6.450	1.450	0,012	0,064	3.225	1.450	0,012	0,064
4	0,2	20	7.450	2.400	0,024	0,096	6.750	1.950	0,020	0,080	6.100	1.350	0,012	0,064	3.050	1.350	0,012	0,064
4	0,2	25	6.550	2.000	0,024	0,086	5.950	1.650	0,020	0,072	5.350	1.150	0,012	0,058	2.675	1.150	0,012	0,058
4	0,2	30	6.100	1.650	0,017	0,067	5.550	1.350	0,014	0,056	5.000	960	0,008	0,045	2.500	960	0,008	0,045
4	0,2	40	5.700	1.300	0,010	0,048	5.150	1.050	0,008	0,040	4.650	730	0,005	0,032	2.325	730	0,005	0,032
4	0,3	8	9.500	3.100	0,036	0,144	8.650	2.550	0,030	0,120	7.800	1.800	0,018	0,096	3.900	1.800	0,018	0,096
4	0,3	12	9.500	3.100	0,036	0,144	8.650	2.550	0,030	0,120	7.800	1.800	0,018	0,096	3.900	1.800	0,018	0,096
4	0,3	16	7.900	2.500	0,036	0,096	7.150	2.050	0,030	0,080	6.450	1.450	0,018	0,064	3.225	1.450	0,018	0,064
4	0,3	20	7.450	2.400	0,036	0,096	6.750	1.950	0,030	0,080	6.100	1.350	0,018	0,064	3.050	1.350	0,018	0,064
4	0,3	25	6.550	2.000	0,036	0,086	5.950	1.650	0,030	0,072	5.350	1.150	0,018	0,058	2.675	1.150	0,018	0,058
4	0,3	30	6.100	1.650	0,025	0,067	5.550	1.350	0,021	0,056	5.000	960	0,013	0,045	2.500	960	0,013	0,045
4	0,3	40	5.700	1.300	0,014	0,048	5.150	1.050	0,012	0,040	4.650	730	0,007	0,032	2.325	730	0,007	0,032
4	0,5	8	9.500	3.100	0,060	0,144	8.650	2.550	0,050	0,120	7.800	1.800	0,030	0,096	3.900	1.800	0,030	0,096
4	0,5	12	9.500	3.100	0,060	0,144	8.650	2.550	0,050	0,120	7.800	1.800	0,030	0,096	3.900	1.800	0,030	0,096
4	0,5	16	7.900	2.500	0,060	0,096	7.150	2.050	0,050	0,080	6.450	1.450	0,030	0,064	3.225	1.450	0,030	0,064
4	0,5	20	7.450	2.400	0,060	0,096	6.750	1.950	0,050	0,080	6.100	1.350	0,030	0,064	3.050	1.350	0,030	0,064
4	0,5	25	6.550	2.000	0,060	0,086	5.950	1.650	0,050	0,072	5.350	1.150	0,030	0,058	2.675	1.150	0,030	0,058
4	0,5	30	6.100	1.650	0,042	0,067	5.550	1.350	0,035	0,056	5.000	960	0,021	0,045	2.500	960	0,021	0,045
4	0,5	40	5.700	1.300	0,024	0,048	5.150	1.050	0,020	0,040	4.650	730	0,012	0,032	2.325	730	0,012	0,032
4	0,5	50	5.000	960	0,018	0,043	4.550	790	0,015	0,036	4.100	550	0,009	0,029	2.050	550	0,009	0,029
4	1	8	9.500	3.100	0,096	0,144	8.650	2.550	0,080	0,120	7.800	1.800	0,048	0,096	3.900	1.800	0,048	0,096
4	1	12	9.500	3.100	0,096	0,144	8.650	2.550	0,080	0,120	7.800	1.800	0,048	0,096	3.900	1.800	0,048	0,096
4	1	16	7.900	2.500	0,096	0,096	7.150	2.050	0,080	0,080	6.450	1.450	0,048	0,064	3.225	1.450	0,048	0,064
4	1	20	7.450	2.400	0,096	0,096	6.750	1.950	0,080	0,080	6.100	1.350	0,048	0,064	3.050	1.350	0,048	0,064
4	1	25	6.550	2.000	0,096	0,086	5.950	1.650	0,080	0,072	5.350	1.150	0,048	0,058	2.675	1.150	0,048	0,058
4	1	30	6.100	1.650	0,067	0,067	5.550	1.350	0,056	0,056	5.000	960	0,034	0,045	2.500	960	0,034	0,045
4	1	40	5.700	1.300	0,038	0,048	5.150	1.050	0,032	0,040	4.650	730	0,019	0,032	2.325	730	0,019	0,032
6	0,1	12	7.950	3.550	0,012	0,216	7.200	2.900	0,010	0,180	6.550	2.050	0,006	0,144	3.275	2.050	0,006	0,144
6	0,1	18	6.750	2.950	0,012	0,144	6.100	2.400	0,010	0,120	5.550	1.700	0,006	0,096	2.775	1.700	0,006	0,096
6	0,1	24	6.150	2.450	0,012	0,144	5.550	2.000	0,010	0,120	5.050	1.400	0,006	0,096	2.525	1.400	0,006	0,096
6	0,1	30	5.300	2.150	0,010	0,108	4.800	1.750	0,008	0,090	4.350	1.250	0,005	0,072	2.175	1.250	0,005	0,072
6	0,1	48	3.100	1.250	0,006	0,072	2.800	1.000	0,005	0,060	2.550	700	0,003	0,048	1.275	700	0,003	0,048
6	0,2	12	7.950	3.550	0,024	0,216	7.200	2.900	0,020	0,180	6.550	2.050	0,012	0,144	3.275	2.050	0,012	0,144
6	0,2	18	6.750	2.950	0,024	0,144	6.100	2.400	0,020	0,120	5.550	1.700	0,012	0,096	2.775	1.700	0,012	0,096
6	0,2	24	6.150	2.450	0,024	0,144	5.550	2.000	0,020	0,120	5.050	1.400	0,012	0,096	2.525	1.400	0,012	0,096
6	0,2	30	5.300	2.150	0,019	0,108	4.800	1.750	0,016	0,090	4.350	1.250	0,010	0,072	2.175	1.250	0,010	0,072
6	0,2	48	3.100	1.250	0,012	0,072	2.800	1.000	0,010	0,060	2.550	700	0,006	0,048	1.275	700	0,006	0,048
6	0,3	12	7.950	3.550	0,036	0,216	7.200	2.900	0,030	0,180	6.550	2.050	0,018	0,144	3.275	2.050	0,018	0,144
6	0,3	18	6.750	2.950	0,036	0,144	6.100	2.400	0,030	0,120	5.550	1.700	0,018	0,096	2.775	1.700	0,018	0,096
6	0,3	24	6.150	2.450	0,036	0,144	5.550	2.000	0,030	0,120	5.050	1.400	0,018	0,096	2.525	1.400	0,018	0,096
6	0,3	30	5.300	2.150	0,029	0,108	4.800	1.750	0,024	0,090	4.350	1.250	0,014	0,072	2.175	1.250	0,014	0,072
6	0,3	48	3.100	1.250	0,018	0,072	2.800	1.000	0,015	0,060	2.550	700	0,009	0,048	1.275	700	0,009	0,048
6	0,5	12	7.950	3.550	0,054	0,216	7.200	2.900	0,045	0,180	6.550	2.050	0,027	0,144	3.275	2.050	0,027	0,144
6	0,5	18	6.750	2.950	0,054	0,144	6.100	2.400	0,045	0,120	5.550	1.700	0,027	0,096	2.775	1.700	0,027	0,096

AE-CPR4-H

Side Milling (Contour Line Finish Milling)

			Hardened Steel • Prehardened Steel PX5 • SKD61 • NAK80• HPM1				Hardened Steel STAVAX • HPM38				Hardened Steel				DIN-1.2379 1.2379			
DC	RE	LU	~45HRC				45 ~ 50HRC				50 ~ 58HRC				58 ~ 65HRC			
		(mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)
6	0,5	24	6.150	2.450	0,054	0,144	5.550	2.000	0,045	0,120	5.050	1.400	0,027	0,096	2.525	1.400	0,027	0,096
6	0,5	30	5.300	2.150	0,043	0,108	4.800	1.750	0,036	0,090	4.350	1.250	0,022	0,072	2.175	1.250	0,022	0,072
6	0,5	48	3.100	1.250	0,027	0,072	2.800	1.000	0,023	0,060	2.550	700	0,014	0,048	1.275	700	0,014	0,048
6	1	12	7.950	3.550	0,108	0,216	7.200	2.900	0,090	0,180	6.550	2.050	0,054	0,144	3.275	2.050	0,054	0,144
6	1	18	6.750	2.950	0,108	0,144	6.100	2.400	0,090	0,120	5.550	1.700	0,054	0,096	2.775	1.700	0,054	0,096
6	1	24	6.150	2.450	0,108	0,144	5.550	2.000	0,090	0,120	5.050	1.400	0,054	0,096	2.525	1.400	0,054	0,096
6	1	30	5.300	2.150	0,086	0,108	4.800	1.750	0,072	0,090	4.350	1.250	0,043	0,072	2.175	1.250	0,043	0,072
6	1	48	3.100	1.250	0,054	0,072	2.800	1.000	0,045	0,060	2.550	700	0,027	0,048	1.275	700	0,027	0,048

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL(Minimum Quantity Lubrication / mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation(side milling) with a low machining load. If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommended during the approach of a Z cut.
6. When using a tool with a diameter of θ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage. Therefore, adjust the cutting conditions based on the machining situation.
7. Adjust the speed, feed rate, and the depth of the cut according to the shape of the work, rigidity of the machine, and how the work is held.
8. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.



AE-CPR2-H

Regular Milling



			Hardened Steel • Prehardened Steel SKD61 • NAK55 • NAK80 • HPM1				Hardened Steel • Prehardened Steel SKD61 •STAVAX • HPM38				Hardened Steel SKH51 • YXR7• HAP40				DIN-1.2379 1.2379			
DC	RE	LU	~45HRC				45 ~ 55HRC				55 ~ 65HRC				60HRC			
		(mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)
0,2	0,02	0,5	40.000	560	0,006	0,072	36.000	470	0,005	0,060	31.500	380	0,003	0,048	15.750	380	0,003	0,048
0,2	0,02	1	38.000	530	0,005	0,072	34.000	440	0,004	0,060	30.000	360	0,002	0,048	15.000	360	0,002	0,048
0,2	0,02	1,5	36.000	430	0,004	0,054	32.000	350	0,003	0,045	28.500	290	0,002	0,036	14.250	290	0,002	0,036
0,2	0,02	2	34.000	250	0,002	0,054	30.000	200	0,002	0,045	27.000	160	0,001	0,036	13.500	160	0,001	0,036
0,2	0,05	0,5	40.000	560	0,006	0,072	36.000	470	0,005	0,060	31.500	380	0,003	0,048	15.750	380	0,003	0,048
0,2	0,05	1	38.000	530	0,005	0,072	34.000	440	0,004	0,060	30.000	360	0,002	0,048	15.000	360	0,002	0,048
0,2	0,05	1,5	36.000	430	0,004	0,054	32.000	350	0,003	0,045	28.500	290	0,002	0,036	14.250	290	0,002	0,036
0,2	0,05	2	34.000	250	0,002	0,054	30.000	200	0,002	0,045	27.000	160	0,001	0,036	13.500	160	0,001	0,036
0,3	0,02	1	36.500	730	0,006	0,108	32.500	560	0,005	0,090	30.500	480	0,003	0,072	15.250	480	0,003	0,072
0,3	0,02	1,5	33.000	600	0,004	0,090	30.000	470	0,003	0,075	28.000	410	0,002	0,060	14.000	410	0,002	0,060
0,3	0,02	2	30.000	510	0,002	0,073	27.000	390	0,002	0,061	25.500	340	0,001	0,049	12.750	340	0,001	0,049
0,3	0,02	2,5	26.500	400	0,002	0,073	24.000	320	0,002	0,061	22.500	w280	0,001	0,049	11.250	280	0,001	0,049
0,3	0,02	3	23.000	190	0,001	0,066	21.000	150	0,001	0,055	19.500	130	0,001	0,044	9.750	130	0,001	0,044
0,3	0,05	1	36.500	730	0,006	0,108	32.500	560	0,005	0,090	30.500	480	0,003	0,072	15.250	480	0,003	0,072
0,3	0,05	1,5	33.000	600	0,004	0,090	30.000	470	0,003	0,075	28.000	410	0,002	0,060	14.000	410	0,002	0,060
0,3	0,05	2	30.000	510	0,002	0,073	27.000	390	0,002	0,061	25.500	340	0,001	0,049	12.750	340	0,001	0,049
0,3	0,05	2,5	26.500	400	0,002	0,073	24.000	320	0,002	0,061	22.500	280	0,001	0,049	11.250	280	0,001	0,049
0,3	0,05	3	23.000	190	0,001	0,066	21.000	150	0,001	0,055	19.500	130	0,001	0,044	9.750	130	0,001	0,044
0,4	0,02	1	29.500	750	0,008	0,144	26.000	580	0,007	0,120	24.500	470	0,004	0,096	12.250	470	0,004	0,096
0,4	0,02	1,5	29.500	750	0,008	0,144	26.000	580	0,007	0,120	24.500	470	0,004	0,096	12.250	470	0,004	0,096
0,4	0,02	2	27.500	680	0,006	0,122	24.500	520	0,005	0,102	23.000	420	0,003	0,082	11.500	420	0,003	0,082
0,4	0,02	2,5	25.000	570	0,004	0,106	22.500	440	0,003	0,088	21.000	350	0,002	0,070	10.500	350	0,002	0,070
0,4	0,02	3	23.000	470	0,002	0,090	20.000	360	0,002	0,075	19.000	290	0,001	0,060	9.500	290	0,001	0,060
0,4	0,02	4	21.000	380	0,001	0,043	18.500	290	0,001	0,036	17.500	240	0,001	0,029	8.750	240	0,001	0,029
0,4	0,05	1	29.500	750	0,008	0,144	26.000	580	0,007	0,120	24.500	470	0,004	0,096	12.250	470	0,004	0,096
0,4	0,05	1,5	29.500	750	0,008	0,144	26.000	580	0,007	0,120	24.500	470	0,004	0,096	12.250	470	0,004	0,096
0,4	0,05	2	27.500	680	0,006	0,122	24.500	520	0,005	0,102	23.000	420	0,003	0,082	11.500	420	0,003	0,082
0,4	0,05	3	23.000	470	0,002	0,090	20.000	360	0,002	0,075	19.000	290	0,001	0,060	9.500	290	0,001	0,060
0,4	0,05	4	21.000	380	0,001	0,043	18.500	290	0,001	0,036	17.500	240	0,001	0,029	8.750	240	0,001	0,029
0,4	0,1	1	29.500	750	0,012	0,144	26.000	580	0,010	0,120	24.500	470	0,006	0,096	12.250	470	0,006	0,096
0,4	0,1	2	27.500	680	0,010	0,122	24.500	520	0,008	0,102	23.000	420	0,005	0,082	11.500	420	0,005	0,082
0,4	0,1	3	23.000	470	0,004	0,090	20.000	360	0,003	0,075	19.000	290	0,002	0,060	9.500	290	0,002	0,060
0,4	0,1	4	21.000	380	0,002	0,043	18.500	290	0,002	0,036	17.500	240	0,001	0,029	8.750	240	0,001	0,029
0,5	0,02	1	29.000	820	0,008	0,180	26.000	670	0,007	0,150	26.000	620	0,004	0,120	13.000	620	0,004	0,120
0,5	0,02	2	29.000	820	0,008	0,180	26.000	670	0,007	0,150	26.000	620	0,004	0,120	13.000	620	0,004	0,120
0,5	0,02	3	27.500	700	0,004	0,126	24.500	570	0,003	0,105	24.500	530	0,002	0,084	12.250	530	0,002	0,084
0,5	0,02	4	22.500	510	0,002	0,108	20.000	420	0,002	0,090	20.000	390	0,001	0,072	10.000	390	0,001	0,072
0,5	0,02	5	21.000	420	0,001	0,054	18.500	340	0,001	0,045	18.500	320	0,001	0,036	9.250	320	0,001	0,036
0,5	0,02	6	19.500	360	0,001	0,036	17.000	300	0,001	0,030	17.000	270	0,001	0,024	8.500	270	0,001	0,024
0,5	0,05	1	29.000	820	0,008	0,180	26.000	670	0,007	0,150	26.000	620	0,004	0,120	13.000	620	0,004	0,120
0,5	0,05	2	29.000	820	0,008	0,180	26.000	670	0,007	0,150	26.000	620	0,004	0,120	13.000	620	0,004	0,120
0,5	0,05	3	27.500	700	0,004	0,126	24.500	570	0,003	0,105	24.500	530	0,002	0,084	12.250	530	0,002	0,084
0,5	0,05	4	22.500	510	0,002	0,108	20.000	420	0,002	0,090	20.000	390	0,001	0,072	10.000	390	0,001	0,072
0,5	0,05	5	21.000	420	0,001	0,054	18.500	340	0,001	0,045	18.500	320	0,001	0,036	9.250	320	0,001	0,036
0,5	0,05	6	19.500	360	0,001	0,036	17.000	300	0,001	0,030	17.000	270	0,001	0,024	8.500	270	0,001	0,024
0,5	0,1	1	29.000	820	0,012	0,180	26.000	670	0,010	0,150	26.000	620	0,006	0,120	13.000	620	0,006	0,120
0,5	0,1	2	29.000	820	0,012	0,180	26.000	670	0,010	0,150	26.000	620	0,006	0,120	13.000	620	0,006	0,120
0,5	0,1	3	27.500	700	0,006	0,126	24.500	570	0,005	0,105	24.500	530	0,003	0,084	12.250	530	0,003	0,084
0,5	0,1	4	22.500	510	0,004	0,108	20.000	420	0,003	0,090	20.000	390	0,002	0,072	10.000	390	0,002	0,072
0,5	0,1	5	21.000	420	0,002	0,054	18.500	340	0,002	0,045	18.500	320	0,001	0,036	9.250	320	0,001	0,036
0,5	0,1	6	19.500	360	0,001	0,036	17.000	300	0,001	0,030	17.000	270	0,001	0,024	8.500	270	0,001	0,024
0,6	0,05	2	29.000	980	0,007	0,216	26.000	810	0,006	0,180	21.500	620	0,004	0,144	10.750	620	0,004	0,144
0,6	0,05	4	24.500	700	0,003	0,146	21.500	570	0,003	0,122	18.000	440	0,002	0,098	9.000	440	0,002	0,098
0,6	0,05	6	21.000	500	0,001	0,065	18.500	410	0,001	0,054	15.500	320	0,001	0,043	7.750	320	0,001	0,043
0,6	0,1	1	29.000	980	0,014	0,216	26.000	810	0,012	0,180	21.500	620	0,007	0,144	10.750	620	0,007	0,144
0,6	0,1	2	29.000	980	0,014	0,216	26.000	810	0,012	0,180	21.500	620	0,007	0,144	10.750	620	0,007	0,144
0,6	0,1	4	24.500	700	0,006	0,146	21.500	570	0,005	0,122	18.000	440	0,003	0,098	9.000	440	0,003	0,098
0,6	0,1	6	21.000	500	0,002	0,065	18.500	410	0,002	0,054	15.500	320	0,001	0,043	7.750	320	0,001	0,043
0,8	0,05	2	25.000	1.130	0,012	0,288	22.500	930	0,010	0,240	19.000	700	0,006	0,192	9.500	700	0,006	0,192
0,8	0,05	4	23.500	1.000	0,096	0,288	20.500	800	0,080	0,240	17.000	570	0,048	0,192	8.500	570	0,048	0,192
0,8	0,05	6	19.500	700	0,042	0,288	16.500	560	0,035	0,240	14.000	390	0,021	0,192	7.000	390	0,021	0,192
0,8	0,1	2	25.000	1.130	0,024	0,288	22.500	930	0,020	0,240	19.000	700	0,012	0,192	9.500	700	0,012	0,192
0,8	0,1	4	23.500	1.000	0,019	0,288	20.500	800	0,016	0,240	17.000	570	0,010	0,192	8.500	570	0,010	0,192
0,8	0,1	6	19.500	700	0,008	0,288	16.500	560	0,007	0,240	14.000	390	0,004	0,192	7.000	390	0,004	0,192
0,8	0,2	2	25.000	1.130	0,048	0,288	22.500	930	0,040	0,240	19.000	700	0,024	0,192	9.500	700	0,024	0,192
0,8	0,2	4	23.500	1.000	0,038	0,288	20.500	800	0,032	0,240	17.000	570	0,019	0,192	8.500	570	0,019	0,192
0,8	0,2	6	19.500	700	0,017	0,288	16.500	560	0,014	0,240	14.000	390	0,008	0,192	7.000	390	0,008	0,192
0,8	0,2	8	18.000	570	0,010	0,259	15.500	450	0,008	0,216	13.000	320	0,005	0,173	6.500	320	0,005	0,173
1	0,05	2	25.500	1.500	0,018	0,360	22.500	1.230	0,015	0,300	18.500	880	0,009	0,240	9.250	880	0,009	0,240
1	0,05	3	23.000	1.300	0,018	0,360	20.000	1.050	0,015	0,300	17.000	760	0,009	0,240	8.500	760	0,009	0,240
1	0,05	4	23.000	1.300	0,012	0,360	20.000	1.050	0,010	0,300	17.000	760	0,006	0,240	8.500	760	0,006	0,240
1	0,05	6	20.500	1.050	0,006	0,252	18.000	840	0,005	0,210	15.500	610	0,003	0,168	7.750	610	0,003	0,168
1	0,05	8	18.000	800	0,004	0,216	15.500	650	0,003	0,180	13.500	470	0,002	0,144	6.750	470	0,002	0,144
1	0,05	10	16.500	650	0,002	0,108	14.500	530	0,002	0,090	12.500	380	0,001	0,072	6.250	380	0,001	0,072
1	0,05	12	15.500	570	0,001	0,072	13.500	460	0,001	0,060	11.500	340	0,001	0,048	5.750	340	0,001	0,048
1	0,1	2	25.500	1.500	0,036	0,360	22.500	1.230	0,030	0,300	18.500	880	0,018	0,240	9.250	880	0,018	0,240

AE-CPR2-H

Regular Milling

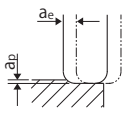
			Hardened Steel • Prehardened Steel SKD61 • NAK55 • NAK80 • HPM1				Hardened Steel • Prehardened Steel SKD61 •STAVAX • HPM38				Hardened Steel SKH51 • YXR7• HAP40				DIN-1.2379 1.2379			
DC	RE	LU	~45HRC				45 ~ 55HRC				55 ~ 65HRC				60HRC			
		(mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)
1	0,1	3	23.000	1.300	0,036	0,360	20.000	1.050	0,030	0,300	17.000	760	0,018	0,240	8.500	760	0,018	0,240
1	0,1	4	23.000	1.300	0,024	0,360	20.000	1.050	0,020	0,300	17.000	760	0,012	0,240	8.500	760	0,012	0,240
1	0,1	6	20.500	1.050	0,012	0,252	18.000	840	0,010	0,210	15.500	610	0,006	0,168	7.750	610	0,006	0,168
1	0,1	8	18.000	800	0,007	0,216	15.500	650	0,006	0,180	13.500	470	0,004	0,144	6.750	470	0,004	0,144
1	0,1	10	16.500	650	0,005	0,108	14.500	530	0,004	0,090	12.500	380	0,002	0,072	6.250	380	0,002	0,072
1	0,1	12	15.500	570	0,004	0,072	13.500	460	0,003	0,060	11.500	340	0,002	0,048	5.750	340	0,002	0,048
1	0,2	2	25.500	1.500	0,072	0,360	22.500	1.230	0,060	0,300	18.500	880	0,036	0,240	9.250	880	0,036	0,240
1	0,2	3	23.000	1.300	0,072	0,360	20.000	1.050	0,060	0,300	17.000	760	0,036	0,240	8.500	760	0,036	0,240
1	0,2	4	23.000	1.300	0,048	0,360	20.000	1.050	0,040	0,300	17.000	760	0,024	0,240	8.500	760	0,024	0,240
1	0,2	6	20.500	1.050	0,024	0,252	18.000	840	0,020	0,210	15.500	610	0,012	0,168	7.750	610	0,012	0,168
1	0,2	8	18.000	800	0,014	0,216	15.500	650	0,012	0,180	13.500	470	0,007	0,144	6.750	470	0,007	0,144
1	0,2	10	16.500	650	0,010	0,108	14.500	530	0,008	0,090	12.500	380	0,005	0,072	6.250	380	0,005	0,072
1	0,2	12	15.500	570	0,007	0,072	13.500	460	0,006	0,060	11.500	340	0,004	0,048	5.750	340	0,004	0,048
1	0,2	16	12.000	400	0,005	0,036	10.500	330	0,004	0,030	9.150	240	0,002	0,024	4.575	240	0,002	0,024
1	0,2	20	10.000	290	0,004	0,029	8.900	230	0,003	0,024	7.650	170	0,002	0,019	3.825	170	0,002	0,019
1	0,3	2	25.500	1.500	0,090	0,360	22.500	1.230	0,075	0,300	18.500	880	0,045	0,240	9.250	880	0,045	0,240
1	0,3	3	23.000	1.300	0,090	0,360	20.000	1.050	0,075	0,300	17.000	760	0,045	0,240	8.500	760	0,045	0,240
1	0,3	4	23.000	1.300	0,060	0,360	20.000	1.050	0,050	0,300	17.000	760	0,030	0,240	8.500	760	0,030	0,240
1	0,3	6	20.500	1.050	0,030	0,252	18.000	840	0,025	0,210	15.500	610	0,015	0,168	7.750	610	0,015	0,168
1	0,3	8	18.000	800	0,018	0,216	15.500	650	0,015	0,180	13.500	470	0,009	0,144	6.750	470	0,009	0,144
1	0,3	10	16.500	650	0,012	0,108	14.500	530	0,010	0,090	12.500	380	0,006	0,072	6.250	380	0,006	0,072
1	0,3	12	15.500	570	0,008	0,072	13.500	460	0,007	0,060	11.500	340	0,004	0,048	5.750	340	0,004	0,048
1,2	0,2	6	19.000	1.200	0,038	0,432	18.000	1.050	0,032	0,360	14.500	740	0,019	0,288	7.250	740	0,019	0,288
1,2	0,2	8	17.000	970	0,022	0,302	16.000	850	0,018	0,252	13.000	580	0,011	0,202	6.500	580	0,011	0,202
1,2	0,2	10	16.000	850	0,013	0,259	15.000	740	0,011	0,216	12.000	510	0,007	0,173	6.000	510	0,007	0,173
1,2	0,3	6	19.000	1.200	0,048	0,432	18.000	1.050	0,040	0,360	14.500	740	0,024	0,288	7.250	740	0,024	0,288
1,2	0,3	8	17.000	970	0,026	0,302	16.000	850	0,022	0,252	13.000	580	0,013	0,202	6.500	580	0,013	0,202
1,2	0,3	10	16.000	850	0,017	0,259	15.000	740	0,014	0,216	12.000	510	0,008	0,173	6.000	510	0,008	0,173
1,5	0,05	3	18.000	1.630	0,018	0,540	17.000	1.400	0,015	0,450	14.500	970	0,009	0,360	7.250	970	0,009	0,360
1,5	0,05	4	18.000	1.630	0,015	0,540	17.000	1.400	0,013	0,450	14.500	970	0,008	0,360	7.250	970	0,008	0,360
1,5	0,05	6	17.000	1.450	0,012	0,540	16.000	1.250	0,010	0,450	13.500	880	0,006	0,360	6.750	880	0,006	0,360
1,5	0,05	8	16.000	1.250	0,008	0,458	15.500	1.100	0,007	0,382	12.500	750	0,004	0,306	6.250	750	0,004	0,306
1,5	0,05	10	14.500	1.000	0,005	0,350	13.500	900	0,005	0,292	11.000	630	0,003	0,234	5.500	630	0,003	0,234
1,5	0,05	12	13.500	900	0,004	0,324	12.500	790	0,003	0,270	10.500	550	0,002	0,216	5.250	550	0,002	0,216
1,5	0,1	3	18.000	1.630	0,036	0,540	17.000	1.400	0,030	0,450	14.500	970	0,018	0,360	7.250	970	0,018	0,360
1,5	0,1	4	18.000	1.630	0,030	0,540	17.000	1.400	0,025	0,450	14.500	970	0,015	0,360	7.250	970	0,015	0,360
1,5	0,1	6	17.000	1.450	0,024	0,540	16.000	1.250	0,020	0,450	13.500	880	0,012	0,360	6.750	880	0,012	0,360
1,5	0,1	8	16.000	1.250	0,016	0,458	15.500	1.100	0,013	0,382	12.500	750	0,008	0,306	6.250	750	0,008	0,306
1,5	0,1	10	14.500	1.000	0,011	0,350	13.500	900	0,009	0,292	11.000	630	0,005	0,234	5.500	630	0,005	0,234
1,5	0,1	12	13.500	900	0,007	0,324	12.500	790	0,006	0,270	10.500	550	0,004	0,216	5.250	550	0,004	0,216
1,5	0,2	3	18.000	1.630	0,072	0,540	17.000	1.400	0,060	0,450	14.500	970	0,036	0,360	7.250	970	0,036	0,360
1,5	0,2	4	18.000	1.630	0,060	0,540	17.000	1.400	0,050	0,450	14.500	970	0,030	0,360	7.250	970	0,030	0,360
1,5	0,2	6	17.000	1.450	0,048	0,540	16.000	1.250	0,040	0,450	13.500	880	0,024	0,360	6.750	880	0,024	0,360
1,5	0,2	8	16.000	1.250	0,031	0,458	15.500	1.100	0,026	0,382	12.500	750	0,016	0,306	6.250	750	0,016	0,306
1,5	0,2	10	14.500	1.000	0,022	0,350	13.500	900	0,018	0,292	11.000	630	0,011	0,234	5.500	630	0,011	0,234
1,5	0,2	12	13.500	900	0,014	0,324	12.500	790	0,012	0,270	10.500	550	0,007	0,216	5.250	550	0,007	0,216
1,5	0,2	16	9.150	530	0,008	0,134	8.650	460	0,007	0,112	7.150	320	0,004	0,090	3.575	320	0,004	0,090
1,5	0,3	3	18.000	1.630	0,108	0,540	17.000	1.400	0,090	0,450	14.500	970	0,054	0,360	7.250	970	0,054	0,360
1,5	0,3	4	18.000	1.630	0,090	0,540	17.000	1.400	0,075	0,450	14.500	970	0,045	0,360	7.250	970	0,045	0,360
1,5	0,3	6	17.000	1.450	0,072	0,540	16.000	1.250	0,060	0,450	13.500	880	0,036	0,360	6.750	880	0,036	0,360
1,5	0,3	8	16.000	1.250	0,047	0,458	15.500	1.100	0,039	0,382	12.500	750	0,023	0,306	6.250	750	0,023	0,306
1,5	0,3	10	14.500	1.000	0,032	0,350	13.500	900	0,027	0,292	11.000	630	0,016	0,234	5.500	630	0,016	0,234
1,5	0,3	12	13.500	900	0,022	0,324	12.500	790	0,018	0,270	10.500	550	0,011	0,216	5.250	550	0,011	0,216
1,5	0,3	16	9.150	530	0,012	0,134	8.650	460	0,010	0,112	7.150	320	0,006	0,090	3.575	320	0,006	0,090
1,5	0,5	3	18.000	1.630	0,180	0,540	17.000	1.400	0,150	0,450	14.500	970	0,090	0,360	7.250	970	0,090	0,360
1,5	0,5	4	18.000	1.630	0,150	0,540	17.000	1.400	0,125	0,450	14.500	970	0,075	0,360	7.250	970	0,075	0,360
1,5	0,5	6	17.000	1.450	0,120	0,540	16.000	1.250	0,100	0,450	13.500	880	0,060	0,360	6.750	880	0,060	0,360
1,5	0,5	8	16.000	1.250	0,078	0,458	15.500	1.100	0,065	0,382	12.500	750	0,039	0,306	6.250	750	0,039	0,306
1,5	0,5	10	14.500	1.000	0,054	0,350	13.500	900	0,045	0,292	11.000	630	0,027	0,234	5.500	630	0,027	0,234
1,5	0,5	12	13.500	900	0,036	0,324	12.500	790	0,030	0,270	10.500	550	0,018	0,216	5.250	550	0,018	0,216
1,5	0,5	16	9.150	530	0,020	0,134	8.650	460	0,017	0,112	7.150	320	0,010	0,090	3.575	320	0,010	0,090
2	0,05	4	15.000	1.730	0,018	0,720	15.000	1.570	0,015	0,600	13.000	1.100	0,009	0,480	6.500	1.100	0,009	0,480
2	0,05	6	14.000	1.670	0,015	0,720	14.000	1.450	0,013	0,600	12.000	1.070	0,008	0,480	6.000	1.070	0,008	0,480
2	0,05	8	13.000	1.450	0,012	0,720	13.000	1.300	0,010	0,600	11.500	1.000	0,006	0,480	5.750	1.000	0,006	0,480
2	0,05	10	12.000	1.300	0,010	0,612	12.000	1.150	0,008	0,510	11.000	910	0,005	0,408	5.500	910	0,005	0,408
2	0,05	12	11.500	1.150	0,006	0,504	11.500	1.050	0,005	0,420	10.000	810	0,003	0,336	5.000	810	0,003	0,336
2	0,05	16	10.000	900	0,004	0,432	10.000	800	0,003	0,360	8.900	630	0,002	0,288	4.450	630	0,002	0,288
2	0,05	20	9.300	730	0,002	0,216	9.300	650	0,002	0,180	8.250	510	0,001	0,144	4.125	510	0,001	0,144
2	0,1	4	15.000	1.730	0,036	0,720	15.000	1.570	0,030	0,600	13.000	1.100	0,018	0,480	6.500	1.100	0,018	0,480
2	0,1	6	14.000	1.670	0,030	0,720	14.000	1.450	0,025	0,600	12.000	1.070	0,015	0,480	6.000	1.070	0,015	0,480
2	0,1	8	13.000	1.450	0,024	0,720	13.000	1.300	0,020	0,600	11.500	1.000	0,012	0,480	5.750	1.000	0,012	0,480
2	0,1	10	12.000	1.300	0,019	0,612	12.000	1.150	0,016	0,510	11.000	910	0,010	0,408	5.500	910	0,010	0,408
2	0,1	12	11.500	1.150	0,012	0,504	11.500	1.050	0,010	0,420	10.000	810	0,006	0,336	5.000	810	0,006	0,336
2	0,1	16	10.000	900	0,007	0,432	10.000	800	0,006	0,360	8.900	630	0,004	0,288	4.450	630	0,004	0,288
2	0,1	20	9.300	730	0,005	0,216	9.300	650	0,004	0,180	8.250	510	0,002	0,144	4.125	510	0,002	0,144
2	0,1	25	8.600	630	0,002	0,144	8.600	560	0,002	0,120	7.650	440	0,001	0,096	3.825	440	0,001	0,096

AE-CPR2-H

Regular Milling

			Hardened Steel • Prehardened Steel SKD61 • NAK55 • NAK80 • HPM1				Hardened Steel • Prehardened Steel SKD61 •STAVAX • HPM38				Hardened Steel SKH51 • YXR7• HAP40				DIN-1.2379 1.2379			
DC	RE	LU	~45HRC				45 ~ 55HRC				55 ~ 65HRC				60HRC			
		(mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)
2	0,2	4	15.000	1.730	0,072	0,720	15.000	1.570	0,060	0,600	13.000	1.100	0,036	0,480	6.500	1.100	0,036	0,480
2	0,2	6	14.000	1.670	0,066	0,720	14.000	1.450	0,055	0,600	12.000	1.070	0,033	0,480	6.000	1.070	0,033	0,480
2	0,2	8	13.000	1.450	0,048	0,720	13.000	1.300	0,040	0,600	11.500	1.000	0,024	0,480	5.750	1.000	0,024	0,480
2	0,2	10	12.000	1.300	0,038	0,612	12.000	1.150	0,032	0,510	11.000	910	0,019	0,408	5.500	910	0,019	0,408
2	0,2	12	11.500	1.150	0,024	0,504	11.500	1.050	0,020	0,420	10.000	810	0,012	0,336	5.000	810	0,012	0,336
2	0,2	16	10.000	900	0,014	0,432	10.000	800	0,012	0,360	8.900	630	0,007	0,288	4.450	630	0,007	0,288
2	0,2	20	9.300	730	0,010	0,216	9.300	650	0,008	0,180	8.250	510	0,005	0,144	4.125	510	0,005	0,144
2	0,2	25	8.600	630	0,005	0,144	8.600	560	0,004	0,120	7.650	440	0,002	0,096	3.825	440	0,002	0,096
2	0,3	4	15.000	1.730	0,108	0,720	15.000	1.570	0,090	0,600	13.000	1.100	0,054	0,480	6.500	1.100	0,054	0,480
2	0,3	6	14.000	1.670	0,090	0,720	14.000	1.450	0,075	0,600	12.000	1.070	0,045	0,480	6.000	1.070	0,045	0,480
2	0,3	8	13.000	1.450	0,072	0,720	13.000	1.300	0,060	0,600	11.500	1.000	0,036	0,480	5.750	1.000	0,036	0,480
2	0,3	10	12.000	1.300	0,058	0,612	12.000	1.150	0,048	0,510	11.000	910	0,029	0,408	5.500	910	0,029	0,408
2	0,3	12	11.500	1.150	0,036	0,504	11.500	1.050	0,030	0,420	10.000	810	0,018	0,336	5.000	810	0,018	0,336
2	0,3	16	10.000	900	0,022	0,432	10.000	800	0,018	0,360	8.900	630	0,011	0,288	4.450	630	0,011	0,288
2	0,3	20	9.300	730	0,014	0,216	9.300	650	0,012	0,180	8.250	510	0,007	0,144	4.125	510	0,007	0,144
2	0,3	25	8.600	630	0,007	0,144	8.600	560	0,006	0,120	7.650	440	0,004	0,096	3.825	440	0,004	0,096
2	0,5	4	15.000	1.730	0,150	0,720	15.000	1.570	0,125	0,600	13.000	1.100	0,075	0,480	6.500	1.100	0,075	0,480
2	0,5	6	14.000	1.670	0,120	0,720	14.000	1.450	0,100	0,600	12.000	1.070	0,060	0,480	6.000	1.070	0,060	0,480
2	0,5	8	13.000	1.450	0,090	0,720	13.000	1.300	0,075	0,600	11.500	1.000	0,045	0,480	5.750	1.000	0,045	0,480
2	0,5	10	12.000	1.300	0,072	0,612	12.000	1.150	0,060	0,510	11.000	910	0,036	0,408	5.500	910	0,036	0,408
2	0,5	12	11.500	1.150	0,044	0,504	11.500	1.050	0,037	0,420	10.000	810	0,022	0,336	5.000	810	0,022	0,336
2	0,5	16	10.000	900	0,026	0,432	10.000	800	0,022	0,360	8.900	630	0,013	0,288	4.450	630	0,013	0,288
2	0,5	20	9.300	730	0,018	0,216	9.300	650	0,015	0,180	8.250	510	0,009	0,144	4.125	510	0,009	0,144
2	0,5	25	8.600	630	0,011	0,144	8.600	560	0,009	0,120	7.650	440	0,005	0,096	3.825	440	0,005	0,096
2,5	0,2	10	11.500	1.600	0,048	0,900	10.500	1.200	0,040	0,750	10.500	1.200	0,024	0,600	5.250	1.200	0,024	0,600
2,5	0,2	20	8.900	1.000	0,024	0,540	8.000	740	0,020	0,450	8.000	740	0,012	0,360	4.000	740	0,012	0,360
2,5	0,2	30	7.650	700	0,012	0,180	6.850	520	0,010	0,150	6.850	520	0,006	0,120	3.425	520	0,006	0,120
2,5	0,5	10	11.500	1.600	0,090	0,900	10.500	1.200	0,075	0,750	10.500	1.200	0,045	0,600	5.250	1.200	0,045	0,600
2,5	0,5	20	8.900	1.000	0,044	0,540	8.000	740	0,037	0,450	8.000	740	0,022	0,360	4.000	740	0,022	0,360
2,5	0,5	30	7.650	700	0,013	0,180	6.850	520	0,011	0,150	6.850	520	0,007	0,120	3.425	520	0,007	0,120
3	0,2	8	9.550	1.500	0,048	1,080	8.600	1.150	0,040	0,900	7.650	830	0,024	0,720	3.825	830	0,024	0,720
3	0,2	12	9.550	1.500	0,048	1,080	8.600	1.150	0,040	0,900	7.650	830	0,024	0,720	3.825	830	0,024	0,720
3	0,2	16	8.500	1.200	0,034	0,864	7.650	910	0,028	0,720	6.800	660	0,017	0,576	3.400	660	0,017	0,576
3	0,2	20	7.400	990	0,022	0,734	6.700	750	0,018	0,612	5.950	550	0,011	0,490	2.975	550	0,011	0,490
3	0,2	25	7.100	830	0,014	0,648	6.400	640	0,012	0,540	5.700	460	0,007	0,432	2.850	460	0,007	0,432
3	0,2	30	6.900	760	0,010	0,324	6.200	580	0,008	0,270	5.500	420	0,005	0,216	2.750	420	0,005	0,216
3	0,2	35	6.350	660	0,007	0,216	5.700	500	0,006	0,180	5.100	370	0,004	0,144	2.550	370	0,004	0,144
3	0,3	12	9.550	1.500	0,072	1,080	8.600	1.150	0,060	0,900	7.650	830	0,036	0,720	3.825	830	0,036	0,720
3	0,3	16	8.500	1.200	0,050	0,864	7.650	910	0,042	0,720	6.800	660	0,025	0,576	3.400	660	0,025	0,576
3	0,3	20	7.400	990	0,032	0,734	6.700	750	0,027	0,612	5.950	550	0,016	0,490	2.975	550	0,016	0,490
3	0,3	25	7.100	830	0,022	0,648	6.400	640	0,018	0,540	5.700	460	0,011	0,432	2.850	460	0,011	0,432
3	0,3	30	6.900	760	0,014	0,324	6.200	580	0,012	0,270	5.500	420	0,007	0,216	2.750	420	0,007	0,216
3	0,3	35	6.350	660	0,011	0,216	5.700	500	0,009	0,180	5.100	370	0,005	0,144	2.550	370	0,005	0,144
3	0,5	12	9.550	1.500	0,090	1,080	8.600	1.150	0,075	0,900	7.650	830	0,045	0,720	3.825	830	0,045	0,720
3	0,5	16	8.500	1.200	0,062	0,864	7.650	910	0,052	0,720	6.800	660	0,031	0,576	3.400	660	0,031	0,576
3	0,5	20	7.400	990	0,040	0,734	6.700	750	0,033	0,612	5.950	550	0,020	0,490	2.975	550	0,020	0,490
3	0,5	25	7.100	830	0,026	0,648	6.400	640	0,022	0,540	5.700	460	0,013	0,432	2.850	460	0,013	0,432
3	0,5	30	6.900	760	0,018	0,324	6.200	580	0,015	0,270	5.500	420	0,009	0,216	2.750	420	0,009	0,216
3	0,5	35	6.350	660	0,013	0,216	5.700	500	0,011	0,180	5.100	370	0,007	0,144	2.550	370	0,007	0,144

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL(Minimum Quantity Lubrication / mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation(side milling) with a low machining load.
   If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommended during the approach of a Z cut.
6. When using a tool with a diameter of θ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage. Therefore, adjust the cutting conditions based on the machining situation.
7. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.



AE-CPR2-H

Side Milling (Contour Line Finish Milling)



			Hardened Steel • Prehardened Steel SKD61 • NAK55 • NAK80 • HPM1				Hardened Steel • Prehardened Steel SKD61 •STAVAX • HPM38				Hardened Steel SKH51 • YXR7• HAP40				DIN-1.2379 1.2379			
DC	RE	LU	~45HRC				45 ~ 55HRC				55 ~ 65HRC				60HRC			
		(mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)
0,2	0,02	0,5	50.000	700	0,006	0,007	43.000	550	0,005	0,006	43.000	520	0,003	0,005	21.500	520	0,003	0,005
0,2	0,02	1	47.500	680	0,006	0,007	40.500	520	0,005	0,006	40.500	490	0,003	0,005	20.250	490	0,003	0,005
0,2	0,02	1,5	45.000	540	0,005	0,006	38.000	420	0,004	0,005	38.000	400	0,002	0,004	19.000	400	0,002	0,004
0,2	0,02	2	42.000	300	0,004	0,006	35.500	230	0,003	0,005	35.500	220	0,002	0,004	17.750	220	0,002	0,004
0,2	0,05	0,5	50.000	700	0,006	0,007	43.000	550	0,005	0,006	43.000	520	0,003	0,005	21.500	520	0,003	0,005
0,2	0,05	1	47.500	680	0,006	0,007	40.500	520	0,005	0,006	40.500	490	0,003	0,005	20.250	490	0,003	0,005
0,2	0,05	1,5	45.000	540	0,005	0,006	38.000	420	0,004	0,005	38.000	400	0,002	0,004	19.000	400	0,002	0,004
0,2	0,05	2	42.000	300	0,004	0,006	35.500	230	0,003	0,005	35.500	220	0,002	0,004	17.750	220	0,002	0,004
0,3	0,02	1	43.000	850	0,006	0,011	38.000	690	0,005	0,009	33.500	530	0,003	0,007	16.750	530	0,003	0,007
0,3	0,02	1,5	40.000	740	0,006	0,011	35.000	590	0,005	0,009	30.500	440	0,003	0,007	15.250	440	0,003	0,007
0,3	0,02	2	36.000	610	0,005	0,010	32.000	500	0,004	0,008	28.000	370	0,002	0,006	14.000	370	0,002	0,006
0,3	0,02	2,5	32.000	480	0,004	0,010	28.000	380	0,003	0,008	24.500	290	0,002	0,006	12.250	290	0,002	0,006
0,3	0,02	3	28.000	220	0,002	0,008	24.500	180	0,002	0,007	21.500	130	0,001	0,006	10.750	130	0,001	0,006
0,3	0,05	1	43.000	850	0,006	0,011	38.000	690	0,005	0,009	33.500	530	0,003	0,007	16.750	530	0,003	0,007
0,3	0,05	1,5	40.000	740	0,006	0,011	35.000	590	0,005	0,009	30.500	440	0,003	0,007	15.250	440	0,003	0,007
0,3	0,05	2	36.000	610	0,005	0,010	32.000	500	0,004	0,008	28.000	370	0,002	0,006	14.000	370	0,002	0,006
0,3	0,05	2,5	32.000	480	0,004	0,010	28.000	380	0,003	0,008	24.500	290	0,002	0,006	12.250	290	0,002	0,006
0,3	0,05	3	28.000	220	0,002	0,008	24.500	180	0,002	0,007	21.500	130	0,001	0,006	10.750	130	0,001	0,006
0,4	0,02	1	39.500	1.010	0,007	0,014	32.000	780	0,006	0,012	28.500	550	0,004	0,010	14.250	550	0,004	0,010
0,4	0,02	1,5	39.500	1.010	0,007	0,014	32.000	780	0,006	0,012	28.500	550	0,004	0,010	14.250	550	0,004	0,010
0,4	0,02	2	37.000	910	0,007	0,014	30.500	700	0,006	0,012	27.000	500	0,004	0,010	13.500	500	0,004	0,010
0,4	0,02	2,5	33.500	750	0,006	0,012	27.500	580	0,005	0,010	24.500	410	0,003	0,008	12.250	410	0,003	0,008
0,4	0,02	3	30.500	630	0,005	0,010	25.000	480	0,004	0,008	22.500	340	0,002	0,006	11.250	340	0,002	0,006
0,4	0,02	4	28.500	510	0,002	0,007	23.500	390	0,002	0,006	20.500	280	0,001	0,005	10.250	280	0,001	0,005
0,4	0,05	1	39.500	1.010	0,007	0,014	32.000	780	0,006	0,012	28.500	550	0,004	0,010	14.250	550	0,004	0,010
0,4	0,05	1,5	39.500	1.010	0,007	0,014	32.000	780	0,006	0,012	28.500	550	0,004	0,010	14.250	550	0,004	0,010
0,4	0,05	2	37.000	910	0,007	0,014	30.500	700	0,006	0,012	27.000	500	0,004	0,010	13.500	500	0,004	0,010
0,4	0,05	3	30.500	630	0,005	0,010	25.000	480	0,004	0,008	22.500	340	0,002	0,006	11.250	340	0,002	0,006
0,4	0,05	4	28.500	510	0,002	0,007	23.500	390	0,002	0,006	20.500	280	0,001	0,005	10.250	280	0,001	0,005
0,4	0,1	1	39.500	1.010	0,012	0,014	32.000	780	0,010	0,012	28.500	550	0,006	0,010	14.250	550	0,006	0,010
0,4	0,1	2	37.000	910	0,012	0,014	30.500	700	0,010	0,012	27.000	500	0,006	0,010	13.500	500	0,006	0,010
0,4	0,1	3	30.500	630	0,008	0,010	25.000	480	0,007	0,008	22.500	340	0,004	0,006	11.250	340	0,004	0,006
0,4	0,1	4	28.500	510	0,005	0,007	23.500	390	0,004	0,006	20.500	280	0,002	0,005	10.250	280	0,002	0,005
0,5	0,02	1	34.500	970	0,007	0,018	28.500	780	0,006	0,015	24.000	580	0,004	0,012	12.000	580	0,004	0,012
0,5	0,02	2	34.500	970	0,007	0,018	28.500	780	0,006	0,015	24.000	580	0,004	0,012	12.000	580	0,004	0,012
0,5	0,02	3	32.500	820	0,007	0,016	27.000	660	0,006	0,013	22.500	490	0,004	0,010	11.250	490	0,004	0,010
0,5	0,02	4	26.500	600	0,004	0,012	22.500	480	0,003	0,010	18.500	360	0,002	0,008	9.250	360	0,002	0,008
0,5	0,02	5	25.000	490	0,002	0,008	20.500	390	0,002	0,007	17.500	290	0,001	0,006	8.750	290	0,001	0,006
0,5	0,02	6	23.000	430	0,001	0,007	19.000	340	0,001	0,006	16.000	260	0,001	0,005	8.000	260	0,001	0,005
0,5	0,05	1	34.500	970	0,007	0,018	28.500	780	0,006	0,015	24.000	580	0,004	0,012	12.000	580	0,004	0,012
0,5	0,05	2	34.500	970	0,007	0,018	28.500	780	0,006	0,015	24.000	580	0,004	0,012	12.000	580	0,004	0,012
0,5	0,05	3	32.500	820	0,007	0,016	27.000	660	0,006	0,013	22.500	490	0,004	0,010	11.250	490	0,004	0,010
0,5	0,05	4	26.500	600	0,004	0,012	22.500	480	0,003	0,010	18.500	360	0,002	0,008	9.250	360	0,002	0,008
0,5	0,05	5	25.000	490	0,002	0,008	20.500	390	0,002	0,007	17.500	290	0,001	0,006	8.750	290	0,001	0,006
0,5	0,05	6	23.000	430	0,001	0,007	19.000	340	0,001	0,006	16.000	260	0,001	0,005	8.000	260	0,001	0,005
0,5	0,1	1	34.500	970	0,012	0,018	28.500	780	0,010	0,015	24.000	580	0,006	0,012	12.000	580	0,006	0,012
0,5	0,1	2	34.500	970	0,012	0,018	28.500	780	0,010	0,015	24.000	580	0,006	0,012	12.000	580	0,006	0,012
0,5	0,1	3	32.500	820	0,012	0,016	27.000	660	0,010	0,013	22.500	490	0,006	0,010	11.250	490	0,006	0,010
0,5	0,1	4	26.500	600	0,007	0,012	22.500	480	0,006	0,010	18.500	360	0,004	0,008	9.250	360	0,004	0,008
0,5	0,1	5	25.000	490	0,005	0,008	20.500	390	0,004	0,007	17.500	290	0,002	0,006	8.750	290	0,002	0,006
0,5	0,1	6	23.000	430	0,004	0,007	19.000	340	0,003	0,006	16.000	260	0,002	0,005	8.000	260	0,002	0,005
0,6	0,05	2	31.000	1.050	0,007	0,022	26.500	850	0,006	0,018	24.000	690	0,004	0,014	12.000	690	0,004	0,014
0,6	0,05	4	26.000	740	0,006	0,014	22.000	600	0,005	0,012	20.000	490	0,003	0,010	10.000	490	0,003	0,010
0,6	0,05	6	22.500	530	0,002	0,011	19.000	430	0,002	0,009	17.000	350	0,001	0,007	8.500	350	0,001	0,007
0,6	0,1	1	31.000	1.050	0,014	0,022	26.500	850	0,012	0,018	24.000	690	0,007	0,014	12.000	690	0,007	0,014
0,6	0,1	2	31.000	1.050	0,014	0,022	26.500	850	0,012	0,018	24.000	690	0,007	0,014	12.000	690	0,007	0,014
0,6	0,1	4	26.000	740	0,011	0,014	22.000	600	0,009	0,012	20.000	490	0,005	0,010	10.000	490	0,005	0,010
0,6	0,1	6	22.500	530	0,005	0,011	19.000	430	0,004	0,009	17.000	350	0,002	0,007	8.500	350	0,002	0,007
0,8	0,05	2	31.000	1.470	0,012	0,024	27.500	1.250	0,010	0,020	25.500	930	0,006	0,016	12.750	930	0,006	0,016
0,8	0,05	4	29.000	1.200	0,010	0,024	25.500	1.050	0,008	0,020	23.500	790	0,005	0,016	11.750	790	0,005	0,016
0,8	0,05	6	23.500	850	0,007	0,017	21.000	720	0,006	0,014	19.500	550	0,004	0,011	9.750	550	0,004	0,011
0,8	0,1	2	31.000	1.470	0,022	0,024	27.500	1.250	0,018	0,020	25.500	930	0,011	0,016	12.750	930	0,011	0,016
0,8	0,1	4	29.000	1.200	0,018	0,024	25.500	1.050	0,015	0,020	23.500	790	0,009	0,016	11.750	790	0,009	0,016
0,8	0,1	6	23.500	850	0,014	0,017	21.000	720	0,012	0,014	19.500	550	0,007	0,011	9.750	550	0,007	0,011
0,8	0,2	2	31.000	1.470	0,029	0,024	27.500	1.250	0,024	0,020	25.500	930	0,014	0,016	12.750	930	0,014	0,016
0,8	0,2	4	29.000	1.200	0,024	0,024	25.500	1.050	0,020	0,020	23.500	790	0,012	0,016	11.750	790	0,012	0,016
0,8	0,2	6	23.500	850	0,019	0,017	21.000	720	0,016	0,014	19.500	550	0,010	0,011	9.750	550	0,010	0,011
0,8	0,2	8	22.000	690	0,010	0,012	19.500	590	0,008	0,010	18.000	450	0,005	0,008	9.000	450	0,005	0,008
1	0,05	2	29.500	1.680	0,010	0,036	26.500	1.410	0,008	0,030	24.500	1.130	0,005	0,024	12.250	1.130	0,005	0,024
1	0,05	3	27.000	1.500	0,010	0,036	24.500	1.250	0,008	0,030	22.500	1.000	0,005	0,024	11.250	1.000	0,005	0,024
1	0,05	4	27.000	1.500	0,007	0,036	24.500	1.250	0,006	0,030	22.500	1.000	0,004	0,024	11.250	1.000	0,004	0,024
1	0,05	6	24.000	1.200	0,007	0,032	21.500	1.000	0,006	0,027	20.000	800	0,004	0,022	10.000	800	0,004	0,022
1	0,05	8	21.000	950	0,004	0,025	19.000	790	0,003	0,021	17.500	620	0,002	0,017	8.750	620	0,002	0,017
1	0,05	10	19.500	770	0,004	0,018	17.500	640	0,003	0,015	16.500	510	0,002	0,012	8.250	510	0,002	0,012
1	0,05	12	18.000	670	0,004	0,016	16.000	560	0,003	0,013	15.000	440	0,002	0,010	7.500	440	0,002	0,010
1	0,1	2	29.500	1.680	0,024	0,036	26.500	1.410	0,020	0,030	24.500	1.130	0,012	0,024	12.250	1.130	0,012	0,024

AE-CPR2-H

Side Milling (Contour Line Finish Milling)

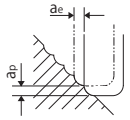
			Hardened Steel • Prehardened Steel SKD61 • NAK55 • NAK80 • HPM1				Hardened Steel • Prehardened Steel SKD61 •STAVAX • HPM38				Hardened Steel SKH51 • YXR7• HAP40				DIN-1.2379 1.2379			
DC	RE	LU	~45HRC				45 ~ 55HRC				55 ~ 65HRC				60HRC			
		(mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)
1	0,1	3	27.000	1.500	0,024	0,036	24.500	1.250	0,020	0,030	22.500	1.000	0,012	0,024	11.250	1.000	0,012	0,024
1	0,1	4	27.000	1.500	0,018	0,036	24.500	1.250	0,015	0,030	22.500	1.000	0,009	0,024	11.250	1.000	0,009	0,024
1	0,1	6	24.000	1.200	0,018	0,032	21.500	1.000	0,015	0,027	20.000	800	0,009	0,022	10.000	800	0,009	0,022
1	0,1	8	21.000	950	0,011	0,025	19.000	790	0,009	0,021	17.500	620	0,005	0,017	8.750	620	0,005	0,017
1	0,1	10	19.500	770	0,007	0,018	17.500	640	0,006	0,015	16.500	510	0,004	0,012	8.250	510	0,004	0,012
1	0,1	12	18.000	670	0,005	0,016	16.000	560	0,004	0,013	15.000	440	0,002	0,010	7.500	440	0,002	0,010
1	0,2	2	29.500	1.680	0,036	0,036	26.500	1.410	0,030	0,030	24.500	1.130	0,018	0,024	12.250	1.130	0,018	0,024
1	0,2	3	27.000	1.500	0,036	0,036	24.500	1.250	0,030	0,030	22.500	1.000	0,018	0,024	11.250	1.000	0,018	0,024
1	0,2	4	27.000	1.500	0,024	0,036	24.500	1.250	0,020	0,030	22.500	1.000	0,012	0,024	11.250	1.000	0,012	0,024
1	0,2	6	24.000	1.200	0,024	0,032	21.500	1.000	0,020	0,027	20.000	800	0,012	0,022	10.000	800	0,012	0,022
1	0,2	8	21.000	950	0,014	0,025	19.000	790	0,012	0,021	17.500	620	0,007	0,017	8.750	620	0,007	0,017
1	0,2	10	19.500	770	0,010	0,018	17.500	640	0,008	0,015	16.500	510	0,005	0,012	8.250	510	0,005	0,012
1	0,2	12	18.000	670	0,007	0,016	16.000	560	0,006	0,013	15.000	440	0,004	0,010	7.500	440	0,004	0,010
1	0,2	16	14.500	470	0,005	0,012	13.000	390	0,004	0,010	12.000	310	0,002	0,008	6.000	310	0,002	0,008
1	0,2	20	12.000	340	0,004	0,011	11.000	280	0,003	0,009	10.000	220	0,002	0,007	5.000	220	0,002	0,007
1	0,3	2	29.500	1.680	0,043	0,036	26.500	1.410	0,036	0,030	24.500	1.130	0,022	0,024	12.250	1.130	0,022	0,024
1	0,3	3	27.000	1.500	0,043	0,036	24.500	1.250	0,036	0,030	22.500	1.000	0,022	0,024	11.250	1.000	0,022	0,024
1	0,3	4	27.000	1.500	0,036	0,036	24.500	1.250	0,030	0,030	22.500	1.000	0,018	0,024	11.250	1.000	0,018	0,024
1	0,3	6	24.000	1.200	0,036	0,032	21.500	1.000	0,030	0,027	20.000	800	0,018	0,022	10.000	800	0,018	0,022
1	0,3	8	21.000	950	0,022	0,025	19.000	790	0,018	0,021	17.500	620	0,011	0,017	8.750	620	0,011	0,017
1	0,3	10	19.500	770	0,014	0,018	17.500	640	0,012	0,015	16.500	510	0,007	0,012	8.250	510	0,007	0,012
1	0,3	12	18.000	670	0,011	0,016	16.000	560	0,009	0,013	15.000	440	0,005	0,010	7.500	440	0,005	0,010
1,2	0,2	6	22.500	1.450	0,019	0,043	21.000	1.250	0,016	0,036	19.000	960	0,010	0,029	9.500	960	0,010	0,029
1,2	0,2	8	20.000	1.150	0,011	0,034	18.500	980	0,009	0,028	17.000	760	0,005	0,022	8.500	760	0,005	0,022
1,2	0,2	10	18.500	1.000	0,006	0,025	17.500	860	0,005	0,021	16.000	670	0,003	0,017	8.000	670	0,003	0,017
1,2	0,3	6	22.500	1.450	0,029	0,043	21.000	1.250	0,024	0,036	19.000	960	0,014	0,029	9.500	960	0,014	0,029
1,2	0,3	8	20.000	1.150	0,016	0,034	18.500	980	0,013	0,028	17.000	760	0,008	0,022	8.500	760	0,008	0,022
1,2	0,3	10	18.500	1.000	0,010	0,025	17.500	860	0,008	0,021	16.000	670	0,005	0,017	8.000	670	0,005	0,017
1,5	0,05	3	22.000	1.930	0,007	0,054	19.500	1.610	0,006	0,045	17.000	1.160	0,004	0,036	8.500	1.160	0,004	0,036
1,5	0,05	4	22.000	1.930	0,007	0,054	19.500	1.610	0,006	0,045	17.000	1.160	0,004	0,036	8.500	1.160	0,004	0,036
1,5	0,05	6	21.000	1.750	0,006	0,054	18.500	1.450	0,005	0,045	16.000	1.050	0,003	0,036	8.000	1.050	0,003	0,036
1,5	0,05	8	20.000	1.500	0,006	0,054	17.500	1.250	0,005	0,045	15.500	910	0,003	0,036	7.750	910	0,003	0,036
1,5	0,05	10	17.500	1.250	0,048	0,043	15.500	1.050	0,040	0,036	13.500	760	0,024	0,029	6.750	760	0,024	0,029
1,5	0,05	12	16.500	1.100	0,036	0,037	14.500	910	0,030	0,031	12.500	670	0,018	0,025	6.250	670	0,018	0,025
1,5	0,1	3	22.000	1.930	0,014	0,054	19.500	1.610	0,012	0,045	17.000	1.160	0,007	0,036	8.500	1.160	0,007	0,036
1,5	0,1	4	22.000	1.930	0,014	0,054	19.500	1.610	0,012	0,045	17.000	1.160	0,007	0,036	8.500	1.160	0,007	0,036
1,5	0,1	6	21.000	1.750	0,012	0,054	18.500	1.450	0,010	0,045	16.000	1.050	0,006	0,036	8.000	1.050	0,006	0,036
1,5	0,1	8	20.000	1.500	0,012	0,054	17.500	1.250	0,010	0,045	15.500	910	0,006	0,036	7.750	910	0,006	0,036
1,5	0,1	10	17.500	1.250	0,108	0,043	15.500	1.050	0,090	0,036	13.500	760	0,054	0,029	6.750	760	0,054	0,029
1,5	0,1	12	16.500	1.100	0,072	0,037	14.500	910	0,060	0,031	12.500	670	0,036	0,025	6.250	670	0,036	0,025
1,5	0,2	3	22.000	1.930	0,029	0,054	19.500	1.610	0,024	0,045	17.000	1.160	0,014	0,036	8.500	1.160	0,014	0,036
1,5	0,2	4	22.000	1.930	0,029	0,054	19.500	1.610	0,024	0,045	17.000	1.160	0,014	0,036	8.500	1.160	0,014	0,036
1,5	0,2	6	21.000	1.750	0,024	0,054	18.500	1.450	0,020	0,045	16.000	1.050	0,012	0,036	8.000	1.050	0,012	0,036
1,5	0,2	8	20.000	1.500	0,024	0,054	17.500	1.250	0,020	0,045	15.500	910	0,012	0,036	7.750	910	0,012	0,036
1,5	0,2	10	17.500	1.250	0,022	0,043	15.500	1.050	0,018	0,036	13.500	760	0,011	0,029	6.750	760	0,011	0,029
1,5	0,2	12	16.500	1.100	0,014	0,037	14.500	910	0,012	0,031	12.500	670	0,007	0,025	6.250	670	0,007	0,025
1,5	0,2	16	11.000	640	0,010	0,026	10.000	530	0,008	0,022	8.650	390	0,005	0,018	4.325	390	0,005	0,018
1,5	0,3	3	22.000	1.930	0,043	0,054	19.500	1.610	0,036	0,045	17.000	1.160	0,022	0,036	8.500	1.160	0,022	0,036
1,5	0,3	4	22.000	1.930	0,043	0,054	19.500	1.610	0,036	0,045	17.000	1.160	0,022	0,036	8.500	1.160	0,022	0,036
1,5	0,3	6	21.000	1.750	0,036	0,054	18.500	1.450	0,030	0,045	16.000	1.050	0,018	0,036	8.000	1.050	0,018	0,036
1,5	0,3	8	20.000	1.500	0,036	0,054	17.500	1.250	0,030	0,045	15.500	910	0,018	0,036	7.750	910	0,018	0,036
1,5	0,3	10	17.500	1.250	0,032	0,043	15.500	1.050	0,027	0,036	13.500	760	0,016	0,029	6.750	760	0,016	0,029
1,5	0,3	12	16.500	1.100	0,022	0,037	14.500	910	0,018	0,031	12.500	670	0,011	0,025	6.250	670	0,011	0,025
1,5	0,3	16	11.000	640	0,014	0,026	10.000	530	0,012	0,022	8.650	390	0,007	0,018	4.325	390	0,007	0,018
1,5	0,5	3	22.000	1.930	0,072	0,054	19.500	1.610	0,060	0,045	17.000	1.160	0,036	0,036	8.500	1.160	0,036	0,036
1,5	0,5	4	22.000	1.930	0,072	0,054	19.500	1.610	0,060	0,045	17.000	1.160	0,036	0,036	8.500	1.160	0,036	0,036
1,5	0,5	6	21.000	1.750	0,060	0,054	18.500	1.450	0,050	0,045	16.000	1.050	0,030	0,036	8.000	1.050	0,030	0,036
1,5	0,5	8	20.000	1.500	0,060	0,054	17.500	1.250	0,050	0,045	15.500	910	0,030	0,036	7.750	910	0,030	0,036
1,5	0,5	10	17.500	1.250	0,054	0,043	15.500	1.050	0,045	0,036	13.500	760	0,027	0,029	6.750	760	0,027	0,029
1,5	0,5	12	16.500	1.100	0,036	0,037	14.500	910	0,030	0,031	12.500	670	0,018	0,025	6.250	670	0,018	0,025
1,5	0,5	16	11.000	640	0,024	0,026	10.000	530	0,020	0,022	8.650	390	0,012	0,018	4.325	390	0,012	0,018
2	0,05	4	18.000	2.200	0,010	0,072	17.500	1.930	0,008	0,060	16.500	1.630	0,005	0,048	8.250	1.630	0,005	0,048
2	0,05	6	17.500	2.070	0,010	0,072	17.000	1.800	0,008	0,060	16.000	1.530	0,005	0,048	8.000	1.530	0,005	0,048
2	0,05	8	16.500	1.850	0,010	0,072	16.000	1.600	0,008	0,060	15.000	1.350	0,005	0,048	7.500	1.350	0,005	0,048
2	0,05	10	15.500	1.650	0,010	0,072	15.500	1.450	0,008	0,060	14.500	1.200	0,005	0,048	7.250	1.200	0,005	0,048
2	0,05	12	14.500	1.500	0,010	0,065	14.500	1.300	0,008	0,054	13.500	1.050	0,005	0,043	6.750	1.050	0,005	0,043
2	0,05	16	13.000	1.150	0,006	0,050	12.500	1.000	0,005	0,042	12.000	830	0,003	0,034	6.000	830	0,003	0,034
2	0,05	20	12.000	940	0,004	0,036	11.500	820	0,003	0,030	11.000	680	0,002	0,024	5.500	680	0,002	0,024
2	0,1	4	18.000	2.200	0,018	0,072	17.500	1.930	0,015	0,060	16.500	1.630	0,009	0,048	8.250	1.630	0,009	0,048
2	0,1	6	17.500	2.070	0,018	0,072	17.000	1.800	0,015	0,060	16.000	1.530	0,009	0,048	8.000	1.530	0,009	0,048
2	0,1	8	16.500	1.850	0,018	0,072	16.000	1.600	0,015	0,060	15.000	1.350	0,009	0,048	7.500	1.350	0,009	0,048
2	0,1	10	15.500	1.650	0,018	0,072	15.500	1.450	0,015	0,060	14.500	1.200	0,009	0,048	7.250	1.200	0,009	0,048
2	0,1	12	14.500	1.500	0,018	0,065	14.500	1.300	0,015	0,054	13.500	1.050	0,009	0,043	6.750	1.050	0,009	0,043
2	0,1	16	13.000	1.150	0,011	0,050	12.500	1.000	0,009	0,042	12.000	830	0,005	0,034	6.000	830	0,005	0,034
2	0,1	20	12.000	940	0,007	0,036	11.500	820	0,006	0,030	11.000	680	0,004	0,024	5.500	680	0,004	0,024
2	0,1	25	11.000	800	0,005	0,032	11.000	700	0,004	0,027	10.000	580	0,002	0,022	5.000	580	0,002	0,022

AE-CPR2-H

Side Milling (Contour Line Finish Milling)

			Hardened Steel • Prehardened Steel SKD61 • NAK55 • NAK80 • HPM1				Hardened Steel • Prehardened Steel SKD61 •STAVAX • HPM38				Hardened Steel SKH51 • YXR7• HAP40				DIN-1.2379 1.2379			
DC	RE	LU	~45HRC				45 ~ 55HRC				55 ~ 65HRC				60HRC			
		(mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)
2	0,2	4	18.000	2.200	0,024	0,072	17.500	1.930	0,020	0,060	16.500	1.630	0,012	0,048	8.250	1.630	0,012	0,048
2	0,2	6	17.500	2.070	0,024	0,072	17.000	1.800	0,020	0,060	16.000	1.530	0,012	0,048	8.000	1.530	0,012	0,048
2	0,2	8	16.500	1.850	0,024	0,072	16.000	1.600	0,020	0,060	15.000	1.350	0,012	0,048	7.500	1.350	0,012	0,048
2	0,2	10	15.500	1.650	0,024	0,072	15.500	1.450	0,020	0,060	14.500	1.200	0,012	0,048	7.250	1.200	0,012	0,048
2	0,2	12	14.500	1.500	0,024	0,065	14.500	1.300	0,020	0,054	13.500	1.050	0,012	0,043	6.750	1.050	0,012	0,043
2	0,2	16	13.000	1.150	0,014	0,050	12.500	1.000	0,012	0,042	12.000	830	0,007	0,034	6.000	830	0,007	0,034
2	0,2	20	12.000	940	0,010	0,036	11.500	820	0,008	0,030	11.000	680	0,005	0,024	5.500	680	0,005	0,024
2	0,2	25	11.000	800	0,007	0,032	11.000	700	0,006	0,027	10.000	580	0,004	0,022	5.000	580	0,004	0,022
2	0,3	4	18.000	2.200	0,036	0,072	17.500	1.930	0,030	0,060	16.500	1.630	0,018	0,048	8.250	1.630	0,018	0,048
2	0,3	6	17.500	2.070	0,036	0,072	17.000	1.800	0,030	0,060	16.000	1.530	0,018	0,048	8.000	1.530	0,018	0,048
2	0,3	8	16.500	1.850	0,036	0,072	16.000	1.600	0,030	0,060	15.000	1.350	0,018	0,048	7.500	1.350	0,018	0,048
2	0,3	10	15.500	1.650	0,036	0,072	15.500	1.450	0,030	0,060	14.500	1.200	0,018	0,048	7.250	1.200	0,018	0,048
2	0,3	12	14.500	1.500	0,036	0,065	14.500	1.300	0,030	0,054	13.500	1.050	0,018	0,043	6.750	1.050	0,018	0,043
2	0,3	16	13.000	1.150	0,022	0,050	12.500	1.000	0,018	0,042	12.000	830	0,011	0,034	6.000	830	0,011	0,034
2	0,3	20	12.000	940	0,014	0,036	11.500	820	0,012	0,030	11.000	680	0,007	0,024	5.500	680	0,007	0,024
2	0,3	25	11.000	800	0,011	0,032	11.000	700	0,009	0,027	10.000	580	0,005	0,022	5.000	580	0,005	0,022
2	0,5	4	18.000	2.200	0,060	0,072	17.500	1.930	0,050	0,060	16.500	1.630	0,030	0,048	8.250	1.630	0,030	0,048
2	0,5	6	17.500	2.070	0,060	0,072	17.000	1.800	0,050	0,060	16.000	1.530	0,030	0,048	8.000	1.530	0,030	0,048
2	0,5	8	16.500	1.850	0,060	0,072	16.000	1.600	0,050	0,060	15.000	1.350	0,030	0,048	7.500	1.350	0,030	0,048
2	0,5	10	15.500	1.650	0,060	0,072	15.500	1.450	0,050	0,060	14.500	1.200	0,030	0,048	7.250	1.200	0,030	0,048
2	0,5	12	14.500	1.500	0,060	0,065	14.500	1.300	0,050	0,054	13.500	1.050	0,030	0,043	6.750	1.050	0,030	0,043
2	0,5	16	13.000	1.150	0,036	0,050	12.500	1.000	0,030	0,042	12.000	830	0,018	0,034	6.000	830	0,018	0,034
2	0,5	20	12.000	940	0,024	0,036	11.500	820	0,020	0,030	11.000	680	0,012	0,024	5.500	680	0,012	0,024
2	0,5	25	11.000	800	0,018	0,032	11.000	700	0,015	0,027	10.000	580	0,009	0,022	5.000	580	0,009	0,022
2,5	0,2	10	13.000	1.850	0,024	0,090	13.000	1.400	0,020	0,075	12.000	1.350	0,012	0,060	6.000	1.350	0,012	0,060
2,5	0,2	20	10.000	1.150	0,014	0,062	10.000	890	0,012	0,052	9.450	830	0,007	0,042	4.725	830	0,007	0,042
2,5	0,2	30	8.500	930	0,007	0,036	8.500	720	0,006	0,030	8.000	670	0,004	0,024	4.000	670	0,004	0,024
2,5	0,5	10	13.000	1.850	0,060	0,090	13.000	1.400	0,050	0,075	12.000	1.350	0,030	0,060	6.000	1.350	0,030	0,060
2,5	0,5	20	10.000	1.150	0,036	0,062	10.000	890	0,030	0,052	9.450	830	0,018	0,042	4.725	830	0,018	0,042
2,5	0,5	30	8.500	930	0,018	0,036	8.500	720	0,015	0,030	8.000	670	0,009	0,024	4.000	670	0,009	0,024
3	0,2	8	12.000	2.000	0,024	0,096	11.000	1.400	0,020	0,080	10.000	1.100	0,012	0,064	5.000	1.100	0,012	0,064
3	0,2	12	12.000	2.000	0,024	0,096	11.000	1.400	0,020	0,080	10.000	1.100	0,012	0,064	5.000	1.100	0,012	0,064
3	0,2	16	10.500	1.600	0,024	0,096	9.600	1.150	0,020	0,080	9.000	880	0,012	0,064	4.500	880	0,012	0,064
3	0,2	20	9.300	1.350	0,024	0,077	8.400	940	0,020	0,064	7.850	730	0,012	0,051	3.925	730	0,012	0,051
3	0,2	25	8.900	1.100	0,014	0,058	8.050	800	0,012	0,048	7.550	610	0,007	0,038	3.775	610	0,007	0,038
3	0,2	30	8.600	1.000	0,010	0,048	7.800	720	0,008	0,040	7.300	560	0,005	0,032	3.650	560	0,005	0,032
3	0,2	35	7.950	880	0,007	0,043	7.200	630	0,006	0,036	6.750	480	0,004	0,029	3.375	480	0,004	0,029
3	0,3	12	12.000	2.000	0,036	0,096	11.000	1.400	0,030	0,080	10.000	1.100	0,018	0,064	5.000	1.100	0,018	0,064
3	0,3	16	10.500	1.600	0,036	0,096	9.600	1.150	0,030	0,080	9.000	880	0,018	0,064	4.500	880	0,018	0,064
3	0,3	20	9.300	1.350	0,036	0,077	8.400	940	0,030	0,064	7.850	730	0,018	0,051	3.925	730	0,018	0,051
3	0,3	25	8.900	1.100	0,022	0,058	8.050	800	0,018	0,048	7.550	610	0,011	0,038	3.775	610	0,011	0,038
3	0,3	30	8.600	1.000	0,014	0,048	7.800	720	0,012	0,040	7.300	560	0,007	0,032	3.650	560	0,007	0,032
3	0,3	35	7.950	880	0,011	0,043	7.200	630	0,009	0,036	6.750	480	0,005	0,029	3.375	480	0,005	0,029
3	0,5	12	12.000	2.000	0,060	0,096	11.000	1.400	0,050	0,080	10.000	1.100	0,030	0,064	5.000	1.100	0,030	0,064
3	0,5	16	10.500	1.600	0,060	0,096	9.600	1.150	0,050	0,080	9.000	880	0,030	0,064	4.500	880	0,030	0,064
3	0,5	20	9.300	1.350	0,060	0,077	8.400	940	0,050	0,064	7.850	730	0,030	0,051	3.925	730	0,030	0,051
3	0,5	25	8.900	1.100	0,036	0,058	8.050	800	0,030	0,048	7.550	610	0,018	0,038	3.775	610	0,018	0,038
3	0,5	30	8.600	1.000	0,024	0,048	7.800	720	0,020	0,040	7.300	560	0,012	0,032	3.650	560	0,012	0,032
3	0,5	35	7.950	880	0,018	0,043	7.200	630	0,015	0,036	6.750	480	0,009	0,029	3.375	480	0,009	0,029

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL(Minimum Quantity Lubrication / mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation(side milling) with a low machining load.
   If abnormal cutting sounds, vibration or chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holding condition, etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommended during the approach of a Z cut.
6. When using a tool with a diameter of θ 0.5 or less, or L/D (aspect ratio) is greater than 10, high loads can cause tool breakage.
   Therefore, adjust the cutting conditions based on the machining situation.
7. Adjust the speed, feed rate, and the depth of the cut according to the shape of the work, rigidity of the machine, and how the work is held.
8. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.

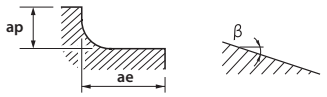


WXS-CRE / WXS-HS-CRE

Regular milling

	GG		30~38 HRC NAK55 • HPM1 • SKT • SKD		38~45 HRC SUS304 • SKD • HPM50 NAK80		45~55 HRC		55~60 HRC		60~ HRC	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
2 x R0,5	16.000	5.250	12.500	3.800	11.000	3.350	7.950	2.150	4.750	860	4.270	615
3 x R0,75	10.500	6.250	8.500	4.500	7.450	3.900	5.300	2.600	3.200	995	2.850	715
4 x R1	7.950	6.600	6.350	4.800	5.550	4.200	4.000	2.750	2.400	1.050	2.150	755
6 x R1,5	5.300	7.000	4.250	5.100	3.700	4.450	2.650	2.850	1.600	1.150	1.400	825
8 x R2	4.000	7.000	3.200	5.100	2.800	4.450	2.000	2.850	1.200	1.150	1.050	825
10 x R2	3.200	7.000	2.550	5.100	2.250	4.450	1.600	2.850	955	1.150	860	825
12 x R3	2.650	7.000	2.100	5.100	1.850	4.450	1.350	2.850	795	1.150	715	825

Max cutting depth



	ap	ae
RE≤2	0,2xRE	0,5D
2<RE	0,5mm	0,5D

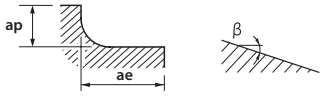
	ap	ae
RE≤2	0,2xRE	0,5D
2<RE	0,4mm	0,5D

	ap	ae
RE≤2	0,1xRE	0,5D
2<RE	0,2mm	0,5D

High speed side milling

	GG		30~38 HRC NAK55 • HPM1 • SKT • SKD		38~45 HRC SUS304 • SKD • HPM50 NAK80		45~55 HRC		55~60 HRC		60~ HRC	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
2 x R0,5	31.850	10.500	32.000	9.550	24.000	7.150	24000	6.450	16.000	2.850	14.400	2.050
3 x R0,75	21.000	12.500	21.000	12.000	16.000	8.400	16.000	7.850	10.500	3.300	9.450	2.370
4 x R1	16.000	13.000	16.000	12.000	12.000	9.000	12.000	8.200	7.950	3.550	7.150	2.550
6 x R1,5	10.600	14.000	10.600	12.700	7.950	9.550	7.950	8.600	5.300	3.800	5.300	3.800
8 x R2	7.950	14.000	7.950	12.700	5.950	9.550	5.950	8.600	4.000	3.800	4.000	3.800
10 x R2	6.350	14.000	6.350	12.700	4.750	9.550	4.750	8.600	3.200	3.800	3.200	3.800
12 x R3	5.300	14.000	5.300	12.700	4.000	9.550	4.000	8.600	2.650	3.800	2.650	3.800

Max cutting depth



ap	ae
0,1xR	0,3D

	ap	ae
R<2	0,1xR	0,3D
2<R	0,2mm	0,3D

	ap	ae
R<2	0,05xR	0,3D
2<R	0,1mm	0,3D

1. Use a rigid and precise machine and holder.
2. These milling conditions are based on milling with circular interpolation at corners.For milling without circular interpolation much as right angle corners), reduce the speed to 50-70% and the cutting depth to 50-80% of the above conditions.
3. We suggest using air blow or MQL (mist).
4. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
5. When WX(S)-CRE enters in Z axis, reduce the feed speed to 30-60% of the above conditions with machining incline angle ß < 2°
6. These milling conditions are for a tool extension length: less than 4 x D. For a longer tool extension, reduce the speed, feed rate, and the cutting depth in accordance with the respective coefficients, to prevent chattering.

CUTTING CONDITIONS

SX-(HS)-CRE

Regular milling



			Low carbon steel • Cast iron St-37 / GG-25 ~750N/mm2		Alloyed steel • Tool steel 42CrMo4 1.2379~30HRC		Tempered steel • Hardened steel 1.2379 / 1.2344 30~45HRC		Stainless steel 1.4301 ≤200HB		Stainless steel, tempered '1.4542		Titanium alloys Ti-6Al-4V		Ni-alloys Inconel 718	
Vc			120 (80-140) [m/min]		100 (70-120) [m/min]		80 (60-100) [m/min]		70 (50-80) [m/min]		70 (60-80) [m/min]		60 (50-70) [m/min]		25 (20-30) [m/min]	
Nr. flutes	Ø	R	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
4	2	0,5	19.000	6.100	16.000	3.800	12.800	3.000	11.200	2.300	11.000	2.200	9.500	2.300	4.000	950
5	3	0,75	12.700	7.600	10.700	4.800	8.500	3.800	7.500	2.600	7.400	2.600	6.400	2.600	2.700	1.000
5	4	1	9.500	7.800	8.000	5.200	6.400	4.200	5.600	2.800	5.600	2.700	4.800	2.400	2.000	1.000
5	6	1,5	6.300	8.300	5.300	5.800	4.300	4.700	3.800	2.800	3.700	2.700	3.200	2.400	1.300	1.000
5	8	2	4.800	8.300	4.000	5.600	3.200	4.500	2.800	2.800	2.800	2.700	2.400	2.100	1.000	890
5	10	2	3.800	7.600	3.200	5.600	2.600	4.500	2.300	2.800	2.200	2.650	1.900	1.900	800	800
5	12	3	3.200	7.200	2.700	5.600	2.200	4.600	1.900	2.800	1.850	2.600	1.600	1.800	650	760

Max. cutting depth		ap	ae
	RE≤2	0,3xRE	0,5D
	2<RE	0,5mm	0,5D

		ap	ae
	RE≤2	0,2xRE	0,5D
	2<RE	0,4mm	0,5D

		ap	ae
	RE≤2	0,1xRE	0,5D
	2<RE	0,2mm	0,5D

For full contact (ae: 1xD) Reduce Feedrate 60-70%

Tool extension Coefficients (%)

Overhang	Vc	ap	Feed
L/D≤4	100	100	100
L/D=5	80-100	70-90	80-90
L/D=6	60-80	50-70	60-80

High speed side milling



			Low carbon steel • Cast iron St-37 / GG-25 ~750N/mm2		Alloyed steel • Tool steel 42CrMo4 1.2379~30HRC		Tempered steel • Hardened steel 1.2379 / 1.2344 30~45HRC		Stainless steel 1.4301 ≤200HB		Stainless steel, tempered '1.4542		Titanium alloys Ti-6Al-4V		Ni-alloys Inconel 718	
Vc			200 (180-220) [m/min]		180 (160-200) [m/min]		160 (140-180) [m/min]		140 (100-160) [m/min]		120 (100-140) [m/min]		90 (80-100) [m/min]		60 (40-80) [m/min]	
Nr. flutes	Ø	R	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
4	2	0,5	32.000	10.000	29.000	7.600	25.500	6.000	22.000	4.400	19.000	3.800	14.300	3.400	9.500	2.300
5	3	0,75	21.500	12.700	19.500	9.500	17.000	7.600	14.800	5.200	12.700	4.400	9.500	3.800	6.300	2.500
5	4	1	16.000	13.100	14.500	10.000	12.800	8.200	11.000	5.570	9.500	4.800	7.100	3.500	4.700	2.300
5	6	1,5	11.000	13.800	9.800	11.500	8.500	9.300	7.400	5.570	6.300	4.800	4.700	3.500	3.100	2.300
5	8	2	8.000	14.000	7.400	11.000	6.400	8.900	5.500	5.570	4.700	4.800	3.500	3.200	2.300	2.100
5	10	2	6.400	12.700	6.000	11.000	5.100	8.900	4.400	5.570	3.800	4.800	2.800	3.800	1.900	1.900
5	12	3	5.400	12.000	5.000	11.000	4.300	8.900	3.700	5.570	3.200	4.800	2.300	2.700	1.600	1.800

Max. cutting depth		ap	ae
	RE≤2	0,2xRE	0,3D

		ap	ae
	RE≤2	0,1xRE	0,3D
	2<RE	0,2mm	0,3D

		ap	ae
	RE≤2	0,1xRE	0,3D
	2<RE	0,1mm	0,3D

Tool extension Coefficients (%)

Overhang	Vc	ap	Feed
L/D≤4	100	100	100
L/D=5	60-80	60-80	70-90
L/D=6	40-60	40-60	60-80

CUTTING CONDITIONS

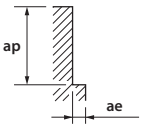
Milling | Endmills | Cutting conditions

WXS-EMS

Side milling

	~ 40 HRC NAK55 • HPM1 • SKT		40 ~ 45 HRC NAK80 • SKD11 • SKD61		45~55 HRC		55~60 HRC		60~65 HRC		65~70 HRC	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
1	20.000	800	20.000	800	20.000	800	20.000	560	20.000	480	16.000	335
2	20.000	1.600	20.000	1.600	16.000	1.250	12.000	670	11.000	535	7.950	335
3	15.000	1.800	13.500	1.600	10.500	1.250	7.950	670	7.450	535	5.300	335
4	11.000	1.800	9.950	1.600	7.950	1.250	5.950	670	5.550	535	4.000	335
5	8.900	1.800	7.950	1.600	6.350	1.250	4.800	670	4.450	535	3.200	335
6	7.450	2.650	6.650	2.400	5.300	1.900	4.000	1.000	3.700	800	2.650	505
8	5.550	2.650	4.950	2.400	4.000	1.900	3.000	1.000	2.800	800	2.000	505
10	4.450	2.650	4.000	2.400	3.200	1.900	2.400	1.000	2.250	800	1.600	505
12	3.700	2.650	3.300	2.400	2.650	1.900	2.000	1.000	1.850	800	1.350	505
14	3.100	2.500	2.800	2.250	2.250	1.800	1.700	1.000	1.550	800	1.100	505
15	2.850	2.400	2.600	2.200	2.100	1.750	1.550	950	1.450	800	1.050	505
16	2.700	2.400	2.400	2.100	1.950	1.700	1.450	930	1.350	800	995	505
18	2.400	2.250	2.200	2.000	1.750	1.600	1.300	895	1.200	800	885	505
20	2.200	2.150	1.950	1.900	1.550	1.500	1.150	845	1.100	695	800	505
25	1.700	2.450	1.550	2.100	1.250	1.500	955	915	890	750	635	505
30	1.400	2.300	1.300	1.750	1.050	1.250	795	760	740	620	620	430

Max cutting depth



D	ap	ae
< 1,5	1,5D	0,02D
1,5-2,5	1,5D	0,05D
> 2,5	1,5D	0,10D

ae max = 1mm

ap	ae
1,5D	0,05D

ae max = 1mm

ap	ae
1,5D	0,03D

ae max = 0,5mm

ap	ae
1D	0,02D

ae max = 0,5mm

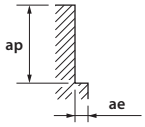
1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

WXS-EMS

High speed side milling

	~ 40 HRC NAK55 • HPM1 • SKT		40 ~ 45 HRC NAK80 • SKD11 • SKD61		45~55 HRC		55~60 HRC		60~65 HRC		65~70 HRC	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
1	50.000	1.600	50.000	2.000	50.000	2.000	50.000	1.600	47.500	1.350	32.000	715
2	47.500	3.250	47.500	3.800	40.000	3.200	25.500	1.650	24.000	1.350	16.000	800
3	32.000	3.450	32.000	3.800	26.500	3.200	17.000	1.650	16.000	1.350	10.500	800
4	24.000	3.900	24.000	3.800	20.000	3.200	12.500	1.650	12.000	1.350	7.950	800
5	19.000	4.100	19.000	3.800	16.000	3.200	10.000	1.650	9.550	1.350	6.350	800
6	16.000	5.750	16.000	5.750	13.500	4.800	8.500	2.450	7.950	2.000	5.300	1.200
8	12.000	5.750	12.000	5.750	9.950	4.800	6.350	2.450	5.950	2.000	4.000	1.200
10	9.550	5.750	9.550	5.750	7.950	4.800	5.100	2.450	4.800	2.000	3.200	1.200
12	7.950	5.750	7.950	5.750	6.650	4.800	4.250	2.450	4.000	2.000	2.650	1.200
14	6.800	5.400	6.800	5.400	5.650	4.500	3.600	2.400	3.400	2.000	2.250	1.200
15	6.350	5.300	6.350	5.300	5.250	4.350	3.350	2.300	3.150	1.950	2.100	1.200
16	5.950	5.150	5.950	5.150	4.950	4.250	3.150	2.250	2.950	1.850	1.950	1.200
18	5.300	4.850	5.300	4.850	4.400	4.050	2.800	2.200	2.650	1.750	1.750	1.200
20	4.750	4.600	4.750	4.600	3.950	3.650	2.500	2.050	2.350	1.550	1.550	1.100
25	3.800	5.350	3.800	5.050	3.150	3.800	2.000	2.000	1.900	1.250	1.250	1.050
30	3.150	4.950	3.150	4.250	2.650	3.150	1.650	1.800	1.550	1.050	1.050	1.000

Max cutting depth



ap	ae
1D	0,05D

ae max = 0,5mm

ap	ae
1D	0,03D

ae max = 0,5mm

ap	ae
1D	0,02D

ae max = 0,2mm

ap	ae
1D	0,01D

ae max = 0,2mm

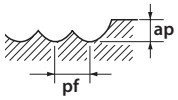
1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

WXS-HS-EBD

High speed light milling

	Tool Steel • Hardened Steel • Prehardened Steel ~ 45 HRC SKD • NAK80 • HPM50		Hardened Steel 45~55 HRC		Hardened Steel 55~60 HRC		Hardened Steel 60~65 HRC		Hardened Steel 65~70 HRC	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
R 0,5x1	50.000	3.700	50.000	3.700	50.000	3.100	50.000	2.600	47.500	2.400
R1x2	50.000	5.600	47.500	5.350	40.000	3.650	32.000	2.800	24.000	2.100
R1,5x3	41.500	6.200	32.000	4.800	26.500	3.350	21.000	2.550	16.000	1.900
R2x4	31.000	5.700	24.000	4.400	20.000	3.200	16.000	2.400	12.000	1.800
R2,5x5	25.000	5.450	19.000	4.000	16.000	2.850	13.000	2.150	9.550	1.600
R3x6	20.500	5.200	16.000	3.450	13.500	2.550	10.500	2.050	7.950	1.550
R4 x 8	15.500	4.450	12.000	3.050	9.950	2.250	7.950	1.800	5.950	1.350
R5x10	12.500	3.950	9.550	2.650	7.950	1.900	6.350	1.550	4.800	1.150
R6x12	10.500	3.700	7.950	2.500	6.650	1.600	5.300	1.350	4.000	995

Max cutting depth



ap	pf
0,02D	0,05D

ap	pf
0,02D	0,05D

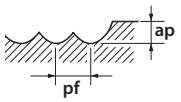
ap	pf
0,01D	0,05D

1. Use a rigid and precise machine and holder.
2. We suggest using air blow or MQL (mist).
3. These milling conditions are for end mill where the tool extension length is 4 times the diameter of the end mill. When length of the tool extension from the machine is long, reduce the speed and feed and milling depth.
4. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibrationor chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holdeing condition, etc.., please adjust the speed, feed and the depth of cut. As a guideline in selecting end mills. To increase the depth of cut, use the FX Heavy Cutting Strong Ball Series (FX-HS-EBDS). To increase the feed rate, use the FX Multiple Flute Ball Series (FX-EBT, FXS-EBM).

Regular milling

	Tool Steel • Hardened Steel • Prehardened Steel ~ 45 HRC SKD • NAK80 • HPM50		Hardened Steel 45~55 HRC		Hardened Steel 55~60 HRC		Hardened Steel 60~65 HRC		Hardened Steel 65~70 HRC	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
R0,5	32.000	2.350	32.000	2.350	32.000	2.000	32.000	1.600	32.000	1450
R0,75	32.000	3.050	32.000	3.050	32.000	2.500	26.500	1.900	21.000	1400
R1	32.000	3.600	32.000	3.550	24.000	2.200	2.000	1.750	16.000	1250
R1,5	26.500	4.000	21.000	3.200	16.000	2.000	13.500	1.600	10.500	1200
R2	20.000	3.650	16.000	2.950	12.000	1.900	9.950	1.500	7.950	1150
R2,5	16.000	3.500	12.500	2.650	9.550	1.700	7.950	1.350	6.350	1000
R3	13.500	3.350	10.500	2.300	7.950	1.550	6.650	1.250	5.300	955
R4	9.950	2.850	7.950	2.050	5.950	1.350	4.950	1.050	4.000	830
R5	7.950	2.550	6.350	1.800	4.800	1.150	4.000	875	3.200	700
R6	6.650	2.400	5.300	1.650	4.000	955	3.300	795	2.650	635
R8	4.950	1.800	4.000	1.250	3.000	775	2.500	595	2.000	475
R10	4.000	1.450	3.200	1.000	2.400	620	2.000	475	1.600	380
R12,5	3.200	1.150	2.550	815	1.900	495	1.600	380	1.250	305

Max cutting depth



ap	pf
0,05D	0,1D

ap max = 0,5mm

ap	pf
0,03D	0,1D

ap max = 0,5mm

ap	pf
0,02D	0,05D

ap max = 0,3mm

1. Use a rigid and precise machine and holder.
2. We suggest using air blow or MQL (mist).
3. These milling conditions are for end mill where the tool extension length is 4 times the diameter of the end mill. When length of the tool extension from the machine is long, reduce the speed and feed and milling depth.
4. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibrationor chattering occur depending on the machining shape, cutting amount, rigidity of the machine or work holdeing condition, etc.., please adjust the speed, feed and the depth of cut. As a guideline in selecting end mills. To increase the depth of cut, use the FX Heavy Cutting Strong Ball Series (FX-HS-EBDS). To increase the feed rate, use the FX Multiple Flute Ball Series (FX-EBT, FXS-EBM).

WXS-LN-EBD

High speed milling



		C≤0,2% - GG				~30 HRC				30~38 HRC			
Vc		120 (m/min)				110 (m/min)				100 (m/min)			
R	l1 (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)
0,1	0,3	50,000	70	0,003	0,003	50,000	70	0,003	0,003	50.000	70	0,003	0,003
0,1	0,5	50,000	50	0,003	0,003	50.000	50	0,003	0,003	50.000	50	0,003	0,003
0,2	0,5	50,000	400	0,005	0,005	50.000	400	0,005	0,005	50.000	380	0,005	0,005
0,2	0,75	50,000	360	0,005	0,005	50.000	360	0,005	0,005	50.000	340	0,005	0,005
0,2	1	50.000	360	0,005	0,005	50.000	360	0,005	0,005	50.000	340	0,005	0,005
0,2	1,25	47.000	320	0,005	0,005	47.000	320	0,005	0,005	47.000	300	0,005	0,005
0,2	1,5	45.000	300	0,005	0,005	45.000	300	0,005	0,005	45.000	280	0,005	0,005
0,2	1,75	42.000	260	0,005	0,005	42.000	260	0,005	0,005	42.000	240	0,005	0,005
0,2	2	38.000	230	0,005	0,005	38.000	230	0,005	0,005	38.000	210	0,005	0,005
0,2	2,5	32.000	170	0,004	0,005	32.000	170	0,005	0,004	32.000	160	0,004	0,005
0,2	3	32.000	150	0,004	0,005	32.000	150	0,005	0,004	32.000	140	0,004	0,005
0,3	1,2	50.000	600	0,005	0,010	50.000	600	0,005	0,010	50.000	570	0,005	0,010
0,3	2	50.000	600	0,005	0,010	50.000	600	0,005	0,010	50.000	570	0,005	0,010
0,3	2,5	50.000	600	0,005	0,010	50.000	600	0,005	0,010	50.000	570	0,005	0,010
0,3	3	50.000	600	0,005	0,010	50.000	600	0,005	0,010	50.000	570	0,005	0,010
0,3	3,5	47.000	510	0,005	0,010	47.000	510	0,005	0,010	47.000	480	0,005	0,010
0,3	4	45.000	480	0,005	0,005	45.000	480	0,005	0,005	45.000	450	0,005	0,005
0,3	4,5	45.000	400	0,005	0,005	45.000	400	0,005	0,005	45.000	380	0,005	0,005
0,3	5	40.000	300	0,005	0,005	40.000	300	0,005	0,005	40.000	280	0,005	0,005
0,3	6	38.000	250	0,005	0,005	38.000	250	0,005	0,005	38.000	230	0,005	0,005
0,3	7	34.000	200	0,004	0,005	34.000	200	0,004	0,005	34.000	190	0,005	0,004
0,3	8	32.000	150	0,004	0,005	32.000	150	0,004	0,005	32.000	140	0,005	0,004
0,3	9	32.000	130	0,004	0,005	32.000	130	0,004	0,005	32.000	120	0,005	0,004
0,3	10	29.000	100	0,004	0,005	29.000	100	0,004	0,005	29.000	95	0,005	0,004
0,4	0,8	50.000	900	0,010	0,020	50.000	900	0,010	0,020	50.000	850	0,010	0,020
0,4	1	50.000	900	0,010	0,020	50.000	900	0,010	0,020	50.000	850	0,010	0,020
0,4	1,5	50.000	800	0,010	0,020	50.000	800	0,010	0,020	50.000	760	0,010	0,020
0,4	2	50.000	700	0,010	0,020	50.000	700	0,010	0,020	50.000	660	0,010	0,020
0,4	2,5	45.000	550	0,008	0,015	45.000	550	0,008	0,015	45.000	520	0,008	0,015
0,4	3	43.000	500	0,005	0,010	43.000	500	0,005	0,010	43.000	470	0,005	0,010
0,4	3,5	40.000	420	0,005	0,010	40.000	420	0,005	0,010	40.000	400	0,005	0,010
0,4	4	36.000	370	0,005	0,005	36.000	370	0,005	0,005	36.000	350	0,005	0,005
0,4	4,5	32.000	290	0,004	0,005	32.000	290	0,004	0,005	32.000	270	0,004	0,005
0,4	5	32.000	280	0,004	0,005	32.000	280	0,004	0,005	32.000	260	0,004	0,005
0,4	5,5	30.000	230	0,004	0,005	30.000	230	0,004	0,005	30.000	210	0,004	0,005
0,4	6	30.000	200	0,004	0,005	30.000	200	0,004	0,005	30.000	190	0,004	0,005
0,5	1	50.000	1.100	0,015	0,030	50.000	1.100	0,015	0,030	50.000	1.050	0,015	0,030
0,5	1,5	50.000	1.100	0,015	0,030	50.000	1.100	0,015	0,030	50.000	1.050	0,015	0,030
0,5	2	50.000	1.000	0,015	0,030	50.000	1.000	0,015	0,030	50.000	950	0,015	0,030
0,5	2,5	50.000	1.000	0,015	0,030	50.000	1.000	0,015	0,030	50.000	950	0,015	0,030
0,5	3	48.000	900	0,010	0,020	48.000	900	0,010	0,020	48.000	850	0,010	0,020
0,5	3,5	45.000	700	0,010	0,020	45.000	700	0,010	0,020	45.000	650	0,010	0,020
0,5	4	43.000	600	0,010	0,010	43.000	600	0,010	0,010	43.000	570	0,010	0,010
0,5	4,5	38.000	500	0,010	0,010	38.000	500	0,010	0,010	38.000	470	0,010	0,010
0,5	5	30.000	400	0,005	0,010	30.000	400	0,005	0,010	30.000	380	0,005	0,010
0,5	5,5	28.000	300	0,004	0,005	28.000	300	0,004	0,005	28.000	280	0,004	0,005
0,5	6	26.000	250	0,004	0,005	26.000	250	0,004	0,005	26.000	230	0,004	0,005
0,5	7	24.000	200	0,004	0,005	24.000	200	0,004	0,005	24.000	190	0,004	0,005
0,5	8	22.000	160	0,004	0,005	22.000	160	0,004	0,005	22.000	150	0,004	0,005
0,5	9	20.000	120	0,004	0,005	20.000	120	0,004	0,005	20.000	110	0,004	0,005
0,5	10	20.000	100	0,004	0,005	20.000	100	0,004	0,005	20.000	95	0,004	0,005
0,6	1,2	50.000	1.350	0,030	0,050	50.000	1.350	0,030	0,050	50.000	1.200	0,030	0,050
0,6	2	50.000	1.300	0,030	0,050	50.000	1.300	0,030	0,050	50.000	1.200	0,030	0,050
0,6	2,5	50.000	1.200	0,030	0,050	50.000	1.200	0,030	0,050	50.000	1.100	0,030	0,050
0,6	3	50.000	1.200	0,020	0,030	50.000	1.200	0,020	0,030	50.000	1.100	0,020	0,030
0,6	3,5	45.000	1.000	0,020	0,030	45.000	1.000	0,020	0,030	45.000	950	0,020	0,030
0,6	4	40.000	900	0,010	0,020	40.000	900	0,010	0,020	40.000	850	0,010	0,020
0,6	4,5	34.000	780	0,010	0,020	34.000	780	0,010	0,020	34.000	740	0,010	0,020
0,6	5	30.000	680	0,010	0,020	30.000	680	0,010	0,020	30.000	640	0,010	0,020
0,6	5,5	28.000	650	0,010	0,020	28.000	650	0,010	0,020	28.000	610	0,010	0,020
0,6	6	26.000	600	0,010	0,020	26.000	600	0,010	0,020	26.000	570	0,010	0,020
0,6	6,5	24.000	550	0,010	0,010	24.000	550	0,010	0,010	24.000	520	0,010	0,010
0,6	7	23.000	450	0,010	0,010	23.000	450	0,010	0,010	23.000	420	0,010	0,010
0,6	7,5	23.000	400	0,010	0,010	23.000	400	0,010	0,010	23.000	380	0,010	0,010
0,6	8	20.000	320	0,005	0,010	20.000	320	0,005	0,010	20.000	300	0,005	0,010
0,6	8,5	20.000	300	0,005	0,010	20.000	300	0,005	0,010	20.000	280	0,005	0,010
0,6	9	20.000	280	0,005	0,010	20.000	280	0,005	0,010	20.000	260	0,005	0,010
0,6	9,5	20.000	240	0,005	0,008	20.000	240	0,005	0,008	20.000	220	0,005	0,008
0,6	10	20.000	200	0,005	0,008	20.000	200	0,005	0,008	20.000	190	0,005	0,008
0,6	11	18.000	150	0,005	0,008	18.000	150	0,005	0,008	18.000	140	0,005	0,008
0,6	12	18.000	120	0,005	0,005	18.000	120	0,005	0,005	18.000	110	0,005	0,005
0,8	2	50.000	2.000	0,040	0,080	50.000	2.000	0,040	0,080	50.000	1.900	0,040	0,080
0,8	3	48.000	1.600	0,040	0,080	48.000	1.600	0,040	0,080	48.000	1.500	0,040	0,080
0,8	4	40.000	1.200	0,040	0,080	40.000	1.200	0,040	0,080	40.000	1.100	0,040	0,080
0,8	5	34.000	950	0,030	0,050	34.000	950	0,030	0,050	34.000	900	0,030	0,050
0,8	6	30.000	800	0,030	0,050	30.000	800	0,030	0,050	30.000	760	0,030	0,050
0,8	7	25.000	600	0,010	0,020	25.000	600	0,010	0,020	25.000	570	0,010	0,020
0,8	8	23.000	450	0,005	0,010	23.000	450	0,005	0,010	23.000	420	0,005	0,010
0,8	10	18.000	320	0,005	0,008	18.000	320	0,005	0,008	18.000	300	0,005	0,008

WXS-LN-EBD

High speed milling



		C≤0,2% - GG				~30 HRC				30~38 HRC			
Vc		120 (m/min)				110 (m/min)				100 (m/min)			
R	l1 (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)
0,8	12	17.000	250	0,005	0,005	17.000	250	0,005	0,005	17.000	230	0,005	0,005
1	2	50.000	3.700	0,050	0,100	50.000	3.700	0,050	0,100	50.000	3.700	0,050	0,100
1	3	45.000	3.200	0,050	0,100	45.000	3.200	0,050	0,100	45.000	3.000	0,050	0,100
1	4	40.000	3.000	0,050	0,100	40.000	3.000	0,050	0,100	40.000	2.850	0,050	0,100
1	5	36.000	2.300	0,050	0,100	36.000	2.300	0,050	0,100	36.000	2.100	0,050	0,100
1	6	30.000	2.000	0,050	0,100	30,000	2.000	0,050	0,100	30,000	1,900	0,050	0,100
1	7	27,000	1,700	0,050	0,100	27,000	1,700	0,050	0,100	27,000	1,600	0,050	0,100
1	8	26.000	1.600	0,050	0,100	26.000	1.600	0,050	0,100	26.000	1.500	0,050	0,100
1	9	24.000	1.200	0,030	0,050	24.000	1.200	0,030	0,050	24.000	1.100	0,030	0,050
1	10	22.000	1.100	0,010	0,020	22.000	1.100	0,010	0,020	22.000	1.000	0,010	0,020
1	12	20.000	800	0,010	0,010	20.000	800	0,010	0,010	20.000	760	0,010	0,010
1	14	18.000	600	0,005	0,010	18.000	600	0,005	0,010	18.000	570	0,005	0,010
1	16	16.000	420	0,005	0,010	16.000	420	0,005	0,010	16.000	400	0,005	0,010
1	18	14.000	320	0,005	0,005	14.000	320	0,005	0,005	14.000	300	0,005	0,005
1	20	13.000	300	0,005	0,005	13.000	300	0,005	0,005	13.000	285	0,005	0,005
1	22	12.000	200	0,005	0,005	12.000	200	0,005	0,005	12.000	190	0,005	0,005
1,2	2,4	50.000	3.800	0,060	0,120	50.000	3.800	0,060	0,120	50.000	3.600	0,060	0,120
1,2	4	40.000	3.000	0,060	0,120	40.000	3.000	0,060	0,120	40.000	2.850	0,060	0,120
1,2	6	32.000	2.100	0,060	0,120	32.000	2.100	0,060	0,120	32.000	2.000	0,060	0,120
1,2	8	25.000	1.700	0,060	0,120	25.000	1.700	0,060	0,120	25.000	1.600	0,060	0,120
1,2	10	20.000	1.200	0,050	0,100	20.000	1.200	0,050	0,100	20.000	1.100	0,050	0,100
1,2	12	19.000	900	0,030	0,050	19.000	900	0,030	0,050	19.000	850	0,030	0,050
1,2	14	18.000	650	0,030	0,050	18.000	650	0,030	0,050	18.000	610	0,030	0,050
1,2	16	16.000	450	0,020	0,050	16.000	450	0,020	0,050	16.000	420	0,020	0,050
1,2	18	16.000	350	0,005	0,005	16.000	350	0,005	0,005	16.000	330	0,005	0,005
1,2	20	14.000	320	0,005	0,005	14.000	320	0,005	0,005	14.000	300	0,005	0,005
1,4	8	25.000	1.700	0,070	0,140	25.000	1.700	0,07	0,140	25.000	1.600	0,070	0,140
1,4	12	19.000	1.000	0,030	0,070	19.000	1.000	0,03	0,070	19.000	950	0,030	0,070
1,4	16	14.000	500	0,020	0,050	14.000	500	0,02	0,050	14.000	470	0,020	0,050
1,5	3	50.000	4.800	0,075	0,150	50.000	4.800	0,075	0,150	50.000	4.800	0,075	0,150
1,5	4	40.000	3.900	0,075	0,150	40.000	3.900	0,075	0,150	40.000	3.700	0,075	0,150
1,5	6	30.000	2.900	0,075	0,150	30.000	2.900	0,075	0,150	30.000	2.700	0,075	0,150
1,5	8	24.000	2.300	0,075	0,150	24.000	2.300	0,075	0,150	24.000	2.100	0,075	0,150
1,5	10	24.000	2.000	0,075	0,150	24.000	2.000	0,075	0,150	24.000	1.900	0,075	0,150
1,5	12	21.000	1.400	0,075	0,100	21.000	1.400	0,075	0,100	21.000	1.300	0,075	0,100
1,5	14	18.000	1.200	0,050	0,100	18.000	1.200	0,050	0,100	18.000	1.100	0,050	0,100
1,5	16	16.000	800	0,050	0,100	16.000	800	0,050	0,100	16.000	760	0,050	0,100
1,5	18	14.000	500	0,030	0,050	14.000	500	0,030	0,050	14.000	470	0,030	0,050
1,5	20	13.000	360	0,020	0,050	13.000	360	0,020	0,050	13.000	340	0,020	0,050
1,5	22	13.000	320	0,020	0,050	13.000	320	0,020	0,050	13.000	300	0,020	0,050
1,5	30	12.000	200	0,005	0,010	12.000	200	0,005	0,010	12.000	190	0,005	0,010
1,6	8	24.000	3.000	0,080	0,160	24.000	3.000	0,080	0,160	24.000	2.800	0,080	0,160
1,6	12	21.000	1.800	0,050	0,100	21.000	1.800	0,050	0,100	21.000	1.700	0,050	0,100
1,6	16	16.000	800	0,050	0,100	16.000	800	0,050	0,100	16.000	760	0,050	0,100
1,6	20	13.000	380	0,030	0,050	13.000	380	0,030	0,050	13.000	360	0,030	0,050
1,8	8	21.000	3.000	0,090	0,270	21.000	3.000	0,090	0,270	21.000	2.800	0,090	0,270
1,8	12	18.000	1.800	0,090	0,180	18.000	1.800	0,090	0,180	18.000	1.700	0,090	0,180
1,8	16	16.000	900	0,050	0,120	16.000	900	0,050	0,120	16.000	850	0,050	0,120
1,8	20	12.000	380	0,040	0,050	12.000	380	0,040	0,050	12.000	360	0,040	0,050
2	4	50.000	5.600	0,100	0,200	50.000	5.600	0,100	0,200	50.000	5.600	0,100	0,200
2	6	36.000	3.000	0,100	0,200	36.000	3.000	0,100	0,200	36.000	2.800	0,100	0,200
2	8	25.000	2.600	0,100	0,200	25.000	2.600	0,100	0,200	25.000	2.400	0,100	0,200
2	10	20.000	2.400	0,100	0,200	20.000	2.400	0,100	0,200	20.000	2.200	0,100	0,200
2	12	16.000	2.000	0,100	0,200	16.000	2.000	0,100	0,200	16.000	1.900	0,100	0,200
2	14	15.000	1.800	0,100	0,200	15.000	1.800	0,100	0,200	15.000	1.700	0,100	0,200
2	16	14.000	1.700	0,100	0,100	14.000	1.700	0,100	0,100	14.000	1.600	0,100	0,100
2	18	13.000	1.600	0,100	0,100	13.000	1.600	0,100	0,100	13.000	1.500	0,100	0,100
2	20	12.000	1.200	0,050	0,100	12.000	1.200	0,050	0,100	12.000	1.100	0,050	0,100
2	22	10.000	1.000	0,050	0,100	10.000	1.000	0,050	0,100	10.000	950	0,050	0,100
2	25	10.000	800	0,030	0,050	10.000	800	0,030	0,050	10.000	760	0,030	0,050
2	30	10.000	500	0,020	0,050	10.000	500	0,020	0,050	10.000	470	0,020	0,050
2	35	8.000	250	0,020	0,030	8.000	250	0,020	0,030	8.000	230	0,020	0,030
2	40	7.000	150	0,020	0,030	7.000	150	0,020	0,030	7.000	140	0,020	0,030
2,5	10	20.000	3.300	0,100	0,200	20.000	3.300	0,100	0,200	20.000	3.100	0,100	0,200
2,5	15	17.000	2.800	0,100	0,200	17.000	2.800	0,100	0,200	17.000	2.600	0,100	0,200
2,5	20	15.000	1.800	0,100	0,200	15.000	1.800	0,100	0,200	15.000	1.700	0,100	0,200
2,5	25	12.000	1.000	0,030	0,050	12.000	1.000	0,030	0,050	12.000	950	0,030	0,050
2,5	30	10.000	800	0,030	0,050	10.000	800	0,030	0,050	10.000	760	0,030	0,050
2,5	35	8.000	500	0,020	0,030	8.000	500	0,020	0,030	8.000	470	0,020	0,030
3	6	41.500	6.200	0,150	0,300	41.500	6.200	0,150	0,300	41.500	6.200	0,150	0,300
3	8	30.000	4.500	0,150	0,300	30.000	4.500	0,150	0,300	30.000	4.200	0,150	0,300
3	10	25.000	3.800	0,150	0,300	25.000	3.800	0,150	0,300	25.000	3.600	0,150	0,300
3	12	20.000	3.000	0,150	0,300	20.000	3.000	0,150	0,300	20.000	2.800	0,150	0,300
3	14	18.000	2.700	0,150	0,300	18.000	2.700	0,150	0,300	18.000	2.500	0,150	0,300
3	15	16.000	2.400	0,100	0,300	16.000	2.400	0,100	0,300	16.000	2.200	0,100	0,300
3	16	16.000	2.000	0,100	0,200	16.000	2.000	0,100	0,200	16.000	1.900	0,100	0,200
3	20	14.000	1.800	0,100	0,200	14.000	1.800	0,100	0,200	14.000	1.700	0,100	0,200
3	25	12.000	1.200	0,050	0,100	12.000	1.200	0,050	0,100	12.000	1.100	0,050	0,100
3	30	10.000	800	0,030	0,050	10.000	800	0,030	0,050	10.000	760	0,030	0,050

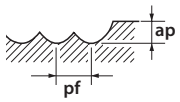
WXS-LN-EBD

High speed milling



		C≤0,2% - GG				~30 HRC				30~38 HRC			
Vc		120 (m/min)				110 (m/min)				100 (m/min)			
R	l1 (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)
3	35	8.000	600	0,020	0,050	8.000	600	0,020	0,050	8.000	570	0,020	0,050
3	40	7.000	500	0,020	0,030	7.000	500	0,020	0,030	7.000	470	0,020	0,030
3,5	15	18.000	3.000	0,100	0,300	18.000	3.000	0,100	0,300	18.000	2.800	0,100	0,300
3,5	20	16.000	2.700	0,100	0,200	16.000	2.700	0,100	0,200	16.000	2.500	0,100	0,200
3,5	25	12.000	2.000	0,100	0,100	12.000	2.000	0,100	0,100	12.000	1.900	0,100	0,100
3,5	30	10.000	1.600	0,050	0,100	10.000	1.600	0,050	0,100	10.000	1.500	0,050	0,100
3,5	35	10.000	1.000	0,050	0,050	10.000	1.000	0,050	0,050	10.000	950	0,050	0,050
3,5	40	8.000	800	0,050	0,050	8.000	800	0,050	0,050	8.000	760	0,050	0,050
3,5	45	7.000	600	0,030	0,030	7.000	600	0,030	0,030	7.000	570	0,030	0,030
4	8	31.000	5.700	0,200	0,500	31.000	5.700	0,200	0,500	31.000	5.700	0,200	0,500
4	10	25.000	4.500	0,200	0,500	25.000	4.500	0,200	0,500	25.000	4.200	0,200	0,500
4	12	20,000	3,600	0,200	0,500	20,000	3,600	0,200	0,500	20,000	3,400	0,200	0,500
4	15	20.000	3.600	0,200	0,500	20,000	3,600	0,200	0,500	20,000	3,400	0,200	0,500
4	16	18.000	3.200	0,200	0,500	18.000	3.200	0,200	0,500	18.000	3.000	0,200	0,500
4	20	16.000	2.800	0,200	0,400	16.000	2.800	0,200	0,400	16.000	2.600	0,200	0,400
4	25	16.000	2.800	0,100	0,300	16.000	2.800	0,100	0,300	16.000	2.600	0,100	0,300
4	30	14.000	2.400	0,100	0,200	14.000	2.400	0,100	0,200	14.000	2.200	0,100	0,200
4	35	12.000	1.800	0,100	0,200	12.000	1.800	0,100	0,200	12.000	1.700	0,100	0,200
4	40	10.000	1.300	0,050	0,100	10.000	1.300	0,050	0,100	10.000	1.200	0,050	0,100
4	45	8.000	1.000	0,050	0,050	8.000	1.000	0,050	0,050	8.000	950	0,050	0,050
4	50	7.000	700	0,020	0,050	7.000	700	0,020	0,050	7.000	660	0,020	0,050
5	10	25.000	5.400	0,250	0,500	25.000	5.400	0,250	0,500	25.000	5.400	0,250	0,500
5	15	20.000	4.200	0,250	0,500	20.000	4.200	0,250	0,500	20.000	3.900	0,250	0,500
5	20	16.000	3.500	0,250	0,500	16.000	3.500	0,250	0,500	16.000	3.300	0,250	0,500
5	25	15.000	3.200	0,200	0,300	15.000	3.200	0,200	0,300	15.000	3.000	0,200	0,300
5	30	14.000	2.500	0,100	0,300	14.000	2.500	0,100	0,300	14.000	2.300	0,100	0,300
5	35	12.000	1.600	0,100	0,300	12.000	1.600	0,100	0,300	12.000	1.500	0,100	0,300
5	40	10.000	1.200	0,100	0,200	10.000	1.200	0,100	0,200	10.000	1.100	0,100	0,200
5	45	9.000	900	0,100	0,100	9.000	900	0,100	0,100	9.000	850	0,100	0,100
5	50	8.000	800	0,100	0,100	8.000	800	0,100	0,100	8.000	760	0,100	0,100
6	12	20.000	5.200	0,300	0,500	20.000	5.200	0,300	0,500	20.000	5.200	0,300	0,500
6	20	16.000	4.200	0,300	0,500	16.000	4.200	0,300	0,500	16.000	3.900	0,300	0,500
6	25	12.000	3.200	0,300	0,500	12.000	3.200	0,300	0,500	12.000	3.000	0,300	0,500
6	30	10.000	2.600	0,300	0,500	10.000	2.600	0,300	0,500	10.000	2.400	0,300	0,500
6	35	9.000	2.300	0,200	0,400	9.000	2.300	0,200	0,400	9.000	2.100	0,200	0,400
6	40	9.000	2.000	0,200	0,300	9.000	2.000	0,200	0,300	9.000	1.900	0,200	0,300
6	45	8.000	1.800	0,200	0,300	8.000	1.800	0,200	0,300	8.000	1.700	0,200	0,300
6	50	7.000	1.600	0,200	0,300	7.000	1.600	0,200	0,300	7.000	1.500	0,200	0,300

Max cutting depth



Attention : sparks and/or flames can cause coolant fire. Be sure adequate fire prevention is available.
1. Speeds and feeds are designed to be used in conjunction with small passes on a high speed & precision machine set-up.
2. Do not use inflammable coolant. Using worn tools may generate sparks.
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emission.
* Modified parameters

WXS-LN-EBD

High speed milling



		38 ~ 45 HRC				45 ~ 55 HRC				55 ~ 60 HRC			
Vc		120 (m/min)				110 (m/min)				100 (m/min)			
R	l1 (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)
0,1	0,3	50.000	70	0,003	0,003	50.000	60	0,003	0,003	-	-	-	-
0,1	0,5	50.000	50	0,003	0,003	50.000	40	0,003	0,003	-	-	-	-
0,2	0,5	50.000	380	0,005	0,005	50.000	260	0,005	0,005	50.000	200	0,004	0,005
0,2	0,75	50.000	340	0,005	0,005	50.000	230	0,005	0,005	50.000	180	0,004	0,005
0,2	1	50.000	340	0,005	0,005	50.000	230	0,005	0,005	50.000	180	0,004	0,005
0,2	1,25	47.000	300	0,005	0,005	47.000	210	0,005	0,005	43.000	150	0,004	0,005
0,2	1,5	45.000	280	0,005	0,005	45.000	190	0,005	0,005	41.000	130	0,004	0,005
0,2	1,75	42.000	240	0,005	0,005	42.000	170	0,005	0,005	38.000	120	0,004	0,005
0,2	2	38.000	210	0,005	0,005	37.000	140	0,005	0,005	33.000	100	0,004	0,005
0,2	2,5	32.000	160	0,004	0,005	31.000	100	0,004	0,005	31.000	80	0,004	0,005
0,2	3	32.000	140	0,004	0,005	31.000	90	0,004	0,005	31.000	70	0,004	0,005
0,3	1,2	50.000	570	0,005	0,010	50.000	390	0,005	0,010	50.000	300	0,005	0,010
0,3	2	50.000	570	0,005	0,010	50.000	390	0,005	0,010	50.000	310	0,005	0,010
0,3	2,5	50.000	570	0,005	0,010	50.000	380	0,005	0,010	50.000	300	0,005	0,010
0,3	3	50.000	570	0,005	0,010	50.000	370	0,005	0,010	50.000	290	0,005	0,010
0,3	3,5	47.000	480	0,005	0,010	47.000	310	0,005	0,010	43.000	220	0,005	0,010
0,3	4	45.000	450	0,005	0,005	45.000	290	0,005	0,005	41.000	210	0,004	0,005
0,3	4,5	45.000	380	0,005	0,005	45.000	250	0,005	0,005	41.000	180	0,004	0,005
0,3	5	40.000	280	0,005	0,005	40.000	190	0,005	0,005	36.000	130	0,004	0,005
0,3	6	38.000	230	0,005	0,005	37.000	150	0,005	0,005	33.000	100	0,004	0,005
0,3	7	34.000	190	0,004	0,005	33.000	120	0,004	0,005	33.000	95	0,004	0,005
0,3	8	32.000	140	0,004	0,005	31.000	90	0,004	0,005	31.000	70	0,004	0,005
0,3	9	32.000	120	0,004	0,005	31.000	80	0,004	0,005	31.000	60	0,004	0,005
0,3	10	29.000	95	0,004	0,005	28.000	60	0,004	0,005	28.000	50	0,004	0,005
0,4	0,8	50.000	850	0,010	0,020	50.000	590	0,010	0,020	50.000	470	0,008	0,015
0,4	1	50.000	850	0,010	0,020	50.000	550	0,010	0,020	50.000	440	0,008	0,015
0,4	1,5	50.000	760	0,010	0,020	50.000	520	0,010	0,020	50.000	410	0,008	0,015
0,4	2	50.000	660	0,010	0,020	50.000	460	0,010	0,020	45.000	330	0,008	0,015
0,4	2,5	45.000	520	0,008	0,015	45.000	360	0,008	0,015	41.000	260	0,008	0,015
0,4	3	43.000	470	0,005	0,010	43.000	320	0,005	0,010	38.000	220	0,005	0,010
0,4	3,5	40.000	400	0,005	0,010	40.000	280	0,005	0,010	36.000	200	0,005	0,010
0,4	4	36.000	350	0,005	0,005	35.000	230	0,005	0,005	31.000	160	0,005	0,005
0,4	4,5	32.000	270	0,004	0,005	31.000	180	0,004	0,005	28.000	130	0,004	0,005
0,4	5	32.000	260	0,004	0,005	31.000	170	0,004	0,005	28.000	120	0,004	0,005
0,4	5,5	30.000	210	0,004	0,005	29.000	140	0,004	0,005	26.000	100	0,004	0,005
0,4	6	30.000	190	0,004	0,005	29.000	120	0,004	0,005	26.000	100	0,004	0,005
0,5	1	50.000	1.050	0,015	0,030	50.000	730	0,015	0,030	50.000	580	0,010	0,020
0,5	1,5	50.000	1.050	0,015	0,030	50.000	700	0,015	0,030	50.000	560	0,010	0,020
0,5	2	50.000	950	0,015	0,030	50.000	650	0,015	0,030	50.000	520	0,010	0,020
0,5	2,5	50.000	950	0,015	0,030	50.000	600	0,015	0,030	45.000	430	0,010	0,020
0,5	3	48.000	850	0,010	0,020	48.000	550	0,010	0,020	43.000	390	0,010	0,020
0,5	3,5	45.000	650	0,010	0,020	45.000	450	0,010	0,020	40.000	320	0,010	0,020
0,5	4	43.000	570	0,010	0,010	43.000	390	0,010	0,010	38.000	270	0,010	0,010
0,5	4,5	38.000	470	0,010	0,010	38.000	320	0,010	0,010	34.000	220	0,010	0,010
0,5	5	30.000	380	0,005	0,010	29.000	250	0,005	0,010	26.000	170	0,005	0,010
0,5	5,5	28.000	280	0,004	0,005	27.000	180	0,004	0,005	24.000	120	0,004	0,005
0,5	6	26.000	230	0,004	0,005	25.000	150	0,004	0,005	22.000	100	0,004	0,005
0,5	7	24.000	190	0,004	0,005	23.000	130	0,004	0,005	20.000	100	0,004	0,005
0,5	8	22.000	150	0,004	0,005	21.000	110	0,004	0,005	20.000	100	0,004	0,005
0,5	9	20.000	110	0,004	0,005	21.000	100	0,004	0,005	20.000	90	0,004	0,005
0,5	10	20.000	95	0,004	0,005	21.000	100	0,004	0,005	20.000	90	0,004	0,005
0,6	1,2	50.000	1.200	0,030	0,050	50.000	840	0,030	0,050	50.000	670	0,010	0,020
0,6	2	50.000	1.200	0,030	0,050	50.000	820	0,030	0,050	50.000	650	0,010	0,020
0,6	2,5	50.000	1.100	0,030	0,050	50.000	770	0,030	0,050	50.000	610	0,010	0,020
0,6	3	50.000	1.100	0,020	0,030	50.000	750	0,020	0,030	45.000	540	0,010	0,020
0,6	3,5	45.000	950	0,020	0,030	45.000	660	0,020	0,030	41.000	480	0,010	0,020
0,6	4	40.000	850	0,010	0,020	40.000	590	0,010	0,020	36.000	420	0,010	0,020
0,6	4,5	34.000	740	0,010	0,020	34.000	510	0,010	0,020	31.000	370	0,010	0,020
0,6	5	30.000	640	0,010	0,020	30.000	440	0,010	0,020	27.000	310	0,010	0,020
0,6	5,5	28.000	610	0,010	0,020	28.000	420	0,010	0,020	25.000	300	0,010	0,020
0,6	6	26.000	570	0,010	0,020	25.000	380	0,010	0,020	22.000	260	0,010	0,020
0,6	6,5	24.000	520	0,010	0,010	23.000	340	0,010	0,010	20.000	230	0,010	0,010
0,6	7	23.000	420	0,010	0,010	22.000	280	0,010	0,010	19.000	190	0,010	0,010
0,6	7,5	23.000	380	0,010	0,010	22.000	250	0,010	0,010	19.000	170	0,010	0,010
0,6	8	20.000	300	0,005	0,010	19.000	200	0,005	0,010	17.000	140	0,005	0,010
0,6	8,5	20.000	280	0,005	0,010	19.000	180	0,005	0,010	17.000	130	0,005	0,010
0,6	9	20.000	260	0,005	0,010	19.000	170	0,005	0,010	17.000	120	0,005	0,010
0,6	9,5	20.000	220	0,005	0,008	19.000	140	0,005	0,008	17.000	110	0,005	0,008
0,6	10	20.000	190	0,005	0,008	19.000	120	0,005	0,008	17.000	100	0,005	0,008
0,6	11	18.000	140	0,005	0,008	17.000	90	0,005	0,008	17.000	80	0,005	0,008
0,6	12	18.000	110	0,005	0,005	17.000	80	0,005	0,005	17.000	70	0,004	0,005
0,8	2	50.000	1.900	0,040	0,080	50.000	1.600	0,040	0,080	50.000	1.200	0,015	0,030
0,8	3	48.000	1.500	0,040	0,080	48.000	1.100	0,040	0,080	45.000	820	0,015	0,030
0,8	4	40.000	1.100	0,040	0,080	40.000	1.000	0,040	0,080	38.000	760	0,015	0,030
0,8	5	34.000	900	0,030	0,050	34.000	800	0,030	0,050	31.000	580	0,015	0,030
0,8	6	30.000	760	0,030	0,050	30.000	650	0,030	0,050	27.000	460	0,015	0,030
0,8	7	25.000	570	0,010	0,020	25.000	450	0,010	0,020	22.000	310	0,010	0,020
0,8	8	23.000	420	0,005	0,010	23.000	300	0,005	0,010	20.000	200	0,005	0,010
0,8	10	18.000	300	0,005	0,008	17.000	200	0,005	0,008	17.000	170	0,005	0,008

WXS-LN-EBD

High speed milling



		38 ~ 45 HRC				45 ~ 55 HRC				55 ~ 60 HRC			
Vc		120 (m/min)				110 (m/min)				100 (m/min)			
R	l1 (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)
0,8	12	17.000	230	0,005	0,005	16.000	160	0,005	0,005	16.000	110	0,005	0,005
1	2	50.000	3.700	0,050	0,100	50.000	3.700	0,050	0,100	50.000	3.000	0,020	0,050
1	3	45.000	3.000	0,050	0,100	45.000	2.400	0,050	0,100	45.000	1.900	0,020	0,050
1	4	40.000	2.850	0,050	0,100	40.000	2.200	0,050	0,100	40.000	1.700	0,020	0,050
1	5	36.000	2.100	0,050	0,100	36.000	1.600	0,050	0,100	36.000	1.200	0,020	0,050
1	6	30.000	1.900	0,050	0,100	30,000	1.500	0,050	0,100	30,000	1.200	0,020	0,050
1	7	27,000	1,600	0,050	0,100	27,000	1.300	0,050	0,100	27,000	1,000	0,020	0,050
1	8	26.000	1.500	0,050	0,100	26.000	1.200	0,050	0,100	26.000	960	0,020	0,050
1	9	24.000	1.100	0,030	0,050	24.000	880	0,030	0,050	24.000	700	0,020	0,050
1	10	22.000	1.000	0,010	0,020	21.000	760	0,010	0,020	18.000	520	0,010	0,020
1	12	20.000	760	0,010	0,010	19.000	570	0,010	0,010	17.000	400	0,010	0,010
1	14	18.000	570	0,005	0,010	17.000	430	0,005	0,010	15.000	300	0,005	0,010
1	16	16.000	400	0,005	0,010	15.000	300	0,005	0,010	13.000	200	0,005	0,010
1	18	14.000	300	0,005	0,005	13.000	220	0,005	0,005	12.000	160	0,004	0,005
1	20	13.000	285	0,005	0,005	12.000	180	0,005	0,005	12.000	140	0,004	0,005
1	22	12.000	190	0,005	0,005	12.000	110	0,005	0,005	12.000	100	0,004	0,005
1,2	2,4	50.000	3.600	0,060	0,120	50.000	3.600	0,060	0,120	50.000	3.000	0,020	0,050
1,2	4	40.000	2.850	0,060	0,120	40.000	2.300	0,060	0,120	38.000	1.750	0,020	0,050
1,2	6	32.000	2.000	0,060	0,120	32.000	1.600	0,060	0,120	30.000	1.200	0,020	0,050
1,2	8	25.000	1.600	0,060	0,120	25.000	1.200	0,060	0,120	25.000	960	0,020	0,050
1,2	10	20.000	1.100	0,050	0,100	18.000	800	0,050	0,100	16.000	560	0,020	0,050
1,2	12	17.000	850	0,030	0,050	16.000	640	0,030	0,050	14.000	440	0,020	0,050
1,2	14	16.000	610	0,030	0,050	15.000	450	0,030	0,050	13.000	310	0,020	0,050
1,2	16	15.000	420	0,020	0,050	14.000	300	0,020	0,050	12.000	200	0,020	0,050
1,2	18	15.000	330	0,005	0,005	14.000	200	0,005	0,005	12.000	130	0,004	0,005
1,2	20	13.000	300	0,005	0,005	12.000	180	0,005	0,005	10.000	120	0,004	0,005
1,4	8	25.000	1.600	0,070	0,140	25.000	1.200	0,070	0,140	25.000	960	0,030	0,070
1,4	12	19.000	950	0,030	0,070	19.000	760	0,030	0,070	17.000	540	0,030	0,070
1,4	16	13.000	470	0,020	0,050	12.000	340	0,020	0,050	10.000	220	0,020	0,050
1,5	3	50.000	4.800	0,075	0,150	50.000	4.800	0,075	0,150	50.000	3.900	0,030	0,060
1,5	4	40.000	3.700	0,075	0,150	40.000	2.900	0,075	0,150	38.000	2.200	0,030	0,060
1,5	6	30.000	2.700	0,075	0,150	30.000	2.200	0,075	0,150	27.000	1.500	0,030	0,060
1,5	8	24.000	2.100	0,075	0,150	24.000	1.700	0,075	0,150	21.000	1.100	0,030	0,060
1,5	10	24.000	1.900	0,075	0,150	24.000	1.500	0,075	0,150	21.000	1.000	0,030	0,060
1,5	12	21.000	1.300	0,075	0,100	21.000	1.000	0,075	0,100	18.000	680	0,030	0,060
1,5	14	17.000	1.100	0,050	0,100	17.000	900	0,050	0,100	15.000	630	0,030	0,060
1,5	16	14.000	760	0,050	0,100	13.000	560	0,050	0,100	10.000	340	0,030	0,050
1,5	18	13.000	470	0,030	0,050	12.000	350	0,030	0,050	10.000	230	0,030	0,050
1,5	20	12.000	340	0,020	0,050	11.000	240	0,020	0,050	9.000	150	0,020	0,050
1,5	22	12.000	300	0,020	0,050	11.000	220	0,020	0,050	9.000	140	0,020	0,050
1,5	30	11.000	190	0,005	0,010	10.000	120	0,005	0,010	9.000	90	0,005	0,010
1,6	8	24.000	2.800	0,080	0,160	23.000	2.100	0,080	0,160	20.000	1.400	0,030	0,080
1,6	12	21.000	1.700	0,050	0,100	20.000	1.380	0,050	0,100	18.000	990	0,030	0,080
1,6	16	14.000	760	0,050	0,100	13.000	600	0,050	0,100	11.000	400	0,030	0,080
1,6	20	12.000	360	0,030	0,050	11.000	280	0,030	0,050	10.000	200	0,030	0,050
1,8	8	24.000	2.800	0,090	0,270	23.000	2.280	0,090	0,270	20.000	1.500	0,030	0,080
1,8	12	21.000	1.700	0,090	0,180	20.000	1.380	0,090	0,180	18.000	990	0,030	0,080
1,8	16	14.000	850	0,050	0,120	13.000	670	0,050	0,120	11.000	450	0,030	0,080
1,8	20	11.000	360	0,040	0,050	10.000	280	0,040	0,050	9.000	200	0,030	0,050
2	4	50.000	5.600	0,100	0,200	47.000	5.300	0,100	0,200	40.000	3.600	0,050	0,100
2	6	36.000	2.800	0,100	0,200	35.000	2.700	0,100	0,200	30.000	1.800	0,050	0,100
2	8	25.000	2.400	0,100	0,200	24.000	2.300	0,100	0,200	20.000	1.500	0,050	0,100
2	10	20.000	2.200	0,100	0,200	19.000	2.000	0,100	0,200	17.000	1.400	0,050	0,100
2	12	16.000	1.900	0,100	0,200	15.000	1.700	0,100	0,200	13.000	1.100	0,050	0,100
2	14	15.000	1.700	0,100	0,200	14.000	1.500	0,100	0,200	12.000	1.000	0,050	0,100
2	16	14.000	1.600	0,100	0,100	13.000	1.400	0,100	0,100	11.000	950	0,050	0,100
2	18	13.000	1.500	0,100	0,100	12.000	1.200	0,100	0,100	10.000	800	0,050	0,100
2	20	11.000	1.100	0,050	0,100	10.000	890	0,050	0,100	9.000	640	0,050	0,100
2	22	9.000	950	0,050	0,100	9.000	860	0,050	0,100	7.500	570	0,050	0,100
2	25	9.000	760	0,030	0,050	9.000	680	0,030	0,050	7.500	450	0,030	0,050
2	30	9.000	470	0,020	0,050	9.000	360	0,020	0,050	7.500	240	0,020	0,050
2	35	7.500	230	0,020	0,030	7.000	130	0,020	0,030	6.000	100	0,020	0,030
2	40	6.000	140	0,020	0,030	6.000	100	0,020	0,030	6.000	90	0,020	0,030
2,5	10	20.000	3.100	0,100	0,200	19.000	2.900	0,100	0,200	16.000	1.900	0,050	0,100
2,5	15	17.000	2.600	0,100	0,200	16.000	2.400	0,100	0,200	14.000	1.600	0,050	0,100
2,5	20	15.000	1.700	0,100	0,200	14.000	1.600	0,100	0,200	12.000	1.000	0,050	0,100
2,5	25	11.000	950	0,030	0,050	10.000	830	0,030	0,050	9.000	590	0,030	0,050
2,5	30	9.000	760	0,030	0,050	8.000	650	0,030	0,050	7.000	450	0,030	0,050
2,5	35	7.500	470	0,020	0,030	7.000	430	0,020	0,030	6.000	290	0,020	0,030
3	6	41.500	6.200	0,150	0,300	32.000	4.800	0,150	0,300	26.500	3.300	0,060	0,150
3	8	30.000	4.200	0,150	0,300	25.000	3.500	0,150	0,300	22.000	2.400	0,060	0,150
3	10	25.000	3.600	0,150	0,300	20.000	2.800	0,150	0,300	18.000	2.000	0,060	0,150
3	12	20.000	2.800	0,150	0,300	18.000	2.500	0,150	0,300	16.000	1.700	0,060	0,150
3	14	18.000	2.500	0,150	0,300	15.000	2.000	0,150	0,300	13.000	1.300	0,060	0,150
3	15	16.000	2.200	0,100	0,300	13.000	1.800	0,100	0,300	11.000	1.200	0,060	0,150
3	16	16.000	1.900	0,100	0,200	13.000	1.500	0,100	0,200	11.000	1.100	0,060	0,150
3	20	14.000	1.700	0,100	0,200	11.000	1.600	0,100	0,200	10.000	1.000	0,060	0,150
3	25	12.000	1.100	0,050	0,100	9.000	820	0,050	0,100	8.000	580	0,050	0,100
3	30	9.000	760	0,030	0,050	7.000	590	0,030	0,050	6.000	400	0,030	0,050

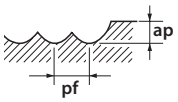
WXS-LN-EBD

High speed milling



		38 ~ 45 HRC				45 ~ 55 HRC				55 ~ 60 HRC			
Vc		120 (m/min)				110 (m/min)				100 (m/min)			
R	l1 (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)
3	35	7.500	570	0,020	0,050	6.000	460	0,020	0,050	5.000	300	0,020	0,050
3	40	6.500	470	0,020	0,030	5.000	360	0,020	0,030	4.000	230	0,020	0,030
3,5	15	18.000	2.800	0,100	0,300	14.000	2.000	0,100	0,300	12.000	1.300	0,070	0,150
3,5	20	16.000	2.500	0,100	0,200	12.000	1.800	0,100	0,200	10.000	1.200	0,070	0,150
3,5	25	12.000	1.900	0,100	0,100	9.000	1.300	0,100	0,100	8.000	920	0,070	0,150
3,5	30	10.000	1.500	0,050	0,100	8.000	1.100	0,050	0,100	7.000	770	0,050	0,100
3,5	35	9.000	950	0,050	0,050	7.000	700	0,050	0,050	5.000	400	0,050	0,050
3,5	40	7.500	760	0,050	0,050	6.000	580	0,050	0,050	4.000	300	0,050	0,050
3,5	45	6.500	570	0,030	0,030	5.000	420	0,030	0,030	4.000	260	0,030	0,030
4	8	31.000	5.700	0,200	0,500	24.000	4.400	0,200	0,500	20.000	3.200	0,080	0,200
4	10	25.000	4.200	0,200	0,500	20.000	3.300	0,200	0,500	18.000	2.300	0,080	0,200
4	12	20.000	3.400	0,200	0,500	17.000	2.900	0,200	0,500	14.000	1.900	0,080	0,200
4	15	20.000	3.400	0,200	0,500	16.000	2.700	0,200	0,500	12.000	1.600	0,080	0,200
4	16	18.000	3.000	0,200	0,500	15.000	2.500	0,200	0,500	10.000	1.300	0,080	0,200
4	20	16.000	2.600	0,200	0,400	14.000	2.300	0,200	0,400	8.000	1.000	0,080	0,200
4	25	16.000	2.600	0,100	0,300	13.000	2.200	0,100	0,300	6.000	810	0,080	0,200
4	30	14.000	2.200	0,100	0,200	12.000	1.900	0,100	0,200	5.000	630	0,080	0,200
4	35	12.000	1.700	0,100	0,200	9.000	1.200	0,100	0,200	4.000	420	0,080	0,200
4	40	9.000	1.200	0,050	0,100	8.000	1.000	0,050	0,100	4.000	400	0,050	0,100
4	45	7.500	950	0,050	0,050	7.000	890	0,050	0,050	3.600	360	0,050	0,050
4	50	6.500	660	0,020	0,050	6.000	600	0,020	0,050	3.600	280	0,020	0,050
5	10	25.000	5.400	0,250	0,500	19.000	4.000	0,250	0,500	16.000	2.800	0,100	0,250
5	15	20.000	3.900	0,250	0,500	17.000	3.300	0,250	0,500	13.000	2.000	0,100	0,250
5	20	16.000	3.300	0,250	0,500	13.000	2.700	0,250	0,500	8.000	1.300	0,100	0,250
5	25	15.000	3.000	0,200	0,300	12.000	2.400	0,200	0,300	6.000	960	0,100	0,250
5	30	14.000	2.300	0,100	0,300	11.000	1.800	0,100	0,300	4.000	520	0,100	0,250
5	35	12.000	1.500	0,100	0,300	10.000	1.100	0,100	0,300	3.200	280	0,100	0,250
5	40	10.000	1.100	0,100	0,200	9.000	990	0,100	0,200	3.000	260	0,100	0,200
5	45	9.000	850	0,100	0,100	8.000	660	0,100	0,100	3.000	200	0,100	0,100
5	50	7.500	760	0,100	0,100	7.000	610	0,100	0,100	2.800	190	0,100	0,100
6	12	20.000	5.200	0,300	0,500	16.000	3.400	0,300	0,500	13.500	2.500	0,100	0,200
6	20	16.000	3.900	0,300	0,500	12.000	3.000	0,300	0,500	8.000	1.600	0,100	0,200
6	25	12.000	3.000	0,300	0,500	10.000	2.500	0,300	0,500	6.000	1.200	0,100	0,200
6	30	10.000	2.400	0,300	0,500	9.000	2.100	0,300	0,500	4.000	740	0,100	0,200
6	35	9.000	2.100	0,200	0,400	9.000	2.000	0,200	0,400	3.500	620	0,100	0,200
6	40	9.000	1.900	0,200	0,300	9.000	1.800	0,200	0,300	3.000	480	0,100	0,200
6	45	8.000	1.700	0,200	0,300	8.000	1.600	0,200	0,300	2.800	440	0,100	0,200
6	50	7.000	1.500	0,200	0,300	7.000	1.400	0,200	0,300	2.500	400	0,100	0,200

Max cutting depth



Attention : sparks and/or flames can cause coolant fire. Be sure adequate fire prevention is available.
1. Speeds and feeds are designed to be used in conjunction with small passes on a high speed & precision machine set-up.
2. Do not use inflammable coolant. Using worn tools may generate sparks.
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emission.
* Modified parameters

WXS-CPR

Regular milling



Max. cutting depth ap / ae

			ap						ae	~ 45 HRC SKD61 • NAK55 •NAK80 • HPMI		45 ~ 55 HRC SKD61 • STAVAX • HPM38		55 ~ 65 HRC Hardened Steel	
										ap = 120%	ae = 120%	ap = 100%	ae = 100%	ap = 60%	ae = 80%
Ø	α°	l1 (mm)	R0,05	R0,1	R0,2	R0,3	R0,5	R1		S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)
0,2	0°	0,5	0,005	-	-	-	-	-	0,060	40.000	560	36.000	460	31.500	380
0,2	0°	1	0,004	-	-	-	-	-	0,060	38.000	530	34.000	435	30.000	355
0,2	1°	1	0,005	-	-	-	-	-	0,060	40.000	560	40.000	510	35.000	420
0,2	1°	2	0,004	-	-	-	-	-	0,054	40.000	505	36.000	415	31.500	340
0,2	3°	1	0,005	-	-	-	-	-	0,060	40.000	560	40.000	510	35.000	420
0,2	3°	2	0,005	-	-	-	-	-	0,060	40.000	560	36.000	460	31.500	380
0,2	5°	1	0,005	-	-	-	-	-	0,060	40.000	560	40.000	510	35.000	420
0,2	5°	2	0,005	-	-	-	-	-	0,060	40.000	560	36.000	460	31.500	380
0,3	0°	1	0,005	-	-	-	-	-	0,090	36.500	720	32.500	545	30.500	475
0,3	0°	2	0,002	-	-	-	-	-	0,061	30.000	510	27.000	385	25.500	340
0,3	1°	2	0,005	-	-	-	-	-	0,090	38.500	720	34.500	545	32.500	480
0,3	1°	3	0,004	-	-	-	-	-	0,081	36.500	645	32.500	490	30.500	430
0,3	3°	2	0,005	-	-	-	-	-	0,090	38.500	765	34.500	580	32.500	510
0,3	3°	3	0,005	-	-	-	-	-	0,090	36.500	720	32.500	545	30.500	475
0,3	5°	2	0,005	-	-	-	-	-	0,090	38.500	765	32.500	580	32.500	510
0,3	5°	3	0,005	-	-	-	-	-	0,090	38.500	720	32.500	545	30.500	475
0,4	0°	1	0,007	-	-	-	-	-	0,120	29.500	750	26.000	580	24.500	470
0,4	0°	1,5	0,007	-	-	-	-	-	0,120	29.500	750	26.000	580	24.500	470
0,4	0°	2	0,005	0,008	-	-	-	-	0,102	27.500	675	24.500	520	23.000	420
0,4	0°	3	0,002	0,003	-	-	-	-	0,075	23.000	470	20.000	360	19.000	290
0,4	0°	4	0,001	0,002	-	-	-	-	0,036	21.000	380	18.500	290	17.500	235
0,4	1°	3	0,006	0,009	-	-	-	-	0,120	31.000	755	27.000	580	25.500	470
0,4	1°	4	0,005	0,007	-	-	-	-	0,108	29.500	680	26.000	520	24.500	420
0,4	3°	3	0,007	0,01	-	-	-	-	0,120	31.000	795	27.000	610	25.500	495
0,4	3°	4	0,007	0,01	-	-	-	-	0,120	29.500	750	26.000	580	24.500	470
0,4	5°	3	0,007	0,01	-	-	-	-	0,120	31.000	795	27.000	610	25.500	495
0,4	5°	4	0,007	0,01	-	-	-	-	0,120	29.500	750	26.000	580	24.500	470
0,5	0°	1	0,007	0,01	-	-	-	-	0,150	29.000	820	26.000	670	26.000	620
0,5	0°	2	0,007	0,01	-	-	-	-	0,150	29.000	820	26.000	670	26.000	620
0,5	0°	3	0,003	0,005	-	-	-	-	0,105	27.500	695	24.500	570	24.500	525
0,5	0°	4	0,002	0,003	-	-	-	-	0,090	22.500	510	20.000	420	20.000	385
0,5	0°	5	0,001	0,002	-	-	-	-	0,045	21.000	415	18.500	340	18.500	315
0,5	0°	6	0,001	0,001	-	-	-	-	0,030	19.500	360	17.000	295	17.000	270
0,5	1°	3	0,007	0,01	-	-	-	-	0,150	32.500	910	28.500	745	28.500	690
0,5	1°	5	0,005	0,007	-	-	-	-	0,150	29.000	735	26.000	605	26.000	560
0,5	1°	8	0,003	0,004	-	-	-	-	0,052	25.500	560	22.500	460	22.500	425
0,5	1°	10	0,002	0,003	-	-	-	-	0,022	22.500	475	20.000	390	20.000	360
0,5	1°	12	0,001	0,002	-	-	-	-	0,016	21.000	415	18.500	340	18.500	315
0,5	3°	3	0,007	0,01	-	-	-	-	0,150	32.500	910	28.500	745	28.500	690
0,5	3°	5	0,007	0,01	-	-	-	-	0,150	29.000	820	26.000	670	26.000	620
0,5	3°	8	0,006	0,009	-	-	-	-	0,067	25.500	710	22.500	580	22.500	535
0,5	3°	10	0,001	0,002	-	-	-	-	0,037	22.500	575	20.000	470	20.000	435
0,5	3°	12	0,001	0,002	-	-	-	-	0,031	21.000	475	18.500	390	18.500	360
0,5	5°	3	0,007	0,01	-	-	-	-	0,150	32.500	910	28.500	745	28.500	690
0,5	5°	5	0,007	0,01	-	-	-	-	0,150	29.000	820	26.000	670	26.000	620
0,5	5°	8	0,006	0,009	-	-	-	-	0,142	25.500	710	22.500	580	22.500	535
0,5	5°	10	0,005	0,007	-	-	-	-	0,112	22.500	635	20.000	520	20.000	480
0,6	0°	2	-	0,012	-	-	-	-	0,180	29.000	980	26.000	805	21.500	620
0,6	0°	4	-	0,005	-	-	-	-	0,122	24.500	695	21.500	570	18.000	440
0,6	0°	6	-	0,002	-	-	-	-	0,054	21.000	495	18.500	410	15.500	315
0,8	0°	4	-	0,016	0,032	-	-	-	0,240	23.500	1.000	20.500	800	17.000	565
0,8	0°	6	-	0,007	0,014	-	-	-	0,240	19.500	700	16.500	555	14.000	390
0,8	0°	8	-	-	0,008	-	-	-	0,216	18.000	570	15.500	450	13.000	320
0,8	1°	5	0,01	0,02	0,04	-	-	-	0,240	26.500	1.150	26.500	1.050	26.500	905
0,8	1°	8	0,007	0,015	0,03	-	-	-	0,240	25.000	1.000	25.000	940	25.000	795
0,8	3°	5	0,01	0,02	0,04	-	-	-	0,240	26.500	1.200	26.500	1.100	26.500	940
0,8	3°	8	0,01	0,02	0,04	-	-	-	0,240	25.000	1.100	25.000	1.050	25.000	880
1	0°	4	0,01	0,02	0,04	0,05	-	-	0,300	23.000	1.300	20.000	1.050	17.000	755
1	0°	6	0,005	0,01	0,02	0,025	-	-	0,210	20.500	1.050	18.000	835	15.500	605
1	0°	8	0,003	0,006	0,012	0,015	-	-	0,180	18.000	800	15.500	650	13.500	470
1	0°	10	0,002	0,004	0,008	0,01	-	-	0,090	16.500	650	14.500	530	12.500	380
1	0°	12	0,001	0,003	0,006	0,007	-	-	0,060	15.500	565	13.500	460	11.500	335
1	0°	16	-	-	0,004	-	-	-	0,030	12.000	400	10.500	325	9.150	235
1	0°	20	-	-	0,003	-	-	-	0,024	10.000	285	8.900	230	7.650	170
1	1°	6	0,01	0,02	0,04	0,05	-	-	0,300	25.500	1.250	22.500	1.150	19.000	840
1	1°	10	0,007	0,015	0,03	0,037	-	-	0,270	23.000	1.150	20.000	940	17.000	680
1	1°	15	0,005	0,01	0,02	0,025	-	-	0,120	20.500	915	18.000	740	15.500	540
1	1°	20	0,003	0,006	0,012	0,015	-	-	0,045	18.000	750	15.500	610	13.500	440
1	1°	25	0,002	0,002	0,004	0,005	-	-	0,030	16.500	650	14.500	530	12.500	380
1	1°	30	0,002	0,001	0,002	0,003	-	-	0,021	12.500	465	11.000	380	9.550	275
1	1°	35	0,002	0,001	0,002	0,002	-	-	0,015	11.500	385	10.000	315	8.600	230
1	3°	6	0,01	0,02	0,04	0,05	-	-	0,300	25.500	1.450	22.500	1.150	19.000	840
1	3°	10	0,01	0,02	0,04	0,05	-	-	0,300	23.000	1.300	20.000	1.050	17.000	755
1,2	0°	6	-	-	0,032	0,04	-	-	0,360	19.000	1.200	18.000	1.050	14.500	735
1,2	0°	8	-	-	0,018	0,022	-	-	0,252	17.000	965	16.000	845	13.000	580
1,2	0°	10	-	-	0,011	0,014	-	-	0,216	16.000	850	15.000	740	12.000	510
1,5	0°	6	-	-	0,04	0,06	-	-	0,450	17.000	1.450	16.000	1.250	13.500	880
1,5	0°	8	-	-	0,026	0,039	-	-	0,382	16.000	1.250	15.500	1.100	12.500	750
1,5	0°	10	-	-	0,018	0,027	-	-	0,292	14.500	1.000	13.500	900	11.000	625

CUTTING CONDITIONS

WXS-CPR

Regular milling



Max. cutting depth ap / ae

			ap						ae	~ 45 HRC SKD61 • NAK55 •NAK80 • HPMI		45 ~ 55 HRC SKD61 • STAVAX • HPM38		55 ~ 65 HRC Hardened Steel	
										ap = 120%	ae = 120%	ap = 100%	ae = 100%	ap = 60%	ae = 80%
Ø	α°	l1 (mm)	R0,05	R0,1	R0,2	R0,3	R0,5	R1		S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)
1,5	0°	12	-	-	0,012	0,018	-	-	0,270	13.500	900	12.500	790	10.500	550
1,5	0°	16	-	-	0,007	0,01	-	-	0,112	9.150	525	8.650	460	7.150	320
1,5	1°	10	-	0,019	0,039	0,049	-	-	0,450	18.500	1.500	17.500	1.300	14.500	905
1,5	1°	15	-	0,015	0,03	0,037	-	-	0,405	17.000	1.150	16.000	1.000	13.500	705
1,5	1°	20	-	0,01	0,02	0,025	-	-	0,270	15.500	1.100	15.000	970	12.000	675
1,5	1°	25	-	0,008	0,008	0,01	-	-	0,135	14.500	950	13.500	835	11.500	580
1,5	1°	30	-	0,003	0,006	0,007	-	-	0,067	13.500	840	12.500	740	10.500	515
1,5	3°	10	-	0,02	0,04	0,05	-	-	0,450	18.500	1.550	17.500	1.350	14.500	940
1,5	3°	15	-	0,02	0,04	0,05	-	-	0,450	17.000	1.450	16.000	1.250	13.500	880
2	0°	8	-	0,02	0,04	0,06	0,075	-	0,600	13.000	1.450	13.000	1.300	11.500	1.000
2	0°	10	-	0,016	0,032	0,048	0,06	-	0,510	12.000	1.300	12.000	1.150	11.000	905
2	0°	12	-	0,01	0,02	0,03	0,037	-	0,420	11.500	1.150	11.500	1.050	10.000	810
2	0°	16	-	0,006	0,012	0,018	0,022	-	0,360	10.000	900	10.000	800	8.900	630
2	0°	20	-	0,004	0,008	0,012	0,015	-	0,180	9.300	730	9.300	650	8.250	510
2	0°	25	-	0,002	0,004	0,007	0,009	-	0,120	8.600	625	8.600	560	7.650	440
2	1°	15	-	0,018	0,036	0,046	0,064	-	0,600	13.500	1.450	13.500	1.300	12.000	1.000
2	1°	20	-	0,015	0,03	0,037	0,052	-	0,540	13.000	1.300	13.000	1.150	11.500	910
2	1°	25	-	0,012	0,024	0,03	0,04	-	0,390	12.000	1.150	12.000	1.050	11.000	810
2	1°	30	-	0,01	0,02	0,025	0,03	-	0,240	11.500	1.050	11.500	920	10.000	720
2	1°	40	-	0,006	0,012	0,015	0,02	-	0,090	10.000	840	10.000	750	8.900	590
2	1°	50	-	0,005	0,01	0,01	0,01	-	0,060	9.300	730	9.300	650	8.250	510
2	3°	15	-	0,02	0,04	0,06	0,075	-	0,600	13.500	1.500	13.500	1.350	12.000	1.050
2	3°	20	-	0,02	0,04	0,06	0,075	-	0,600	13.000	1.450	13..000	1.300	11.500	1.000
2,5	0°	10	-	-	0,04	-	0,075	-	0,750	11.500	1.600	10.500	1.200	9.150	1.000
2,5	0°	20	-	-	0,02	-	0,037	-	0,450	8.900	1.000	8.000	740	7.150	630
2,5	0°	30	-	-	0,006	-	0,011	-	0,150	7.650	700	6.850	520	6.100	445
3	0°	8	-	-	0,04	-	-	-	0,900	9.550	1.500	8.600	1.150	7.650	825
3	0°	12	-	-	0,04	0,06	0,075	-	0,900	9.550	1.500	8.600	1.150	7.650	825
3	0°	16	-	-	0,028	0,042	0,052	-	0,720	8.500	1.200	7.650	910	6.800	660
3	0°	20	-	-	0,018	0,027	0,033	-	0,612	7.400	985	6.700	750	5.950	545
3	0°	25	-	-	0,012	0,018	0,022	-	0,540	7.100	830	6.400	635	5.700	460
3	0°	30	-	-	0,008	0,012	0,015	-	0,270	6.900	755	6.200	575	5.500	420
3	0°	35	-	-	0,006	0,009	0,011	-	0,180	6.350	655	5.700	500	5.100	365
3	1°	15	-	-	0,04	-	0,075	-	0,900	10.500	1.650	9.550	1.250	8.500	920
3	1°	20	-	-	0,039	-	0,07	-	0,900	9.950	1.500	8.950	1.150	7.950	830
3	1°	30	-	-	0,03	-	0,05	-	0,810	9.550	1.350	8.600	1.000	7.650	745
3	1°	40	-	-	0,022	-	0,04	-	0,522	8.900	1.150	8.000	890	7.150	650
3	1°	50	-	-	0,016	-	0,03	-	0,297	8.050	980	7.250	750	6.450	545
3	1°	60	-	-	0,012	-	0,02	-	0,135	7.400	870	6.700	660	5.950	480
4	0°	16	-	-	0,04	0,06	0,075	0,12	1,200	7.150	2.050	6.450	1.550	5.000	965
4	0°	20	-	-	0,032	0,048	0,06	0,2	1,020	6.750	1.950	6.100	1.450	4.750	910
4	0°	25	-	-	0,02	0,03	0,037	0,06	0,816	5.950	1.700	5.350	1.300	4.150	800
4	0°	30	-	-	0,014	0,021	0,026	0,04	0,744	5.550	1.600	5.000	1.200	3.900	750
4	0°	40	-	-	0,008	0,012	0,015	0,024	0,360	5.150	1.500	4.650	1.100	3.600	695
4	0°	50	-	-	0,004	0,007	0,009	0,014	0,216	4.550	1.300	4.100	980	3.150	610

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication/mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibration or chattering occur depending on the machineshape, cutting amount, rigidity of the machine or work holding condition etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommanded during the approach of a Z cut.
6. Adjust the speed, feed rate, and the depth of the cut according to the shape of the work, rigidity of the machine, and how the work is held.

CUTTING CONDITIONS

WXS-CPR

Side milling (Contour line finish)





			Max. cutting depth ap / ae							~ 45 HRC SKD61 • NAK55 •NAK80 • HPMI		45 ~ 55 HRC SKD61 • STAVAX • HPM38		55 ~ 65 HRC Hardened Steel	
			ap						ae	ap = 100%	ae = 100%	ap = 100%	ae = 100%	ap = 60%	ae = 80%
Ø	α°	l1 (mm)	R0,05	R0,1	R0,2	R0,3	R0,5	R1		S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)
0,2	0°	0,5	0,005	-	-	-	-	-	0,006	50.000	700	43.000	550	43.000	515
0,2	0°	1	0,005	-	-	-	-	-	0,006	47.500	665	40.500	520	40.500	485
0,2	1°	1	0,005	-	-	-	-	-	0,006	50.000	700	47.500	610	47.500	575
0,2	1°	2	0,005	-	-	-	-	-	0,005	50.000	630	43.000	495	43.000	465
0,2	3°	1	0,005	-	-	-	-	-	0,006	50.000	700	47.500	610	47.500	575
0,2	3°	2	0,005	-	-	-	-	-	0,006	50.000	700	43.000	550	43.000	515
0,2	5°	1	0,005	-	-	-	-	-	0,006	50.000	700	47.500	610	47.500	575
0,2	5°	2	0,005	-	-	-	-	-	0,006	50.000	700	43.000	550	43.000	515
0,3	0°	1	0,005	-	-	-	-	-	0,009	43.000	850	38.000	690	33.500	520
0,3	0°	2	0,004	-	-	-	-	-	0,008	36.000	605	32.000	485	28.000	370
0,3	1°	2	0,005	-	-	-	-	-	0,009	46.000	855	40.500	690	35.500	525
0,3	1°	3	0,005	-	-	-	-	-	0,009	43.000	765	38.000	620	33.500	470
0,3	3°	2	0,005	-	-	-	-	-	0,009	46.000	910	40.500	735	35.500	555
0,3	3°	3	0,005	-	-	-	-	-	0,009	43.000	850	38.000	690	33.500	520
0,3	5°	2	0,005	-	-	-	-	-	0,009	46.000	910	40.500	735	35.500	555
0,3	5°	3	0,005	-	-	-	-	-	0,009	43.000	850	38.000	690	33.500	520
0,4	0°	1	0,006	-	-	-	-	-	0,012	39.500	1.000	32.000	775	28.500	550
0,4	0°	1,5	0,006	-	-	-	-	-	0,012	39.500	1.000	32.000	775	28.500	550
0,4	0°	2	0,006	0,01	-	-	-	-	0,012	37.000	905	30.500	695	27.000	495
0,4	0°	3	0,004	0,007	-	-	-	-	0,008	30.500	630	25.500	480	22.500	340
0,4	0°	4	0,002	0,004	-	-	-	-	0,006	28.500	510	23.500	390	20.500	280
0,4	1°	3	0,006	0,01	-	-	-	-	0,012	41.500	1.000	34.000	775	30.000	550
0,4	1°	4	0,006	0,01	-	-	-	-	0,012	39.500	910	32.000	695	28.500	495
0,4	3°	3	0,006	0,01	-	-	-	-	0,012	41.500	1.050	34.000	815	30.000	580
0,4	3°	4	0,006	0,01	-	-	-	-	0,012	39.500	1.000	32.000	775	28.500	550
0,4	5°	3	0,006	0,01	-	-	-	-	0,012	41.500	1.050	34.000	815	30.000	580
0,4	5°	4	0,006	0,01	-	-	-	-	0,012	39.500	1.000	32.000	775	28.500	550
0,5	0°	1	0,006	0,01	-	-	-	-	0,015	34.500	965	28.500	775	24.000	580
0,5	0°	2	0,006	0,01	-	-	-	-	0,015	34.500	965	28.500	775	24.000	580
0,5	0°	3	0,006	0,01	-	-	-	-	0,013	32.500	820	27.000	660	22.500	490
0,5	0°	4	0,003	0,006	-	-	-	-	0,010	26.500	600	22.500	480	18.500	360
0,5	0°	5	0,002	0,004	-	-	-	-	0,007	25.000	490	20.500	390	17.500	290
0,5	0°	6	0,001	0,003	-	-	-	-	0,006	23.000	425	19.000	340	16.000	255
0,5	1°	3	0,006	0,01	-	-	-	-	0,015	38.000	1.050	32.000	860	26.500	640
0,5	1°	5	0,006	0,01	-	-	-	-	0,015	34.500	865	28.500	695	24.000	520
0,5	1°	8	0,004	0,007	-	-	-	-	0,010	30.000	660	25.000	530	21.000	395
0,5	1°	10	0,003	0,005	-	-	-	-	0,009	26.500	560	22.500	450	18.500	340
0,5	1°	12	0,002	0,004	-	-	-	-	0,006	25.000	490	20.500	390	17.500	290
0,5	3°	3	0,006	0,01	-	-	-	-	0,015	38.000	1.050	32.000	860	26.500	640
0,5	3°	5	0,006	0,01	-	-	-	-	0,015	34.500	965	28.500	775	24.000	580
0,5	3°	8	0,004	0,008	-	-	-	-	0,015	30.000	835	25.000	670	21.000	500
0,5	3°	10	0,003	0,005	-	-	-	-	0,012	26.500	675	22.500	540	18.500	400
0,5	3°	12	0,002	0,004	-	-	-	-	0,010	25.000	555	20.500	450	17.500	335
0,5	5°	3	0,006	0,01	-	-	-	-	0,015	38.000	1.050	32.000	860	26.500	640
0,5	5°	5	0,006	0,01	-	-	-	-	0,015	34.500	965	28.500	775	24.000	580
0,5	5°	8	0,006	0,01	-	-	-	-	0,015	30.000	835	25.000	670	21.000	500
0,5	5°	10	0,004	0,008	-	-	-	-	0,012	26.500	750	22.500	600	18.500	450
0,6	0°	2	-	0,012	-	-	-	-	0,018	31.000	1.050	26.500	850	24.000	690
0,6	0°	4	-	0,009	-	-	-	-	0,012	26.000	740	22.000	600	20.000	490
0,6	0°	6	-	0,004	-	-	-	-	0,009	22.500	530	19.000	430	17.000	350
0,8	0°	4	-	0,015	0,02	-	-	-	0,020	29.000	1.200	25.500	1.050	23.500	790
0,8	0°	6	-	0,012	0,016	-	-	-	0,014	23.500	850	21.000	720	19.500	550
0,8	0°	8	-	-	0,008	-	-	-	0,010	22.000	690	19.500	590	18.000	445
0,8	1°	5	0,006	0,015	0,02	-	-	-	0,020	26.500	1.150	26.500	1.100	26.500	905
0,8	1°	8	0,006	0,015	0,02	-	-	-	0,020	25.000	1.000	25.000	975	25.000	795
0,8	3°	5	0,006	0,015	0,02	-	-	-	0,020	26.500	1.200	26.500	1.150	26.500	940
0,8	3°	8	0,006	0,015	0,02	-	-	-	0,020	25.000	1.100	25.000	1.100	25.000	880
1	0°	4	0,006	0,015	0,02	0,03	-	-	0,030	27.000	1.500	24.500	1.250	22.500	995
1	0°	6	0,006	0,015	0,02	0,03	-	-	0,027	24.000	1.200	21.500	1.000	20.000	800
1	0°	8	0,003	0,009	0,012	0,018	-	-	0,021	21.000	950	19.000	790	17.500	620
1	0°	10	0,003	0,006	0,008	0,012	-	-	0,015	19.500	770	17.500	640	16.500	505
1	0°	12	0,003	0,004	0,006	0,009	-	-	0,013	18.000	670	16.000	560	15.000	440
1	0°	16	-	-	0,004	-	-	-	0,010	14.500	470	13.000	390	12.000	310
1	0°	20	-	-	0,003	-	-	-	0,009	12.000	340	11.000	280	10.000	220
1	1°	6	0,006	0,015	0,02	0,03	-	-	0,030	30.000	1.700	27.000	1.400	25.000	1.100
1	1°	10	0,006	0,015	0,02	0,03	-	-	0,030	27.000	1.350	24.500	1.150	22.500	895
1	1°	15	0,004	0,01	0,014	0,021	-	-	0,021	24.000	1.100	21.500	900	20.000	710
1	1°	20	0,003	0,007	0,01	0,015	-	-	0,018	21.000	890	19.000	740	17.500	580
1	1°	25	0,002	0,006	0,008	0,012	-	-	0,012	19.500	770	17.500	640	16.500	505
1	1°	30	0,002	0,003	0,004	0,006	-	-	0,009	15.000	550	13.500	460	12.500	360
1	1°	35	0,002	0,001	0,002	0,003	-	-	0,007	13.500	460	12.000	380	11.500	300
1	3°	6	0,006	0,015	0,02	0,03	-	-	0,030	30.000	1.700	27.000	1.400	25.000	1.100
1	3°	10	0,006	0,015	0,2	0,3	-	-	0,015	27.000	1.500	24.500	1.250	22.500	995
1,2	0°	6	-	-	0,016	0,024	-	-	0,036	22.500	1.450	21.000	1.250	19.000	960
1,2	0°	8	-	-	0,009	0,013	-	-	0,028	20.000	1.150	18.500	980	17.000	760
1,2	0°	10	-	-	0,005	0,008	-	-	0,021	18.500	1.000	17.500	860	16.000	670
1,5	0°	6	-	-	0,02	0,03	-	-	0,045	21.000	1.750	18.500	1.450	16.000	1.050
1,5	0°	8	-	-	0,02	0,03	-	-	0,045	20.000	1.500	17.500	1.250	15.500	910
1,5	0°	10	-	-	0,018	0,027	-	-	0,036	17.500	1.250	15.500	1.050	13.500	760

WXS-CPR

Side milling (Contour line finish)



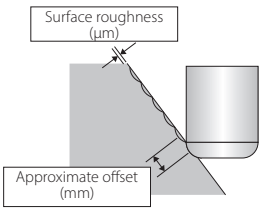
Max. cutting depth ap, ae

			ap						ae	~ 45 HRC SKD61 • NAK55 •NAK80 • HPMI		45 ~ 55 HRC SKD61 • STAVAX • HPM38		55 ~ 65 HRC Hardened Steel	
										ap = 100%	ae = 100%	ap = 100%	ae = 100%	ap = 60%	ae = 80%
Ø	α°	l1 (mm)	R0,05	R0,1	R0,2	R0,3	R0,5	R1		S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)
1,5	0°	12	-	-	0,012	0,018	-	-	0,031	16.500	1.100	14.500	910	12.500	670
1,5	0°	16	-	-	0,008	0,012	-	-	0,022	11.000	640	10.000	530	8.650	390
1,5	1°	10	-	0,015	0,02	0,03	-	-	0,045	22.500	1.800	20.000	1.500	17.500	1.100
1,5	1°	15	-	0,015	0,02	0,03	-	-	0,045	21.000	1.400	18.500	1.150	16.000	860
1,5	1°	20	-	0,012	0,016	0,024	-	-	0,036	19.000	1.350	17.000	1.100	15.000	820
1,5	1°	25	-	0,01	0,014	0,021	-	-	0,031	17.500	1.150	16.000	960	13.500	705
1,5	1°	30	-	0,007	0,01	0,015	-	-	0,027	16.500	1.050	14.500	850	12.500	625
1,5	3°	10	-	0,015	0,02	0,03	-	-	0,045	22.500	1.900	20.000	1.550	17.500	1.150
1,5	3°	15	-	0,015	0,02	0,03	-	-	0,045	21.000	1.750	18.500	1.450	16.000	1.050
2	0°	8	-	0,015	0,02	0,03	0,05	-	0,060	16.500	1.850	16.000	1.600	15.000	1.350
2	0°	10	-	0,015	0,02	0,03	0,05	-	0,060	15.500	1.650	15.500	1.450	14.500	1.200
2	0°	12	-	0,015	0,02	0,03	0,05	-	0,054	14.500	1.500	14.500	1.300	13.500	1.050
2	0°	16	-	0,009	0,012	0,018	0,03	-	0,042	13.000	1.150	12.500	1.000	12.000	830
2	0°	20	-	0,006	0,008	0,012	0,02	-	0,030	12.000	935	11.500	820	11.000	675
2	0°	25	-	0,004	0,006	0,009	0,015	-	0,027	11.000	800	11.000	700	10.000	580
2	1°	15	-	0,015	0,02	0,03	0,05	-	0,060	17.500	1.850	17.000	1.600	16.000	1.350
2	1°	20	-	0,015	0,02	0,03	0,05	-	0,060	16.500	1.650	16.000	1.450	15.000	1.200
2	1°	25	-	0,012	0,017	0,025	0,042	-	0,054	15.500	1.500	15.500	1.300	14.500	1.050
2	1°	30	-	0,012	0,016	0,024	0,04	-	0,048	14.500	1.300	14.500	1.150	13.500	950
2	1°	40	-	0,007	0,01	0,015	0,025	-	0,036	13.000	1.100	12.500	945	12.000	780
2	1°	50	-	0,006	0,008	0,012	0,02	-	0,024	12.000	935	11.500	820	11.000	675
2	3°	15	-	0,015	0,02	0,03	0,05	-	0,060	17.500	1.950	17.000	1.700	16.000	1.400
2	3°	20	-	0,015	0,02	0,03	0,05	-	0,060	16.500	1.850	16..000	1.600	15.000	1.350
2,5	0°	10	-	-	0,02	-	0,05	-	0,075	13.000	1.850	13.000	1.400	12.000	1.350
2,5	0°	20	-	-	0,012	-	0,03	-	0,052	10.000	1.150	10.000	885	9.450	830
2,5	0°	30	-	-	0,006	-	0,015	-	0,033	8.800	800	8.650	630	8.100	590
3	0°	8	-	-	0,02	-	-	-	0,080	12.000	2.000	11.000	1.400	10.000	1.100
3	0°	12	-	-	0,02	0,03	0,05	-	0,080	12.000	2.000	11.000	1.400	10.000	1.100
3	0°	16	-	-	0,02	0,03	0,05	-	0,080	10.500	1.600	9.600	1.150	9.000	875
3	0°	20	-	-	0,02	0,03	0,05	-	0,064	9.300	1.350	8.400	940	7.850	725
3	0°	25	-	-	0,012	0,018	0,03	-	0,048	8.900	1.100	8.050	795	7.550	610
3	0°	30	-	-	0,008	0,012	0,02	-	0,040	8.600	1.000	7.800	720	7.300	555
3	0°	35	-	-	0,006	0,009	0,015	-	0,036	7.950	880	7.200	630	6.750	480
3	1°	15	-	-	0,02	-	0,05	-	0,080	13.500	2.250	12.000	1.600	11.000	1.200
3	1°	20	-	-	0,02	-	0,05	-	0,080	12.500	2.000	11.500	1.450	10.500	1.100
3	1°	30	-	-	0,02	-	0,05	-	0,080	12.000	1.800	11.000	1.300	10.000	985
3	1°	40	-	-	0,018	-	0,045	-	0,064	11.000	1.550	10.000	1.100	9.450	860
3	1°	50	-	-	0,014	-	0,035	-	0,056	10.000	1.300	9.100	940	8.550	720
3	1°	60	-	-	0,01	-	0,025	-	0,048	9.300	1.150	8.400	830	7.850	640
4	0°	16	-	-	0,02	0,03	0,05	0,08	0,080	7.900	2.500	7.150	2.050	6.450	1.450
4	0°	20	-	-	0,02	0,03	0,05	0,08	0,080	7.450	2.400	6.750	1.950	6.100	1.350
4	0°	25	-	-	0,02	0,03	0,05	0,08	0,072	6.550	2.000	5.950	1.650	5.350	1.150
4	0°	30	-	-	0,014	0,021	0,035	0,056	0,056	6.100	1.650	5.550	1.350	5.000	955
4	0°	40	-	-	0,008	0,012	0,02	0,032	0,040	5.700	1.300	5.150	1.050	4.650	730
4	0°	50	-	-	0,006	0,009	0,015	0,024	0,036	5.000	960	4.450	785	4.100	550

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication/mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibration or chattering occur depending on the machineshape, cutting amount, rigidity of the machine or work holding condition etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommanded during the approach of a Z cut.
6. Adjust the speed, feed rate, and the depth of the cut according to the shape of the work, rigidity of the machine, and how the work is held.

Approximate offset (mm)

	Target surface roughness (µm)													
R	0,1	0,25	0,5	0,75	1	1,25	1,5	1,75	2	2,5	3	3,5	4	5
R 0,05	0,006	0,01	0,014	0,017	0,02	0,022	0,024	0,026	0,028	-	-	-	-	-
R 0,1	0,009	0,014	0,02	0,024	0,028	0,032	0,035	0,037	0,04	0,045	0,049	-	-	-
R 0,2	0,012	0,02	0,028	0,035	0,04	0,045	0,049	0,053	0,057	0,063	0,07	0,075	0,08	0,9
R 0,3	0,015	0,025	0,035	0,042	0,049	0,055	0,06	0,065	0,07	0,077	0,085	0,092	0,098	0,11
R 0,5	0,02	0,032	0,045	0,055	0,065	0,07	0,078	0,084	0,09	0,1	0,11	0,118	0,125	0,141
R 1	0,028	0,045	0,063	0,078	0,09	0,1	0,11	0,118	0,125	0,142	0,155	0,168	0,18	0,2



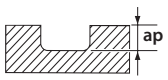
WXL-1,5D-DE

Slotting



	Cu		~32 HRC FC250 • SS400 • S55C • NAK55		33~41 HRC SKT • SKD61 • NAK80 • HPM1 • DH		42~50 HRC SKT • SKD61 • NAK80 • HPM1 • DH	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
0,1	50.000	120	40.000	80	40.000	75	40.000	38
0,2	50.000	170	40.000	110	40.000	90	40.000	45
0,3	50.000	210	40.000	140	40.000	100	40.000	70
0,4	50.000	230	40.000	150	40.000	110	34.500	75
0,5	50.000	250	38.500	150	31.000	110	27.500	75
0,6	50.000	280	33.500	150	24.500	110	21.000	75
0,7	50.000	310	30.000	150	21.500	110	18.500	75
0,8	50.000	360	27.000	150	19.500	110	17.000	80
0,9	50.000	400	23.500	150	17.000	110	15.000	80
1	50.000	430	22.000	150	15.500	110	13.500	80
1,1	50.000	420	20.000	150	14.000	110	12.500	80
1,2	50.000	420	18.500	150	13.500	110	11.500	80
1,3	47.000	410	17.500	150	12.500	110	11.000	80
1,4	44.000	410	16.000	150	11.500	110	10.000	80
1,5	40.000	400	15.500	150	11.000	110	9.900	80
1,6	39.000	400	15.000	150	10.500	110	9.400	80
1,7	36.500	400	14.000	150	9.900	110	8.800	80
1,8	34.500	400	13.500	160	9.400	110	8.500	80
1,9	32.500	400	12.500	160	8.800	110	7.900	85
2	30.000	380	12.000	160	8.700	110	7.900	90
2,1	29.000	410	11.500	170	8.300	110	7.400	90
2,2	28.000	410	11.000	170	8.200	110	7.200	90
2,3	27.500	410	11.000	180	8.000	110	7.000	90
2,4	26.000	430	10.500	180	7.900	110	6.900	90
2,5	24.500	430	10.500	200	7.600	110	6.600	90
2,6	23.500	470	9.800	200	7.400	125	6.300	90
2,7	23.000	470	9.500	200	7.100	125	6.100	90
2,8	22.000	470	9.100	210	6.900	125	5.800	95
2,9	21.500	470	8.800	210	6.700	125	5.700	95
3	21.000	540	8.900	230	6.800	130	5.700	100
3,1	20.000	550	8.700	240	6.700	130	5.600	100
3,2	19.500	560	8.400	240	6.500	145	5.400	105
3,3	19.000	560	8.100	250	6.300	145	5.200	105
3,4	18.000	560	7.900	250	6.100	145	5.100	105
3,5	18.000	560	7.800	250	6.000	155	5.000	105
3,6	17.500	580	7.600	270	5.900	155	4.900	110
3,7	16.500	580	7.400	270	5.700	155	4.700	110
3,8	16.000	590	7.300	280	5.700	155	4.600	110
3,9	15.500	590	7.100	280	5.500	160	4.500	110
4	15.500	600	7.000	280	5.500	160	4.500	115
4,1	15.500	640	6.900	290	5.400	160	4.400	115
4,2	15.000	640	6.800	290	5.300	160	4.400	115
4,3	14.000	640	6.700	310	5.200	160	4.300	115
4,4	14.000	670	6.600	320	5.100	170	4.200	125
4,5	14.000	670	6.600	320	5.100	170	4.200	125
4,6	13.500	700	6.500	330	4.900	170	4.100	125
4,7	13.500	700	6.500	350	4.900	170	4.100	125
4,8	13.500	710	6.400	350	4.800	170	4.100	125
4,9	13.500	710	6.300	360	4.700	170	4.000	125
5	12.500	720	6.200	370	4.600	170	3.900	130
5,1	12.500	720	6.100	370	4.500	170	3.900	130
5,2	12.000	720	6.000	370	4.400	170	3.800	130
5,3	12.000	720	5.900	370	4.400	170	3.800	130
5,4	11.500	720	5.800	370	4.300	170	3.600	130
5,5	11.500	720	5.700	370	4.200	170	3.500	130
5,6	11.500	720	5.600	370	4.100	170	3.500	130
5,7	11.000	720	5.500	370	4.000	170	3.400	130
5,8	11.000	710	5.400	370	3.900	170	3.300	130
5,9	10.500	710	5.300	370	3.800	170	3.300	130
6	10.000	710	5.200	370	3.800	170	3.200	130

Max cutting depth



D<1	0,1D
1≤D≤3	0,3D
3≤D	0,5D

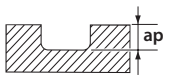
1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

WXL-2D-DE

Slotting

	Cu		~32 HRC FC250 • SS400 • S55C • NAK55		33~41 HRC SKT • SKD61 • NAK80 • HPM1 • DH		42~50 HRC SKT • SKD61 • NAK80 • HPM1 • DH	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
0,1	50.000	100	32.000	70	32.000	60	32.000	30
0,2	50.000	140	32.000	90	32.000	75	32.000	35
0,3	50.000	170	32.000	110	32.000	80	32.000	55
0,4	50.000	190	32.000	120	32.000	90	27.500	60
0,5	50.000	200	31.000	120	25.000	90	22.000	60
0,6	50.000	230	27.000	120	19.500	90	17.000	60
0,7	50.000	250	24.000	120	17.000	90	15.000	60
0,8	50.000	290	21.500	120	15.500	90	13.500	65
0,9	49.000	320	19.000	120	13.500	90	12.000	65
1	47.500	350	17.500	120	12.500	90	11.000	65
1,1	43.000	340	16.000	120	11.500	90	9.900	65
1,2	40.500	340	15.000	120	10.500	90	9.300	65
1,3	38.000	330	14.000	120	9.900	90	8.700	65
1,4	35.000	330	13.000	120	9.200	90	8.100	65
1,5	32.000	320	12.500	120	8.900	90	7.900	65
1,6	31.000	320	12.000	120	8.500	90	7.500	65
1,7	29.000	320	11.000	120	7.900	90	7.000	65
1,8	28.000	320	10.500	130	7.500	90	6.800	68
1,9	26.000	320	10.000	130	7.100	90	6.300	68
2	24.000	310	9.700	130	7.000	90	6.300	70
2,1	23.000	330	9.300	140	6.600	90	5.900	70
2,2	22.500	330	9.000	140	6.500	90	5.700	70
2,3	22.000	330	8.800	150	6.400	90	5.600	70
2,4	20.500	350	8.600	150	6.300	90	5.500	70
2,5	20.000	350	8.200	160	6.100	90	5.300	70
2,6	19.000	380	7.900	160	5.900	100	5.000	70
2,7	18.000	380	7.600	160	5.700	100	4.900	70
2,8	17.500	380	7.300	170	5.500	100	4.700	75
2,9	17.000	380	7.100	170	5.300	100	4.500	75
3	16.000	400	6.900	170	5.300	100	4.400	75
3,1	15.500	410	6.700	180	5.100	100	4.300	75
3,2	15.000	420	6.500	180	5.000	110	4.200	80
3,3	14.500	420	6.300	190	4.800	110	4.000	80
3,4	14.000	420	6.100	190	4.600	110	3.900	80
3,5	14.000	420	6.000	190	4.600	120	3.800	80
3,6	13.500	430	5.900	200	4.500	120	3.700	85
3,7	12.500	430	5.700	200	4.400	120	3.600	85
3,8	12.500	440	5.600	210	4.400	120	3.600	85
3,9	12.000	440	5.500	210	4.200	125	3.500	85
4	12.000	450	5.400	210	4.200	125	3.500	90
4,1	11.500	480	5.300	220	4.100	125	3.400	90
4,2	11.500	480	5.300	220	4.100	125	3.300	90
4,3	11.000	480	5.200	230	4.000	125	3.300	90
4,4	11.000	500	5.100	240	3.900	130	3.200	95
4,5	10.500	500	5.100	240	3.900	130	3.200	95
4,6	10.500	520	5.000	250	3.800	130	3.200	95
4,7	10.500	520	5.000	260	3.800	130	3.100	95
4,8	10.500	530	4.900	260	3.700	130	3.100	95
4,9	10.000	530	4.900	270	3.600	130	3.100	95
5	9.500	540	4.800	270	3.500	130	3.000	100
5,1	9.500	540	4.700	270	3.500	130	3.000	100
5,2	9.300	540	4.600	270	3.400	130	2.900	100
5,3	9.200	540	4.600	270	3.400	130	2.900	100
5,4	9.000	540	4.500	270	3.300	130	2.800	100
5,5	8.800	540	4.400	270	3.200	130	2.700	100
5,6	8.700	540	4.300	270	3.100	130	2.600	100
5,7	8.500	540	4.200	270	3.100	130	2.600	100
5,8	8.400	530	4.200	270	3.000	130	2.600	100
5,9	8.200	530	4.100	270	2.900	130	2.500	100
6	7.900	530	4.000	270	2.900	130	2.500	100
6,5	7.500	530	3.700	270	2.700	130	2.300	100
7	6.900	530	3.400	270	2.500	130	2.100	100
7,5	6.400	530	3.200	270	2.300	130	2.000	100
8	5.900	520	3.000	260	2.200	125	1.900	100
8,5	5.600	520	2.800	260	2.000	125	1.700	100
9	5.300	510	2.600	260	1.900	125	1.500	100
9,5	5.100	510	2.500	260	1.800	125	1.400	95
10	4.700	500	2.400	250	1.700	125	1.500	95
11	4.400	500	2.200	250	1.600	125	1.100	95
12	4.000	510	2.000	250	1.400	125	1.200	95
16	3.000	400	1.500	200	1.100	115	800	80
18	2.700	360	1.300	180	900	100	700	70
20	2.400	300	1.200	150	800	90	600	60

Max cutting depth



D<1	0,1D
1≤D≤3	0,3D
3≤D	0,5D

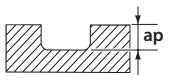
1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

WXL-3D-DE

Slotting

	Cu		~32 HRC FC250 • SS400 • S55C • NAK55		33~41 HRC SKT • SKD61 • NAK80 • HPM1 • DH		42~50 HRC SKT • SKD61 • NAK80 • HPM1 • DH	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
0,1	50.000	100	32.000	70	32.000	60	32.000	30
0,2	50.000	140	32.000	90	32.000	75	32.000	35
0,3	50.000	170	32.000	110	32.000	80	32.000	55
0,4	50.000	190	32.000	120	32.000	90	27.500	60
0,5	50.000	200	31.000	120	25.000	90	22.000	60
0,6	50.000	230	27.000	120	19.500	90	17.000	60
0,7	50.000	250	24.000	120	17.000	90	15.000	60
0,8	50.000	290	21.500	120	15.500	90	13.500	65
0,9	49.000	320	19.000	120	13.500	90	12.000	65
1	47.500	350	17.500	120	12.500	90	11.000	65
1,1	43.000	340	16.000	120	11.500	90	9.900	65
1,2	40.500	340	15.000	120	10.500	90	9.300	65
1,3	38.000	330	14.000	120	9.900	90	8.700	65
1,4	35.000	330	13.000	120	9.200	90	8.100	65
1,5	32.000	320	12.500	120	8.900	90	7.900	65
1,6	31.000	320	12.000	120	8.500	90	7.500	65
1,7	29.000	320	11.000	120	7.900	90	7.000	65
1,8	28.000	320	10.500	130	7.500	90	6.800	68
1,9	26.000	320	10.000	130	7.100	90	6.300	68
2	24.000	310	9.700	130	7.000	90	6.300	70
2,1	23.000	330	9.300	140	6.600	90	5.900	70
2,2	22.500	330	9.000	140	6.500	90	5.700	70
2,3	22.000	330	8.800	150	6.400	90	5.600	70
2,4	20.500	350	8.600	150	6.300	90	5.500	70
2,5	20.000	350	8.200	160	6.100	90	5.300	70
2,6	19.000	380	7.900	160	5.900	100	5.000	70
2,7	18.000	380	7.600	160	5.700	100	4.900	70
2,8	17.500	380	7.300	170	5.500	100	4.700	75
2,9	17.000	380	7.100	170	5.300	100	4.500	75
3	16.000	400	6.900	170	5.300	100	4.400	75
3,1	15.500	410	6.700	180	5.100	100	4.300	75
3,2	15.000	420	6.500	180	5.000	110	4.200	80
3,3	14.500	420	6.300	190	4.800	110	4.000	80
3,4	14.000	420	6.100	190	4.600	110	3.900	80
3,5	14.000	420	6.000	190	4.600	120	3.800	80
3,6	13.500	430	5.900	200	4.500	120	3.700	85
3,7	12.500	430	5.700	200	4.400	120	3.600	85
3,8	12.500	440	5.600	210	4.400	120	3.600	85
3,9	12.000	440	5.500	210	4.200	125	3.500	85
4	12.000	450	5.400	210	4.200	125	3.500	90
4,1	11.500	480	5.300	220	4.100	125	3.400	90
4,2	11.500	480	5.300	220	4.100	125	3.300	90
4,3	11.000	480	5.200	230	4.000	125	3.300	90
4,4	11.000	500	5.100	240	3.900	130	3.200	95
4,5	10.500	500	5.100	240	3.900	130	3.200	95
4,6	10.500	520	5.000	250	3.800	130	3.200	95
4,7	10.500	520	5.000	260	3.800	130	3.100	95
4,8	10.500	530	4.900	260	3.700	130	3.100	95
4,9	10.000	530	4.900	270	3.600	130	3.100	95
5	9.500	540	4.800	270	3.500	130	3.000	100
5,1	9.500	540	4.700	270	3.500	130	3.000	100
5,2	9.300	540	4.600	270	3.400	130	2.900	100
5,3	9.200	540	4.600	270	3.400	130	2.900	100
5,4	9.000	540	4.500	270	3.300	130	2.800	100
5,5	8.800	540	4.400	270	3.200	130	2.700	100
5,6	8.700	540	4.300	270	3.100	130	2.600	100
5,7	8.500	540	4.200	270	3.100	130	2.600	100
5,8	8.400	530	4.200	270	3.000	130	2.600	100
5,9	8.200	530	4.100	270	2.900	130	2.500	100
6	7.900	530	4.000	270	2.900	130	2.500	100
6,5	7.500	530	3.700	270	2.700	130	2.300	100
7	6.900	530	3.400	270	2.500	130	2.100	100
7,5	6.400	530	3.200	270	2.300	130	2.000	100
8	5.900	520	3.000	260	2.200	125	1.900	100
8,5	5.600	520	2.800	260	2.000	125	1.700	100
9	5.300	510	2.600	260	1.900	125	1.500	100
9,5	5.100	510	2.500	260	1.800	125	1.400	95
10	4.700	500	2.400	250	1.700	125	1.500	95
11	4.400	500	2.200	250	1.600	125	1.100	95
12	4.000	510	2.000	250	1.400	125	1.200	95
16	3.000	400	1.500	200	1.100	115	800	80
18	2.700	360	1.300	180	900	100	700	70
20	2.400	300	1.200	150	800	90	600	60

Max cutting depth



D<1	0,1D
1≤D≤3	0,3D
3≤D	0,5D

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

WXL-4D-DE

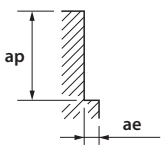
Side milling

	Cu		~32 HRC FC250 • SS400 • S55C • NAK55		33~41 HRC SKT • SKD61 • NAK80 • HPM1 • DH		42~50 HRC SKT • SKD61 • NAK80 • HPM1 • DH	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
0,2	32.000	90	22.500	30	19.000	30	—	—
0,3	32.000	110	22.500	40	19.000	35	—	—
0,4	25.000	110	16.000	45	14.500	35	—	—
0,5	20.000	120	13.000	45	13.000	40	—	—
0,6	16.000	120	11.000	45	10.000	40	—	—
0,7	16.000	120	9.400	45	6.800	40	—	—
0,8	12.000	120	8.400	45	6.000	40	—	—
0,9	12.000	120	7.500	45	5.400	40	—	—
1	9.800	120	5.700	45	5.400	40	—	—
1,1	9.500	140	5.200	45	5.000	40	—	—
1,2	8.600	130	4.800	45	4.500	40	—	—
1,3	8.100	130	4.500	45	4.200	40	—	—
1,4	7.500	130	4.200	45	3.900	40	—	—
1,5	7.000	130	3.900	45	3.600	40	—	—
1,6	6.400	120	3.700	45	3.500	40	—	—
1,7	6.200	120	3.600	45	3.400	40	—	—
1,8	5.800	120	3.300	45	3.100	40	—	—
1,9	5.500	120	3.200	45	3.000	40	—	—
2	5.200	120	3.000	45	2.800	40	—	—
2,1	4.800	120	2.900	45	2.800	40	—	—
2,2	4.600	130	2.700	50	2.600	40	—	—
2,3	4.500	130	2.700	50	2.600	40	—	—
2,4	4.400	130	2.600	55	2.500	40	—	—
2,5	4.100	140	2.500	55	2.500	40	—	—
2,6	3.900	140	2.400	55	2.400	40	—	—
2,7	3.700	150	2.300	55	2.300	45	—	—
2,8	3.600	150	2.200	55	2.200	45	—	—
2,9	3.500	150	2.100	60	2.100	45	—	—
3	3.400	150	2.100	60	2.100	50	1.900	30
3,1	3.200	160	2.000	60	2.000	50	1.800	30
3,2	3.000	160	2.000	65	2.000	50	1.800	30
3,3	2.900	160	1.900	65	1.900	55	1.700	30
3,4	2.800	160	1.800	70	1.800	55	1.700	30
3,5	2.800	160	1.800	70	1.800	55	1.600	30
3,6	2.700	160	1.800	70	1.800	60	1.600	30
3,7	2.700	170	1.700	70	1.700	60	1.500	35
3,8	2.500	170	1.700	70	1.700	60	1.500	35
3,9	2.400	170	1.600	75	1.600	60	1.500	35
4	2.400	170	1.600	75	1.600	65	1.400	35
4,1	2.400	180	1.600	75	1.600	65	1.400	35
4,2	2.300	190	1.600	80	1.600	65	1.400	35
4,3	2.300	190	1.500	80	1.500	65	1.400	35
4,4	2.100	190	1.500	80	1.500	65	1.400	35
4,5	2.100	200	1.500	85	1.500	65	1.300	40
4,6	2.100	200	1.500	85	1.500	65	1.300	40
4,7	2.100	200	1.500	90	1.500	65	1.300	40
4,8	2.100	200	1.500	90	1.500	65	1.300	40
4,9	2.000	210	1.400	90	1.400	65	1.300	40
5	2.000	210	1.400	95	1.400	65	1.300	40
5,1	1.900	210	1.400	95	1.400	65	1.200	40
5,2	1.900	210	1.400	95	1.400	65	1.200	40
5,3	1.800	210	1.300	95	1.300	65	1.200	40
5,4	1.800	210	1.300	95	1.300	65	1.200	40
5,5	1.800	210	1.300	95	1.300	65	1.100	40
5,6	1.700	210	1.300	95	1.300	65	1.100	40
5,7	1.700	210	1.300	95	1.300	65	1.100	40
5,8	1.700	210	1.200	95	1.200	65	1.100	40
5,9	1.600	210	1.200	95	1.200	65	1.000	40
6	1.600	210	1.200	95	1.200	65	1.000	40
8	1.100	200	900	95	900	65	800	40
10	900	200	700	90	700	65	630	40
12	800	200	600	90	600	65	525	40

Max cutting depth

	ae
D>1	0,05D
D<1	0,1D

ap = 4D



	ae
D<0,3	0,015D
D 0,3-1,0	0,03D
D 1,0-3,0	0,05D
D>3,0	0,1D

ap = 4D

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

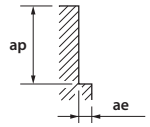
CUTTING CONDITIONS

WXL-EMS

Side milling

	Cu		~32 HRC FC250 • SS400 • S55C • NAK55		33~41 HRC SKT • SKD61 • NAK80 • HPM1 • DH		42~50 HRC SKT • SKD61 • NAK80 • HPM1 • DH	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
1	50.000	440	24.000	210	14.000	78	12.500	70
1,5	50.000	975	16.000	310	9.250	115	8.400	105
2	47.500	1.100	12.000	295	7.000	110	6.350	100
2,5	38.000	1.900	9.600	480	6.200	140	5.550	125
3	32.000	1.600	8.150	430	5.300	125	4.750	110
4	24.000	1.700	6.050	450	4.250	135	3.700	115
5	19.000	2.000	4.900	520	3.550	140	3.150	125
6	16.000	2.000	4.100	520	2.950	145	2.650	130
8	12.000	1.900	3.050	505	2.200	145	1.950	130
10	9.500	1.900	2.450	505	1.750	145	1.550	130
12	7.900	1.900	2.050	505	1.450	145	1.300	130
14	6.800	1.900	1.750	495	1.250	145	1.100	125
15	6.300	1.900	1.600	490	1.150	135	1.050	120
16	5.900	1.800	1.500	480	1.100	130	995	115
18	5.300	1.800	1.350	470	990	115	880	105
20	4.700	1.700	1.200	445	890	105	795	95
25	3.800	1.400	970	360	710	85	635	75
30	3.100	1.100	815	300	590	70	530	60

Max cutting depth



D	ap	ae
<3	1,5D	0,05D
>3	1,5D	0,1D

ap	ae
1D	0,02D

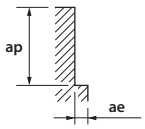
1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.
4. Refer to the table above to set the milling conditions in accordance with the actual situation

WXL-EMS

High speed side milling

	Cu		~32 HRC FC250 • SS400 • S55C • NAK55		33~41 HRC SKT • SKD61 • NAK80 • HPM1 • DH		42~50 HRC SKT • SKD61 • NAK80 • HPM1 • DH	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
6	26.000	2.900	20.000	2.300	13.000	1.500	7.950	795
8	19.500	3.000	14.500	2.300	9.900	1.450	5.950	795
10	15.500	2.900	12.000	2.300	7.950	1.450	4.750	795
12	13.000	3.000	9.900	2.300	6.600	1.450	3.950	790
14	11.000	2.800	8.500	2.200	5.650	1.350	3.400	740
15	10.500	2.800	7.950	2.150	5.250	1.350	3.150	730
16	9.700	2.700	7.450	2.100	4.950	1.350	2.950	715
18	8.600	2.700	6.600	2.100	4.400	1.300	2.650	705
20	7.800	2.600	5.950	2.000	3.950	1.300	2.350	665
25	6.200	2.000	4.750	1.600	3.150	1.050	1.900	560
30	5.200	1.700	3.950	1.350	2.650	890	1.550	455

Max cutting depth

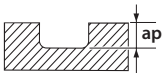


D	ap	ae
D<Ø8	1,5D	0,01D
Ø8≤D	1,5D	0,02D

D	ap	ae
D<Ø8	1D	0,01D
Ø8≤D	1D	0,02D

WXL-LN-EMS-6

Slotting

	C≤0,2% - GG SS400 • S55C • FC250 ~750 N/mm²		~30 HRC SCM • SKT • SKS • SKD		30~38 HRC SKT • SKD • NAK55 • HPM1		38~45 HRC-SUS SUS304 • SKD		45~55 HRC Tiall		55~60 HRC	
Vc	100 (m/min)		78 (m/min)		66 (m/min)		62 (m/min)		60 (m/min)		30 (m/min)	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
1	26.500	1.000	21.500	700	17.500	500	15.000	400	9.500	160	6.350	60
1,5	17.500	1.000	14.000	700	11.500	500	10.000	400	6.350	160	4.250	60
2	13.000	1.050	10.500	700	8.900	590	7.600	400	4.750	160	3.200	60
2,5	10.400	1.250	8.400	700	7.100	500	6.100	400	3.800	160	2.550	60
3	8.900	1.000	7.200	700	5.900	500	5.050	400	3.150	160	2.100	60
4	6.650	1.000	5.400	700	4.450	500	3.800	400	2.350	160	1.550	60
5	5.300	1.000	4.300	700	3.550	500	3.050	400	1.900	160	1.250	60
6	4.450	1.000	3.600	700	2.950	500	2.500	400	1.550	160	1.050	60
Max cutting depth	 ap 0,5D								ap 0,05D			

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

WXL-LN-EDS

Slotting



		Cu			<32 HRC FC250 • SS400 • S55C			33~41 HRC SKT • SKD61 • NAK80 • HPM1 • DH			42~50 HRC SKT • SKD61 • NAK80 • HPM1 • DH		
D	L2	S (min-1)	F (mm/min)	ap	S (min-1)	F (mm/min)	ap	S (min-1)	F (mm/min)	ap	S (min-1)	F (mm/min)	ap
0,2	0,5	35.200	490	0,022	32.000	450	0,018	32.000	450	0,015	29.000	250	0,012
0,2	1	35.200	380	0,016	32.000	350	0,013	32.000	350	0,011	29.000	200	0,009
0,2	1,5	31.000	270	0,010	28.000	250	0,008	28.000	250	0,007	25.000	150	0,005
0,2	2	24.000	220	0,006	22.000	200	0,005	22.000	200	0,004	20.000	120	0,003
0,2	2,5	22.000	190	0,005	20.000	180	0,004	20.000	170	0,004	20.000	100	0,003
0,2	3	22.000	180	0,004	20.000	170	0,003	20.000	160	0,003	20.000	90	0,002
0,2	3,5	22.000	150	0,004	20.000	140	0,003	20.000	130	0,003	20.000	80	0,002
0,2	4	22.000	40	0,002	20.000	40	0,002	20.000	35	0,002	20.000	30	0,002
0,3	1	38.500	480	0,032	32.000	400	0,027	32.000	350	0,023	29.000	300	0,018
0,3	1,5	38.500	430	0,028	32.000	360	0,023	32.000	300	0,020	29.000	250	0,015
0,3	2	33.500	360	0,024	28.000	300	0,020	28.000	250	0,017	25.000	200	0,013
0,3	2,5	33.500	330	0,017	28.000	280	0,014	28.000	230	0,012	25.000	190	0,008
0,3	3	26.500	300	0,011	22.000	250	0,009	22.000	160	0,007	20.000	150	0,005
0,3	4	24.000	220	0,008	20.000	190	0,007	20.000	150	0,005	20.000	130	0,003
0,3	5	24.000	190	0,006	20.000	160	0,005	20.000	140	0,003	18.000	120	0,002
0,3	6	24.000	100	0,002	20.000	90	0,002	20.000	80	0,002	16.000	60	0,002
0,3	9	19.000	30	0,002	16.000	30	0,002	16.000	30	0,002	13.000	20	0,002
0,4	1,5	38.500	520	0,032	32.000	440	0,027	32.000	380	0,023	29.000	330	0,018
0,4	2	38.500	480	0,031	32.000	400	0,026	32.000	350	0,022	29.000	300	0,018
0,4	3	33.500	360	0,020	28.000	300	0,017	28.000	250	0,014	25.000	200	0,011
0,4	4	26.500	300	0,014	22.000	250	0,012	22.000	200	0,010	20.000	150	0,008
0,4	5	24.000	240	0,007	20.000	200	0,006	20.000	160	0,005	20.000	130	0,003
0,4	6	24.000	210	0,006	20.000	180	0,005	20.000	140	0,004	20.000	120	0,002
0,4	7	24.000	160	0,005	20.000	140	0,004	20.000	120	0,003	20.000	110	0,002
0,4	8	24.000	150	0,002	20.000	130	0,002	20.000	110	0,002	20.000	100	0,002
0,4	9	24.000	140	0,002	20.000	120	0,002	20.000	100	0,002	20.000	80	0,002
0,4	10	24.000	130	0,002	20.000	110	0,002	20.000	85	0,002	18.000	70	0,002
0,4	12	24.000	100	0,002	20.000	90	0,002	20.000	80	0,002	16.000	60	0,002
0,5	1,5	38.500	660	0,054	32.000	550	0,045	32.000	420	0,038	29.000	330	0,030
0,5	2	38.500	600	0,054	32.000	500	0,045	32.000	400	0,038	29.000	300	0,030
0,5	3	36.000	540	0,036	30.000	450	0,030	30.000	360	0,028	27.000	280	0,022
0,5	4	33.500	480	0,025	28.000	400	0,021	28.000	320	0,018	25.000	250	0,014
0,5	5	33.500	450	0,017	28.000	380	0,014	25.000	300	0,010	22.000	230	0,008
0,5	6	26.500	420	0,007	22.000	350	0,006	22.000	220	0,005	20.000	180	0,004
0,5	7	24.000	380	0,006	20.000	320	0,005	20.000	200	0,004	20.000	170	0,003
0,5	8	24.000	320	0,006	20.000	270	0,005	20.000	180	0,003	20.000	150	0,003
0,5	9	24.000	300	0,002	20.000	250	0,002	18.000	160	0,002	18.000	140	0,002
0,5	10	24.000	240	0,002	20.000	200	0,002	18.000	150	0,002	18.000	130	0,002
0,5	12	24.000	190	0,002	20.000	160	0,002	18.000	120	0,002	18.000	100	0,002
0,5	15	21.500	100	0,002	18.000	90	0,002	16.000	80	0,002	16.000	70	0,002
0,6	2	38.500	720	0,065	32.000	600	0,054	32.000	400	0,045	27.000	300	0,036
0,6	3	38.500	660	0,060	32.000	550	0,050	32.000	360	0,040	27.000	280	0,030
0,6	4	33.500	540	0,048	28.000	450	0,040	28.000	300	0,033	25.000	200	0,026
0,6	5	33.500	480	0,036	28.000	400	0,030	25.000	220	0,020	22.000	180	0,020
0,6	6	26.500	300	0,022	22.000	250	0,018	22.000	200	0,015	20.000	150	0,012
0,6	7	26.500	300	0,012	22.000	250	0,010	22.000	200	0,008	20.000	150	0,007
0,6	8	26.500	300	0,008	22.000	250	0,007	22.000	200	0,006	20.000	150	0,005
0,6	10	24.000	240	0,006	20.000	200	0,005	18.000	150	0,004	18.000	130	0,003
0,6	12	21.500	220	0,002	18.000	190	0,002	18.000	150	0,002	18.000	120	0,002
0,6	15	21.500	150	0,002	18.000	130	0,002	16.000	110	0,002	16.000	100	0,002
0,6	18	18.000	90	0,002	15.000	80	0,002	14.000	70	0,002	14.000	60	0,002
0,7	2	38.500	720	0,076	32.000	600	0,063	32.000	500	0,053	26.000	400	0,042
0,7	4	33.500	540	0,055	28.000	450	0,046	28.000	300	0,039	22.000	300	0,031
0,7	6	33.500	540	0,035	28.000	450	0,029	28.000	200	0,025	22.000	200	0,020
0,7	8	26.500	300	0,020	22.000	250	0,017	22.000	200	0,014	20.000	150	0,011
0,7	10	26.500	300	0,010	22.000	250	0,008	22.000	200	0,007	20.000	150	0,006
0,8	4	38.500	720	0,064	32.000	600	0,053	32.000	600	0,044	25.000	400	0,035
0,8	6	31.000	540	0,041	26.000	450	0,034	26.000	400	0,028	21.000	300	0,022
0,8	8	26.500	420	0,029	22.000	350	0,024	22.000	300	0,020	18.000	250	0,016
0,8	10	26.500	420	0,012	22.000	350	0,010	22.000	300	0,008	18.000	240	0,006
0,8	12	20.500	360	0,008	17.000	300	0,007	17.000	300	0,006	15.000	200	0,004
0,8	14	20.500	320	0,004	17.000	270	0,003	17.000	250	0,003	13.000	170	0,002
0,8	16	19.000	270	0,002	16.000	230	0,002	16.000	220	0,002	12.000	150	0,002
0,8	20	17.000	200	0,002	14.000	170	0,002	14.000	160	0,002	12.000	130	0,002
0,8	24	14.500	100	0,002	12.000	90	0,002	12.000	80	0,002	10.000	70	0,002
0,9	4	38.500	1.450	0,072	32.000	1.200	0,060	30.000	860	0,060	23.000	650	0,040
0,9	6	36.000	1.200	0,071	30.000	1.000	0,059	28.000	780	0,050	22.000	600	0,040
0,9	8	31.000	960	0,046	26.000	800	0,038	25.000	600	0,032	19.000	400	0,025
0,9	10	24.000	720	0,032	20.000	600	0,027	20.000	500	0,023	16.000	300	0,018
0,9	15	20.500	360	0,010	17.000	300	0,008	17.000	300	0,006	16.000	300	0,005
1	3	36.000	1.450	0,108	30.000	1.200	0,090	30.000	1.100	0,080	22.000	800	0,060
1	4	36.000	1.400	0,096	30.000	1.150	0,080	30.000	1.100	0,070	22.000	650	0,050
1	5	36.000	1.300	0,096	30.000	1.100	0,080	28.000	950	0,070	20.000	600	0,045
1	6	32.500	1.200	0,084	27.000	1.000	0,070	26.000	900	0,060	20.000	600	0,040
1	7	30.000	1.200	0,060	25.000	1.000	0,050	24.000	800	0,050	20.000	500	0,030
1	8	27.500	960	0,048	23.000	800	0,040	22.000	700	0,040	18.000	400	0,030
1	9	24.000	840	0,036	20.000	700	0,030	19.000	600	0,030	18.000	400	0,025
1	10	23.000	720	0,036	19.000	600	0,030	18.000	500	0,028	15.000	300	0,020
1	12	23.000	720	0,024	19.000	600	0,020	18.000	500	0,019	15.000	300	0,010
1	14	18.000	480	0,012	15.000	400	0,010	15.000	400	0,009	12.000	200	0,008
1	16	18.000	360	0,010	15.000	300	0,008	15.000	300	0,007	12.000	200	0,006
1	18	15.500	270	0,007	13.000	230	0,006	13.000	220	0,005	11.000	180	0,004

WXL-LN-EDS

Slotting



		Cu			<32 HRC FC250 • SS400 • S55C			33~41 HRC SKT • SKD61 • NAK80 • HPM1 • DH			42~50 HRC SKT • SKD61 • NAK80 • HPM1 • DH		
D	L2	S (min-1)	F (mm/min)	ap	S (min-1)	F (mm/min)	ap	S (min-1)	F (mm/min)	ap	S (min-1)	F (mm/min)	ap
1	20	14.500	220	0,005	12.000	190	0,004	11.000	180	0,004	10.000	130	0,003
1	22	13.000	190	0,004	11.000	160	0,003	10.000	150	0,003	9.000	100	0,003
1	25	11.000	100	0,004	9.000	90	0,003	9.000	85	0,003	8.500	80	0,003
1	30	9.600	40	0,002	8.000	40	0,002	8.000	35	0,002	8.000	30	0,002
1,2	4	29.000	1.300	0,108	24.000	1.100	0,090	23.000	1.000	0,080	18.000	700	0,060
1,2	6	27.500	1.200	0,096	23.000	1.000	0,080	22.000	900	0,070	17.000	600	0,050
1,2	8	24.000	840	0,084	20.000	700	0,070	19.000	700	0,050	14.000	400	0,040
1,2	10	24.000	840	0,060	20.000	700	0,050	19.000	700	0,040	14.000	400	0,030
1,2	12	20.500	720	0,048	17.000	600	0,040	16.000	500	0,030	11.000	300	0,020
1,2	14	18.000	540	0,018	15.000	450	0,015	13.000	380	0,013	11.000	250	0,011
1,2	16	14.500	360	0,010	12.000	300	0,008	11.000	250	0,007	10.000	220	0,006
1,2	20	12.000	240	0,006	10.000	200	0,005	10.000	190	0,005	9.000	180	0,004
1,4	6	24.000	1.200	0,156	20.000	1.000	0,130	19.000	900	0,110	15.000	600	0,090
1,4	8	21.500	960	0,108	18.000	800	0,090	17.000	700	0,080	13.000	400	0,060
1,4	10	21.500	960	0,072	18.000	800	0,060	17.000	700	0,050	13.000	400	0,040
1,4	12	21.500	960	0,060	18.000	800	0,050	17.000	700	0,040	13.000	400	0,030
1,4	14	18.000	720	0,048	15.000	600	0,040	14.000	500	0,035	11.000	300	0,030
1,4	16	18.000	720	0,036	15.000	600	0,030	14.000	500	0,020	11.000	300	0,020
1,4	22	12.000	300	0,006	10.000	250	0,005	9.000	210	0,005	8.000	180	0,004
1,5	4	21.500	1.200	0,168	18.000	1.000	0,140	18.000	900	0,110	14.000	600	0,090
1,5	6	21.500	1.200	0,168	18.000	1.000	0,140	18.000	900	0,110	14.000	600	0,090
1,5	8	19.000	960	0,120	16.000	800	0,100	15.000	700	0,080	12.000	400	0,070
1,5	10	19.000	960	0,096	16.000	800	0,080	15.000	700	0,070	12.000	400	0,050
1,5	12	19.000	960	0,072	16.000	800	0,060	15.000	700	0,050	12.000	400	0,040
1,5	14	19.000	960	0,060	16.000	800	0,050	15.000	700	0,045	12.000	400	0,035
1,5	16	17.000	720	0,060	14.000	600	0,050	13.000	500	0,040	10.000	300	0,030
1,5	18	17.000	720	0,036	14.000	600	0,030	13.000	500	0,020	10.000	300	0,020
1,5	20	14.500	500	0,024	12.000	420	0,020	11.000	380	0,015	10.000	300	0,010
1,5	25	12.000	340	0,010	10.000	290	0,008	9.000	230	0,007	8.000	210	0,006
1,5	30	9.000	200	0,006	7.500	170	0,005	7.400	150	0,004	7.000	130	0,003
1,5	38	8.150	100	0,005	6.800	90	0,004	6.700	85	0,003	6.000	75	0,003
1,5	40	7.200	90	0,004	6.000	75	0,003	5.900	70	0,002	5.600	60	0,002
1,5	45	6.600	50	0,004	5.500	45	0,003	5.400	40	0,002	5.400	40	0,001
1,6	6	20.500	1.200	0,180	17.000	1.000	0,150	17.000	900	0,130	13.000	600	0,100
1,6	8	18.000	960	0,168	15.000	800	0,140	15.000	700	0,120	11.000	400	0,100
1,6	10	18.000	960	0,132	15.000	800	0,110	15.000	700	0,090	11.000	400	0,070
1,6	12	18.000	960	0,084	15.000	800	0,070	15.000	700	0,060	11.000	400	0,050
1,6	14	18.000	960	0,072	15.000	800	0,060	15.000	700	0,050	11.000	400	0,040
1,6	16	15.500	720	0,060	13.000	600	0,050	13.000	500	0,040	9.000	300	0,035
1,6	18	15.500	720	0,048	13.000	600	0,040	13.000	500	0,030	9.000	300	0,030
1,6	20	15.500	720	0,024	13.000	600	0,020	13.000	500	0,020	9.000	300	0,010
1,8	6	19.000	1.300	0,264	16.000	1.100	0,220	15.000	1.000	0,180	12.000	700	0,140
1,8	8	19.000	1.300	0,252	16.000	1.100	0,210	15.000	1.000	0,170	12.000	700	0,130
1,8	10	17.000	960	0,144	14.000	800	0,120	14.000	700	0,100	10.000	500	0,080
1,8	12	17.000	960	0,120	14.000	800	0,100	14.000	700	0,080	10.000	500	0,070
1,8	14	17.000	960	0,096	14.000	800	0,080	14.000	700	0,060	10.000	500	0,050
1,8	16	17.000	960	0,084	14.000	800	0,070	14.000	700	0,050	10.000	500	0,040
1,8	18	14.500	720	0,06	12.000	600	0,050	12.000	500	0,045	8.000	400	0,035
1,8	20	14.500	720	0,048	12.000	600	0,040	12.000	500	0,040	8.000	400	0,030
1,8	25	9.600	360	0,011	8.000	300	0,009	7.000	250	0,008	6.000	200	0,007
2	6	18.000	1.300	0,372	15.000	1.100	0,310	14.000	1.000	0,260	11.000	700	0,210
2	8	18.000	1.300	0,312	15.000	1.100	0,260	14.000	1.000	0,220	11.000	700	0,180
2	10	15.500	960	0,288	13.000	800	0,240	12.000	700	0,200	9.000	500	0,160
2	12	15.500	960	0,156	13.000	800	0,130	12.000	700	0,110	9.000	500	0,090
2	14	15.500	960	0,132	13.000	800	0,110	12.000	700	0,090	9.000	500	0,070
2	16	15.500	960	0,096	13.000	800	0,080	12.000	700	0,070	9.000	500	0,060
2	18	15.500	960	0,084	13.000	800	0,070	12.000	700	0,060	9.000	500	0,050
2	20	13.000	720	0,060	11.000	600	0,050	10.000	500	0,050	7.000	400	0,040
2	25	13.000	720	0,036	11.000	600	0,030	10.000	500	0,020	7.000	400	0,020
2	30	13.000	720	0,024	11.000	600	0,020	10.000	500	0,010	7.000	400	0,010
2	35	11.000	460	0,011	9.000	390	0,009	8.000	380	0,008	6.000	270	0,007
2	40	7.800	240	0,006	6.500	200	0,005	6.000	180	0,004	6.000	140	0,003
2	50	6.950	120	0,002	5.800	100	0,002	5.700	95	0,002	5.000	80	0,002
2	60	6.000	60	0,001	5.000	50	0,001	5.000	45	0,001	5.000	40	0,001
2,5	8	14.500	1.300	0,468	12.000	1.100	0,390	11.000	1.000	0,330	9.000	700	0,260
2,5	10	14.500	1.300	0,396	12.000	1.100	0,330	11.000	1.000	0,280	9.000	700	0,220
2,5	12	14.500	1.300	0,276	12.000	1.100	0,230	11.000	1.000	0,190	9.000	700	0,150
2,5	14	12.000	960	0,204	10.000	800	0,170	9.000	700	0,140	7.000	500	0,110
2,5	16	12.000	960	0,144	10.000	800	0,120	9.000	700	0,100	7.000	500	0,080
2,5	18	12.000	960	0,132	10.000	800	0,110	9.000	700	0,090	7.000	500	0,070
2,5	20	12.000	960	0,108	10.000	800	0,090	9.000	700	0,080	7.000	500	0,060
2,5	25	9.600	720	0,096	8.000	600	0,080	8.000	500	0,060	6.000	400	0,050
2,5	30	9.600	720	0,036	8.000	600	0,030	8.000	500	0,030	6.000	400	0,020
2,5	40	7.800	330	0,008	6.500	280	0,007	6.000	270	0,005	6.000	240	0,005
2,5	50	6.950	200	0,002	5.800	170	0,002	5.700	160	0,002	5.000	130	0,002
3	8	12.000	1.300	0,432	10.000	1.100	0,360	10.000	1.000	0,300	8.000	700	0,240
3	10	12.000	1.300	0,348	10.000	1.100	0,290	10.000	1.000	0,240	8.000	700	0,190
3	12	12.000	1.300	0,324	10.000	1.100	0,270	10.000	1.000	0,230	8.000	700	0,180
3	14	12.000	1.300	0,300	10.000	1.100	0,250	10.000	1.000	0,210	8.000	700	0,170
3	16	12.000	960	0,240	10.000	800	0,200	9.000	700	0,170	6.000	500	0,130
3	18	12.000	960	0,168	10.000	800	0,140	9.000	700	0,120	6.000	500	0,100
3	20	12.000	960	0,156	10.000	800	0,130	9.000	700	0,110	6.000	500	0,080

CUTTING CONDITIONS

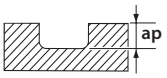
Milling | Endmills | Cutting conditions

WXL-LN-EDS

Slotting

		Cu			<32 HRC FC250 • SS400 • S55C			33~41 HRC SKT • SKD61 • NAK80 • HPM1 • DH			42~50 HRC SKT • SKD61 • NAK80 • HPM1 • DH		
D	L2	S (min⁻¹)	F (mm/min)	ap	S (min⁻¹)	F (mm/min)	ap	S (min⁻¹)	F (mm/min)	ap	S (min⁻¹)	F (mm/min)	ap
3	25	12.000	960	0,132	10.000	800	0,110	9.000	700	0,090	6.000	500	0,07
3	30	9.600	720	0,108	8.000	600	0,090	7.000	500	0,080	5.000	400	0,06
3	35	9.600	720	0,084	8.000	600	0,070	7.000	500	0,060	5.000	400	0,05
3	40	9.600	720	0,048	8.000	600	0,040	7.000	500	0,030	5.000	400	0,02
3	50	6.950	320	0,011	5.800	270	0,009	5.700	240	0,005	5.000	200	0,004
4	12	8.550	1.350	0,456	7.000	1.100	0,380	7.000	1.000	0,320	6.000	700	0,26
4	16	8.550	1.350	0,432	7.000	1.100	0,360	7.000	1.000	0,300	6.000	700	0,24
4	20	8.550	970	0,408	7.000	800	0,340	6.000	700	0,280	5.000	500	0,22
4	25	8.550	970	0,312	7.000	800	0,260	6.000	700	0,220	5.000	500	0,18
4	30	8.550	970	0,228	7.000	800	0,190	6.000	700	0,160	5.000	500	0,13
4	35	8.550	970	0,204	7.000	800	0,170	6.000	700	0,140	5.000	500	0,11
4	40	7.300	730	0,168	6.000	600	0,140	5.000	600	0,120	4.000	400	0,1
4	45	7.300	730	0,144	6.000	600	0,120	5.000	600	0,100	4.000	400	0,08
4	50	7.300	730	0,060	6.000	600	0,050	5.000	600	0,040	4.000	400	0,03
4	60	6.100	340	0,024	5.000	280	0,020	5.000	270	0,020	4.000	250	0,01
5	16	7.300	1.350	0,54	6.000	1.100	0,450	5.000	900	0,380	5.000	600	0,3
5	20	7.300	1.150	0,516	6.000	950	0,430	5.000	780	0,360	5.000	600	0,29
5	25	6.100	970	0,504	5.000	800	0,420	5.000	700	0,350	5.000	600	0,28
5	30	6.100	970	0,456	5.000	800	0,380	5.000	700	0,300	5.000	600	0,25
5	35	6.100	970	0,396	5.000	800	0,330	5.000	700	0,280	5.000	600	0,22
5	40	6.100	730	0,340	5.000	600	0,280	4.000	580	0,200	4.000	500	0,18
5	50	4.900	610	0,180	4.000	500	0,150	3.000	400	0,130	3.000	400	0,1
5	60	4.900	420	0,072	4.000	350	0,060	3.000	330	0,060	3.000	300	0,04

Max cutting depth



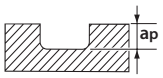
1. Use a rigid and precise machine and holder.
2. When machining carbon steel or hardened steel, using MQL (Minimum Quantity Lubrication, mist coolant) or air blow is recommended.
3. When using cutting fluid, choose based on work material and cutting conditions.
4. The cutting conditions shown for 3D milling are low-load, safe conditions for references. Refer to the table above to set the milling conditions in accordance with the actual situation.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When using a tool with a dia. of 0,5 or less, or an L/D (effective length/tool diameter) ratio of greater than 10, high loads can cause tool breakage.
7. When the available RPM are insufficient, please reduce the RPM and feed rates in proportion.

WXL-CR-EDS-6

Slotting

	C≤0,2% - GG SS400 • S55C • FC250 ~750 N/mm²		~30 HRC SCM • SKT • SKS • SKD		30~38 HRC SKT • SKD • NAK55 • HPM1		38~45 HRC SUS304 • SKD		45~55 HRC		55~60 HRC	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
0,2	32.000	125	32.000	115	32.000	100	32.000	90	32.000	60	24.500	30
0,3	32.000	190	32.000	170	32.000	150	32.000	135	32.000	90	18.000	40
0,4	32.000	250	32.000	230	32.000	200	32.000	180	32.000	120	14.000	40
0,5	32.000	320	32.000	290	32.000	250	32.000	225	26.000	130	12.000	40
0,6	32.000	380	32.000	345	32.000	310	27.500	250	22.000	130	10.500	40
0,8	32.000	512	32.000	460	29.000	370	22.000	280	17.500	130	8.750	45
1	30.000	600	27.000	480	25.000	400	19.000	300	14.000	130	7.600	50
1,2	26.500	630	23.500	510	21.000	400	15.500	300	11.500	130	6.600	55
1,4	22.500	630	20.000	510	18.000	400	13.500	300	10.000	130	5.900	55
1,5	21.000	630	19.000	510	16.500	400	12.500	300	9.500	130	5.700	60
1,6	19.500	630	17.500	510	15.500	400	11.500	300	8.950	130	5.550	60
1,8	17.500	630	15.500	510	14.000	400	10.500	300	7.950	130	5.300	65
2	15.500	630	14.000	510	12.500	400	9.500	300	7.150	130	4.750	65
2,5	12.500	630	11.000	510	10.000	400	7.600	300	5.700	130	3.800	65

Max cutting depth



D	ap
< 1	0,1D
≥ 1	0,3D

D	ap
< 1	0,02D
≥ 1	0,05D

D	ap
< 1	0,01D
≥ 1	

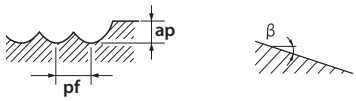


WXL-HS-EBD



R	Copper • Copper Alloy				Mild Steel • Carbon Steel FC250 • SS400 • S55C ~32HRC				Hardened Steel • Prehardened Steel • Stainless Steel SKT • SKD61 • NAK55 • NAK80 • HPM1 • DH* • SUS304							
									33~41HRC				42~50HRC			
	S (min-1)	F (mm/min)	Depth of cut		S (min-1)	F (mm/min)	Depth of cut		S (min-1)	F (mm/min)	Depth of cut		S (min-1)	F (mm/min)	Depth of cut	
			ap	pf			ap	pf			ap	pf			ap	pf
0.1	50.000	540	0,01	0,02	50.000	540	0,01	0,02	50.000	540	0,01	0,02	50.000	440	0,01	0,02
0.2	50.000	880	0,02	0,04	50.000	750	0,02	0,04	50.000	750	0,02	0,04	50.000	680	0,02	0,04
0.3	50.000	1.840	0,02	0,04	50.000	910	0,02	0,04	50.000	910	0,02	0,04	50.000	840	0,02	0,04
0.4	50.000	2.210	0,02	0,05	50.000	1.850	0,02	0,05	50.000	1.850	0,02	0,05	50.000	1.250	0,02	0,05
0.5	50.000	3.350	0,02	0,05	50.000	2.800	0,02	0,05	50.000	2.500	0,02	0,05	47.500	2.250	0,02	0,05
1	31.500	3.350	0,04	0,10	25.000	2.800	0,04	0,10	24.500	2.500	0,04	0,10	23.500	2.250	0,04	0,10
1.5	21.000	3.350	0,06	0,15	16.500	2.800	0,06	0,15	16.000	2.500	0,06	0,15	15.500	2.250	0,06	0,15
2	15.500	4.080	0,08	0,20	15.500	3.400	0,08	0,20	15.000	2.750	0,08	0,20	13.500	2.450	0,08	0,20
3	10.500	5.160	0,12	0,30	13.500	4.300	0,30	0,60	11.500	2.750	0,30	0,60	9.500	2.250	0,12	0,30
4	7.900	3.840	0,16	0,40	10.000	3.200	0,40	0,80	8.950	2.100	0,40	0,80	7.150	1.700	0,16	0,40
5	6.300	3.120	0,20	0,50	8.250	2.600	0,50	1,00	7.150	1.700	0,50	1,00	5.700	1.350	0,20	0,50
6	5.250	2.580	0,24	0,60	6.850	2.150	0,50	2,40	5.950	1.400	0,50	2,40	4.750	1.100	0,24	0,60

Depth of cut

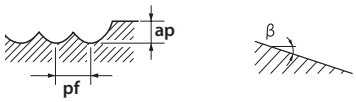


1. The indicated speeds and feeds are for high speed light milling with high speed/high precision machining centers.
2. Because tools can cause sparks. do not use flammable fluids.
3. Use an air blow or a suitable cutting fluid with high smoke retardant properties.
4. Refer to the table above to set the milling conditions in accordance with the actual situation.

*If your machine tool does not attain the indicated speed, operate it at the highest possible speed.

WXL-EBD

Regular milling

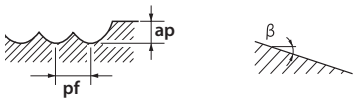
	Cu				~32 HRC FC250 • SS400 • S55C • NAK55				33~41 HRC SKT • SKD61 • NAK80 • HPM1 • DH				42~50 HRC SKT • SKD61 • NAK80 • HPM1 • DH			
R	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)
R 0,05	40.000	150	0,003	0,005	32.000	75	0,005	0,005	32.000	50	0,005	0,005	32.000	170	0,005	0,005
R 0,1	40.000	300	0,010	0,020	32.000	200	0,010	0,010	32.000	200	0,010	0,010	32.000	180	0,005	0,005
R 0,2	40.000	490	0,020	0,080	32.000	410	0,020	0,080	32.000	330	0,020	0,080	32.000	205	0,020	0,040
R 0,3	40.000	580	0,030	0,120	32.000	490	0,030	0,120	32.000	420	0,030	0,120	32.000	265	0,030	0,060
R 0,4	40.000	660	0,040	0,160	32.000	550	0,040	0,160	31.500	420	0,040	0,160	27.500	290	0,040	0,080
R 0,5	32.000	750	0,050	0,200	31.500	620	0,050	0,200	25.000	400	0,050	0,200	22.000	285	0,050	0,100
R 1	19.000	750	0,200	0,400	15.500	620	0,200	0,400	12.500	400	0,200	0,400	11.000	290	0,100	0,200
R 1,5	12.500	760	0,300	0,600	10.500	630	0,300	0,600	8.450	405	0,300	0,600	7.400	290	0,150	0,300
R 2	9.500	760	0,400	0,800	7.950	630	0,400	0,800	6.350	445	0,400	0,800	5.550	370	0,200	0,400
R 3	6.300	800	0,600	1,200	5.300	670	0,600	1,200	4.200	465	0,600	1,200	3.700	390	0,300	0,600
R 4	4.750	950	0,800	1,600	3.950	790	0,800	1,600	3.150	555	0,800	1,600	2.750	455	0,400	0,800
R 5	3.800	890	1,000	2,000	3.150	745	1,000	2,000	2.500	525	1,000	2,000	2.200	430	0,500	1,000
R 6	3.750	840	1,200	2,400	2.650	700	1,200	2,400	2.100	490	1,200	2,400	1.850	430	0,600	1,200
R 8	2.400	630	1,600	3,200	2.000	525	1,600	3,200	1.600	370	1,600	3,200	1.400	325	0,800	1,600
R 10	1.900	500	2,000	4,000	1.600	420	2,000	4,000	1.250	290	2,000	4,000	1.100	260	1,000	2,000
Max cutting depth																

1. Use a rigid and precise machine and holder.
2. Use a suitable cutting fluid with high smoke retardant properties.
3. Refer to top the table above to set the milling conditions in accordance with the actual situation.

* When the length of tool extension from the machine is long, reduce the speed and feed.

** When ß is less than 15°, speed and feed in the above table can be increased 1,5 to 2 times.

High speed milling

	Cu				~32 HRC FC250 • SS400 • S55C • NAK55				33~41 HRC Hardened steel, pre-hardened steel				42~50 HRC Hardened steel, pre-hardened steel			
R	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)
R 0,5	50.000	3.350	0,020	0,050	50.000	2.800	0,020	0,050	50.000	2.500	0,020	0,050	47.500	2.250	0,020	0,050
R 1	31.500	3.350	0,040	0,100	25.000	2.800	0,040	0,100	24.500	2.500	0,040	0,100	23.500	2.250	0,040	0,100
R 1,5	21.000	3.350	0,060	0,150	16.500	2.800	0,060	0,150	16.000	2.500	0,060	0,150	15.500	2.250	0,060	0,150
R 2	15.500	4.080	0,080	0,200	15.500	3.400	0,080	0,200	15.000	2.750	0,080	0,200	13.500	2.450	0,080	0,200
R 2,5	10.500	5.160	0,120	0,300	13.500	4.300	0,300	0,600	11.500	2.750	0,300	0,600	9.500	2.250	0,120	0,300
R 3	7.900	3.840	0,160	0,400	10.000	3.200	0,400	0,800	8.950	2.100	0,400	0,800	7.150	1.700	0,160	0,400
R 4	6.300	3.120	0,200	0,500	8.250	2.600	0,500	1,000	7.150	1.700	0,500	1,000	5.700	1.350	0,200	0,500
R 5	5.250	2.580	0,240	0,600	6.850	2.150	0,500	2,400	5.950	1.400	0,500	2,400	4.750	1.100	0,240	0,600
R 6	4.950	1.550	0,320	0,800	4.110	1.290	0,500	3,200	4.460	1.050	0,500	3,200	3.560	820	0,320	0,800
R 8	3.950	1.240	0,400	1,000	3.250	1.030	0,500	4,000	3.570	840	0,500	4,000	2.850	660	0,320	1,000
Max cutting depth																

1. The indicated speeds and feeds are for high speed light milling with high speed/high precision machining centres.
2. We recommend using an air blow. If using cutting fluids, use a high quality fluid with smoke retardant properties.
3. Refer to top the table above to set the milling conditions in accordance with the actual situation.
4. When ß is less than 15°, speed and feed i the above table can be increased 1.2 ~ 1.5 times

WXL-LN-EBD

Regular milling



		Cu				~32 HRC				33~41 HRC Hardened steel, pre-hardened steel				42~50 HRC Hardened steel, pre-hardened steel			
R	Lg (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)
0,05	0,3	32.000	150	0,005	0,005	32.000	75	0,005	0,005	32.000	50	0,005	0,005	32.000	35	0,005	0,005
0,05	0,5	32.000	120	0,005	0,005	32.000	60	0,005	0,005	32.000	40	0,005	0,005	32.000	25	0,005	0,005
0,1	0,3	32.000	300	0,020	0,020	32.000	200	0,010	0,010	32.000	200	0,010	0,010	32.000	200	0,005	0,005
0,1	0,5	32.000	300	0,020	0,020	32.000	200	0,010	0,010	32.000	200	0,010	0,010	32.000	200	0,005	0,005
0,1	0,75	32.000	300	0,020	0,020	32.000	200	0,010	0,010	32.000	200	0,010	0,010	32.000	100	0,005	0,005
0,1	1	32.000	150	0,020	0,020	32.000	100	0,010	0,010	32.000	100	0,010	0,010	32.000	80	0,005	0,005
0,1	1,25	32.000	150	0,020	0,020	32.000	100	0,010	0,010	32.000	100	0,010	0,010	32.000	80	0,005	0,005
0,1	1,5	32.000	150	0,020	0,020	32.000	100	0,010	0,010	32.000	100	0,010	0,010	32.000	80	0,005	0,005
0,1	1,75	32.000	150	0,020	0,020	32.000	100	0,010	0,010	32.000	100	0,010	0,010	32.000	80	0,005	0,005
0,1	2	32.000	150	0,010	0,010	32.000	100	0,010	0,010	32.000	100	0,010	0,010	32.000	80	0,005	0,005
0,1	2,5	32.000	75	0,010	0,010	32.000	50	0,005	0,005	32.000	50	0,005	0,005	32.000	40	0,003	0,005
0,1	3	32.000	75	0,010	0,010	32.000	50	0,005	0,005	32.000	50	0,005	0,005	32.000	40	0,003	0,005
0,15	0,5	32.000	600	0,020	0,030	32.000	400	0,010	0,015	32.000	300	0,010	0,015	32.000	300	0,005	0,005
0,15	0,6	32.000	600	0,020	0,030	32.000	400	0,010	0,015	32.000	300	0,010	0,015	32.000	300	0,005	0,005
0,15	0,75	32.000	600	0,020	0,030	32.000	400	0,010	0,015	32.000	300	0,010	0,015	32.000	300	0,005	0,005
0,15	1	32.000	450	0,020	0,030	32.000	300	0,010	0,015	32.000	200	0,010	0,015	32.000	200	0,005	0,005
0,15	1,25	32.000	450	0,020	0,030	32.000	300	0,010	0,015	32.000	200	0,010	0,015	32.000	200	0,005	0,005
0,15	1,5	32.000	450	0,020	0,030	32.000	300	0,010	0,015	32.000	200	0,010	0,015	32.000	200	0,005	0,005
0,15	1,75	32.000	450	0,020	0,030	32.000	300	0,010	0,015	32.000	200	0,010	0,015	32.000	200	0,005	0,005
0,15	2	32.000	450	0,020	0,030	32.000	300	0,010	0,015	32.000	200	0,010	0,015	32.000	200	0,005	0,005
0,15	2,25	32.000	450	0,020	0,020	32.000	300	0,010	0,010	32.000	200	0,010	0,010	32.000	200	0,010	0,010
0,15	2,5	32.000	450	0,020	0,020	32.000	300	0,010	0,010	32.000	200	0,010	0,010	32.000	200	0,010	0,010
0,15	2,75	32.000	450	0,020	0,020	32.000	300	0,010	0,010	32.000	200	0,010	0,010	32.000	200	0,010	0,010
0,15	3	32.000	450	0,020	0,020	32.000	300	0,010	0,010	32.000	200	0,010	0,010	32.000	200	0,005	0,010
0,15	3,5	32.000	270	0,020	0,020	32.000	180	0,010	0,010	32.000	120	0,010	0,010	32.000	120	0,005	0,010
0,15	4	32.000	270	0,020	0,020	32.000	180	0,010	0,010	32.000	120	0,010	0,010	32.000	120	0,005	0,005
0,15	4,5	32.000	270	0,020	0,020	32.000	180	0,010	0,010	32.000	120	0,010	0,010	32.000	120	0,003	0,005
0,15	5	32.000	150	0,010	0,020	32.000	100	0,005	0,010	32.000	70	0,005	0,010	32.000	70	0,003	0,005
0,2	0,5	32.000	750	0,025	0,050	32.000	500	0,015	0,025	32.000	400	0,015	0,020	32.000	400	0,010	0,010
0,2	0,75	32.000	750	0,025	0,050	32.000	500	0,015	0,025	32.000	400	0,015	0,020	32.000	400	0,010	0,010
0,2	1	32.000	600	0,025	0,050	32.000	400	0,015	0,025	32.000	300	0,015	0,020	32.000	300	0,010	0,010
0,2	1,5	32.000	600	0,025	0,050	32.000	400	0,015	0,025	32.000	300	0,015	0,020	32.000	300	0,010	0,010
0,2	2	27.000	450	0,025	0,050	27.000	300	0,015	0,025	27.000	200	0,015	0,020	27.000	200	0,010	0,010
0,2	2,5	27.000	450	0,025	0,050	27.000	300	0,015	0,025	27.000	200	0,015	0,020	27.000	200	0,010	0,010
0,2	3	27.000	450	0,025	0,050	27.000	300	0,015	0,025	27.000	200	0,015	0,020	27.000	200	0,010	0,010
0,2	3,5	27.000	450	0,025	0,050	27.000	300	0,015	0,025	27.000	200	0,015	0,020	27.000	200	0,010	0,010
0,2	4	27.000	450	0,010	0,030	27.000	300	0,005	0,015	27.000	200	0,005	0,012	27.000	200	0,005	0,010
0,2	4,5	24.000	300	0,010	0,030	27.000	200	0,005	0,015	27.000	100	0,005	0,012	27.000	100	0,005	0,010
0,2	5	24.000	300	0,010	0,030	27.000	200	0,005	0,015	27.000	100	0,005	0,012	27.000	100	0,005	0,010
0,2	5,5	21.000	300	0,010	0,020	27.000	200	0,005	0,010	27.000	100	0,005	0,008	27.000	100	0,005	0,005
0,2	6	21.000	150	0,010	0,015	27.000	100	0,005	0,008	27.000	80	0,005	0,006	27.000	80	0,003	0,005
0,25	1	32.000	750	0,040	0,050	32.000	500	0,020	0,025	32.000	400	0,020	0,020	32.000	400	0,010	0,010
0,25	1,5	32.000	750	0,040	0,050	32.000	500	0,020	0,025	32.000	400	0,020	0,020	32.000	400	0,010	0,010
0,25	2	32.000	600	0,040	0,050	32.000	400	0,020	0,025	32.000	300	0,020	0,020	32.000	300	0,010	0,010
0,25	2,5	27.000	450	0,040	0,050	27.000	300	0,020	0,025	27.000	200	0,020	0,020	27.000	200	0,010	0,010
0,25	3	27.000	450	0,040	0,050	27.000	300	0,020	0,025	27.000	200	0,020	0,020	27.000	200	0,010	0,010
0,25	3,5	27.000	450	0,040	0,050	27.000	300	0,020	0,025	27.000	200	0,020	0,020	27.000	200	0,010	0,010
0,25	4	27.000	450	0,040	0,050	27.000	300	0,020	0,025	27.000	200	0,020	0,020	27.000	200	0,010	0,010
0,25	4,5	21.000	300	0,040	0,050	20.000	200	0,020	0,025	20.000	200	0,020	0,020	20.000	200	0,010	0,010
0,25	5	21.000	300	0,040	0,050	20.000	200	0,020	0,025	20.000	150	0,020	0,020	20.000	150	0,010	0,010
0,25	5,5	21.000	300	0,020	0,030	20.000	200	0,010	0,015	20.000	150	0,010	0,010	20.000	150	0,010	0,010
0,25	6	21.000	300	0,020	0,030	20.000	200	0,010	0,015	20.000	150	0,010	0,010	20.000	150	0,010	0,010
0,25	7	21.000	300	0,020	0,030	20.000	200	0,010	0,015	20.000	150	0,010	0,010	20.000	150	0,010	0,010
0,25	8	21.000	300	0,020	0,030	15.000	200	0,010	0,015	15.000	150	0,010	0,010	15.000	150	0,005	0,010
0,25	9	18.000	150	0,020	0,020	15.000	100	0,010	0,010	15.000	80	0,005	0,010	15.000	80	0,005	0,005
0,25	10	18.000	150	0,010	0,010	15.000	100	0,005	0,005	15.000	80	0,005	0,005	15.000	80	0,003	0,005
0,3	1	32.000	900	0,045	0,120	32.000	600	0,030	0,060	32.000	500	0,030	0,050	32.000	500	0,030	0,030
0,3	1,5	32.000	900	0,045	0,120	32.000	600	0,030	0,060	32.000	500	0,030	0,050	32.000	500	0,030	0,030
0,3	2	32.000	675	0,045	0,120	32.000	450	0,030	0,060	32.000	300	0,030	0,050	32.000	300	0,030	0,030
0,3	2,5	30.000	675	0,045	0,120	32.000	450	0,030	0,060	32.000	300	0,030	0,050	32.000	300	0,030	0,030
0,3	3	30.000	375	0,045	0,120	25.000	250	0,030	0,060	24.000	200	0,030	0,050	24.000	200	0,030	0,030
0,3	3,5	30.000	375	0,045	0,120	25.000	250	0,030	0,060	24.000	200	0,030	0,040	24.000	200	0,030	0,030
0,3	4	30.000	375	0,045	0,120	25.000	250	0,030	0,060	24.000	200	0,030	0,040	24.000	200	0,030	0,030
0,3	4,5	30.000	375	0,045	0,120	25.000	250	0,030	0,060	24.000	200	0,030	0,040	24.000	200	0,030	0,030
0,3	5	30.000	375	0,045	0,120	25.000	250	0,030	0,060	24.000	200	0,030	0,040	24.000	200	0,020	0,020
0,3	5,5	25.000	300	0,045	0,120	20.000	200	0,030	0,060	20.000	200	0,030	0,040	20.000	200	0,020	0,020
0,3	6	25.000	225	0,045	0,120	20.000	150	0,030	0,060	20.000	150	0,030	0,040	20.000	150	0,020	0,020
0,3	6,5	25.000	225	0,045	0,120	20.000	150	0,030	0,060	20.000	150	0,030	0,040	20.000	150	0,020	0,020
0,3	7	25.000	225	0,045	0,120	20.000	150	0,030	0,060	20.000	150	0,030	0,040	20.000	150	0,020	0,020
0,3	7,5	25.000	225	0,045	0,120	20.000	150	0,030	0,060	20.000	150	0,030	0,040	20.000	150	0,020	0,020
0,3	8	25.000	225	0,045	0,120	20.000	150	0,030	0,060	20.000	150	0,030	0,040	20.000	150	0,020	0,020
0,3	8,5	22.000	225	0,045	0,120	20.000	150	0,030	0,060	20.000	150	0,020	0,040	20.000	150	0,010	0,010
0,3	9	22.000	225	0,030	0,100	20.000	150	0,020	0,050	20.000	150	0,020	0,040	20.000	150	0,010	0,010
0,3	9,5	22.000	225	0,030	0,100	17.000	150	0,020	0,050	17.000	150	0,020	0,040	17.000	150	0,010	0,010
0,3	10	20.000	150	0,025	0,050	17.000	100	0,015	0,025	17.000	100	0,015	0,020	17.000	100	0,005	0,005
0,3	11	20.000	150	0,025	0,050	17.000	100	0,015	0,025	17.000	100	0,010	0,020	17.000	100	0,005	0,005
0,3	12	20.000	120	0,025	0,050	17.000	80	0,015	0,025	17.000	80	0,010	0,012	17.000	80	0,005	0,005
0,4	2	27.000	675	0,060	0,160	23.000	450	0,040	0,080	21.000	300	0,040	0,060	21.000	300	0,040	0,040
0,4	3	27.000	675	0,060	0,160	23.000	450	0,040	0,080	21.000	300	0,040	0,060	21.000	300	0,040	0,040
0,4	4	27.000	675	0,060	0,160	23.000	450	0,040	0,080	21.000	300	0,040	0,060	21.000	300	0,040	0,040
0,4	5	24.000	375	0,060	0,120	21.000	250	0,040	0,060	19.000	200	0,040	0,050	19.000	200	0,020	0,025
0,4	6	24.000	375	0,060	0,120	21.000	250	0,040	0,060	19.000	200	0,040	0,050	19.000	200	0,020	0,025

CUTTING CONDITIONS

WXL-LN-EBD

Regular milling



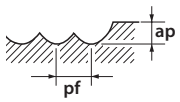
		Cu				~32 HRC				33~41 HRC Hardened steel, pre-hardened steel				42~50 HRC Hardened steel, pre-hardened steel			
R	Lg (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)
0,4	7	24.000	375	0,060	0,120	21.000	250	0,040	0,060	19.000	200	0,040	0,050	19.000	200	0,020	0,025
0,4	8	22.000	225	0,060	0,120	19.000	150	0,040	0,060	17.000	150	0,040	0,050	17.000	150	0,020	0,025
0,4	9	22.000	225	0,060	0,120	19.000	150	0,040	0,060	17.000	150	0,040	0,050	17.000	150	0,020	0,025
0,4	10	22.000	225	0,060	0,120	19.000	150	0,040	0,060	17.000	150	0,040	0,050	17.000	150	0,020	0,025
0,4	12	20.000	225	0,060	0,120	19.000	150	0,040	0,060	17.000	150	0,040	0,050	17.000	150	0,020	0,025
0,5	2,5	28.000	900	0,075	0,200	25.000	600	0,050	0,100	21.000	400	0,050	0,080	21.000	400	0,050	0,050
0,5	3	28.000	750	0,075	0,200	25.000	500	0,050	0,100	21.000	300	0,050	0,080	21.000	300	0,050	0,050
0,5	4	28.000	750	0,075	0,200	25.000	500	0,050	0,100	21.000	300	0,050	0,080	21.000	300	0,050	0,050
0,5	5	21.000	450	0,075	0,200	19.000	300	0,050	0,100	16.000	200	0,050	0,080	16.000	200	0,050	0,050
0,5	6	21.000	450	0,075	0,200	19.000	300	0,050	0,100	16.000	200	0,050	0,080	16.000	200	0,050	0,050
0,5	7	21.000	450	0,075	0,150	19.000	300	0,050	0,075	16.000	200	0,050	0,060	16.000	200	0,030	0,030
0,5	8	21.000	450	0,075	0,150	19.000	300	0,050	0,075	16.000	200	0,050	0,060	16.000	200	0,030	0,030
0,5	9	21.000	450	0,075	0,150	19.000	300	0,050	0,075	16.000	200	0,050	0,060	16.000	200	0,030	0,030
0,5	10	18.000	300	0,060	0,120	17.000	200	0,030	0,050	14.000	150	0,030	0,040	14.000	150	0,010	0,015
0,5	12	18.000	300	0,060	0,120	17.000	200	0,030	0,050	14.000	150	0,030	0,040	14.000	150	0,010	0,015
0,5	14	18.000	300	0,060	0,120	17.000	200	0,030	0,050	14.000	150	0,030	0,040	14.000	150	0,010	0,015
0,5	16	16.000	300	0,060	0,120	13.000	200	0,030	0,050	10.000	150	0,030	0,040	10.000	150	0,010	0,015
0,5	18	16.000	300	0,060	0,120	13.000	200	0,030	0,050	10.000	150	0,030	0,040	10.000	150	0,010	0,015
0,5	20	16.000	300	0,060	0,120	13.000	200	0,030	0,050	10.000	150	0,030	0,040	10.000	150	0,010	0,015
0,5	22	16.000	225	0,050	0,050	13.000	150	0,020	0,025	10.000	100	0,020	0,020	10.000	100	0,005	0,005
0,6	4	20.000	750	0,090	0,240	17.000	500	0,060	0,012	14.000	300	0,060	0,100	14.000	300	0,060	0,060
0,6	6	20.000	450	0,090	0,240	17.000	300	0,060	0,012	14.000	200	0,060	0,100	14.000	200	0,060	0,060
0,6	8	20.000	450	0,090	0,240	17.000	300	0,060	0,012	14.000	200	0,060	0,100	14.000	200	0,060	0,060
0,6	10	20.000	450	0,090	0,180	17.000	300	0,060	0,090	14.000	200	0,060	0,070	14.000	200	0,030	0,030
0,6	12	16.000	300	0,090	0,180	14.000	200	0,060	0,090	11.000	150	0,060	0,070	11.000	150	0,030	0,030
0,6	14	16.000	300	0,090	0,180	14.000	200	0,060	0,090	11.000	150	0,060	0,070	11.000	150	0,010	0,030
0,6	16	16.000	300	0,090	0,180	14.000	200	0,060	0,090	11.000	150	0,060	0,070	11.000	150	0,010	0,030
0,6	18	16.000	300	0,090	0,180	14.000	200	0,060	0,090	11.000	150	0,060	0,070	11.000	150	0,010	0,030
0,6	20	16.000	300	0,090	0,180	14.000	200	0,060	0,090	11.000	150	0,060	0,070	11.000	150	0,010	0,030
0,6	24	16.000	300	0,090	0,180	14.000	200	0,060	0,090	11.000	150	0,060	0,070	11.000	150	0,010	0,030
0,7	8	18.000	450	0,100	0,280	15.500	300	0,070	0,140	12.000	250	0,070	0,100	12.000	250	0,070	0,070
0,7	12	18.000	450	0,100	0,200	15.500	300	0,070	0,100	12.000	250	0,070	0,080	12.000	250	0,070	0,070
0,7	16	13.000	300	0,090	0,180	12.000	200	0,060	0,090	9.000	150	0,040	0,070	9.000	150	0,010	0,030
0,75	3	20.000	900	0,120	0,300	15.000	600	0,080	0,150	12.000	500	0,080	0,120	12.000	300	0,080	0,100
0,75	4	20.000	900	0,120	0,300	15.000	600	0,080	0,150	12.000	500	0,080	0,120	12.000	300	0,080	0,100
0,75	6	18.000	750	0,120	0,300	15.000	500	0,080	0,150	12.000	350	0,080	0,120	12.000	300	0,080	0,100
0,75	8	17.000	450	0,120	0,300	15.000	300	0,080	0,150	12.000	250	0,080	0,120	12.000	250	0,080	0,100
0,75	10	17.000	450	0,120	0,300	15.000	300	0,080	0,150	12.000	250	0,080	0,120	12.000	250	0,080	0,100
0,75	12	17.000	450	0,120	0,240	15.000	300	0,080	0,120	12.000	250	0,080	0,090	12.000	250	0,050	0,060
0,75	14	17.000	450	0,120	0,240	15.000	300	0,080	0,120	12.000	250	0,080	0,090	12.000	250	0,050	0,060
0,75	16	13.000	300	0,090	0,180	12.000	200	0,060	0,100	9.500	150	0,060	0,070	9.500	150	0,010	0,030
0,75	18	13.000	300	0,090	0,180	12.000	200	0,060	0,100	9.500	150	0,060	0,070	9.500	150	0,010	0,030
0,75	20	13.000	300	0,090	0,180	12.000	200	0,060	0,100	9.500	150	0,060	0,070	9.500	150	0,010	0,030
0,75	22	13.000	300	0,090	0,180	12.000	200	0,060	0,100	9.500	150	0,060	0,070	9.500	150	0,010	0,030
0,75	30	13.000	300	0,090	0,180	12.000	200	0,060	0,100	9.500	150	0,060	0,070	9.500	150	0,010	0,030
0,8	4	20.000	900	0,120	0,320	14.000	600	0,080	0,160	11.000	500	0,080	0,130	11.000	350	0,080	0,100
0,8	8	16.500	450	0,120	0,320	14.000	300	0,080	0,160	11.000	250	0,080	0,130	11.000	250	0,080	0,100
0,8	12	16.500	450	0,120	0,240	14.000	300	0,080	0,120	11.000	250	0,080	0,080	11.000	250	0,050	0,050
0,8	16	11.500	300	0,120	0,240	11.000	200	0,080	0,120	9.000	150	0,080	0,080	9.000	150	0,050	0,050
0,8	20	11.500	300	0,090	0,200	11.000	200	0,060	0,120	9.000	150	0,060	0,075	9.000	150	0,015	0,030
0,9	8	16.500	600	0,130	0,360	14.000	400	0,090	0,180	11.000	300	0,090	0,160	11.000	300	0,090	0,120
0,9	12	16.500	600	0,130	0,360	14.000	400	0,090	0,180	11.000	300	0,090	0,160	11.000	300	0,090	0,120
0,9	16	16.500	600	0,130	0,270	14.000	400	0,090	0,140	11.000	300	0,090	0,120	11.000	300	0,050	0,060
0,9	20	11.000	300	0,100	0,220	11.000	200	0,060	0,130	8.000	200	0,060	0,080	8.000	200	0,020	0,030
1	3	16.500	1.350	0,150	0,560	16.500	900	0,100	0,280	13.500	800	0,100	0,280	13.500	700	0,100	0,200
1	4	16.500	1.050	0,150	0,560	16.500	700	0,100	0,280	13.500	500	0,100	0,280	13.500	500	0,100	0,200
1	6	16.500	1.050	0,150	0,560	16.500	700	0,100	0,280	13.500	500	0,100	0,280	13.500	500	0,100	0,200
1	8	16.500	1.050	0,150	0,560	16.500	700	0,100	0,280	13.500	500	0,100	0,280	13.500	500	0,100	0,200
1	10	14.000	750	0,150	0,560	13.000	500	0,100	0,280	10.000	300	0,100	0,280	10.000	300	0,100	0,200
1	12	14.000	750	0,150	0,560	13.000	500	0,100	0,280	10.000	300	0,100	0,280	10.000	300	0,100	0,200
1	14	14.000	750	0,150	0,560	13.000	500	0,100	0,280	10.000	300	0,100	0,280	10.000	300	0,100	0,200
1	16	14.000	750	0,150	0,420	13.000	500	0,100	0,210	10.000	300	0,100	0,180	10.000	300	0,060	0,100
1	18	14.000	750	0,150	0,420	13.000	500	0,100	0,210	10.000	300	0,100	0,180	10.000	300	0,060	0,100
1	20	11.000	375	0,150	0,420	10.000	250	0,100	0,210	8.000	200	0,100	0,180	8.000	200	0,060	0,100
1	22	11.000	375	0,150	0,420	10.000	250	0,100	0,210	8.000	200	0,100	0,180	8.000	200	0,060	0,100
1	25	11.000	375	0,150	0,420	10.000	250	0,100	0,210	8.000	200	0,100	0,180	8.000	200	0,060	0,100
1	30	11.000	375	0,150	0,420	10.000	250	0,100	0,210	8.000	200	0,100	0,180	8.000	200	0,060	0,100
1	35	10.000	375	0,150	0,420	10.000	250	0,100	0,210	8.000	200	0,100	0,180	8.000	200	0,060	0,100
1	40	10.000	300	0,150	0,420	10.000	200	0,100	0,210	8.000	160	0,100	0,180	8.000	160	0,060	0,100
1,25	6	16.000	1.050	0,180	0,700	12.000	700	0,120	0,350	10.000	600	0,120	0,300	10.000	600	0,100	0,250
1,25	10	14.000	1.050	0,180	0,700	12.000	700	0,120	0,350	10.000	600	0,120	0,300	10.000	600	0,100	0,250
1,25	15	14.000	600	0,180	0,700	10.000	400	0,120	0,350	8.500	300	0,120	0,300	8.500	300	0,100	0,250
1,25	20	12.000	600	0,180	0,560	10.000	400	0,120	0,280	8.500	300	0,120	0,200	8.500	300	0,080	0,150
1,25	25	12.000	450	0,180	0,560	8.000	300	0,120	0,280	6.500	250	0,120	0,200	6.500	250	0,080	0,150
1,25	30	12.000	375	0,180	0,560	8.000	250	0,120	0,280	6.500	200	0,120	0,200	6.500	200	0,080	0,150
1,25	35	12.000	375	0,180	0,560	8.000	250	0,120	0,280	6.500	200	0,120	0,200	6.500	200	0,080	0,150
1,5	6	15.000	1.200	0,200	0,840	9.500	800	0,150	0,420	7.500	600	0,150	0,420	7.500	600	0,150	0,300
1,5	8	12.000	900	0,200	0,840	9.500	600	0,150	0,420	7.500	400	0,150	0,360	7.500	400	0,150	0,300
1,5	10	12.000	900	0,200	0,840	9.500	600	0,150	0,420	7.500	400	0,150	0,360	7.500	400	0,150	0,300
1,5	12	10.000	900	0,200	0,840	9.500	600	0,150	0,420	7.500	400	0,150	0,360	7.500	400	0,150	0,300
1,5	14	10.000	900	0,200	0,840	9.500	600	0,150	0,420	7.500	400	0,150	0,360	7.500	400	0,150	0,300

WXL-LN-EBD

Regular milling

		Cu				~32 HRC				33~41 HRC Hardened steel, pre-hardened steel				42~50 HRC Hardened steel, pre-hardened steel			
R	Lg (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)
1,5	15	10.000	600	0,200	0,840	8.500	400	0,150	0,420	6.500	250	0,150	0,360	6.500	250	0,150	0,300
1,5	16	10.000	450	0,200	0,840	8.500	300	0,150	0,420	6.500	250	0,150	0,360	6.500	250	0,150	0,300
1,5	20	10.000	450	0,200	0,840	8.500	300	0,150	0,420	6.500	250	0,150	0,360	6.500	250	0,150	0,300
1,5	25	10.000	450	0,200	0,840	8.500	300	0,150	0,420	6.500	250	0,150	0,300	6.500	250	0,090	0,150
1,5	30	9.000	375	0,200	0,840	7.500	250	0,150	0,420	6.000	200	0,150	0,300	6.000	200	0,090	0,150
1,5	35	9.000	375	0,200	0,840	7.500	250	0,150	0,420	6.000	200	0,150	0,300	6.000	200	0,090	0,150
1,5	40	9.000	375	0,200	0,840	7.500	250	0,150	0,420	6.000	200	0,150	0,300	6.000	200	0,090	0,150
1,75	10	10.000	1.050	0,400	0,980	8.500	700	0,150	0,420	6.500	500	0,150	0,420	6.500	500	0,150	0,350
1,75	15	10.000	900	0,400	0,980	8.500	600	0,150	0,420	6.500	400	0,150	0,420	6.500	400	0,150	0,350
1,75	20	8.000	750	0,400	0,980	7.500	500	0,150	0,490	5.500	300	0,150	0,420	5.500	300	0,150	0,350
1,75	25	8.000	600	0,400	0,980	7.500	400	0,150	0,490	5.500	275	0,150	0,420	5.500	275	0,150	0,350
1,75	30	8.000	450	0,400	0,980	7.500	300	0,150	0,490	5.500	250	0,150	0,350	5.500	250	0,100	0,200
1,75	35	8.000	375	0,400	0,980	6.000	250	0,150	0,490	5.000	200	0,150	0,350	5.000	200	0,100	0,200
1,75	40	6.000	375	0,300	0,980	6.000	250	0,150	0,490	5.000	200	0,150	0,350	5.000	200	0,100	0,200
1,75	45	6.000	375	0,300	0,980	6.000	250	0,150	0,490	5.000	200	0,150	0,350	5.000	200	0,100	0,200
2	8	11.000	1.200	0,500	1,280	7.500	800	0,200	0,640	6.000	700	0,200	0,600	6.000	700	0,200	0,400
2	10	9.000	900	0,500	1,280	7.500	600	0,200	0,640	6.000	400	0,200	0,600	6.000	400	0,200	0,400
2	12	9.000	900	0,500	1,280	7.500	600	0,200	0,640	6.000	400	0,200	0,600	6.000	400	0,200	0,400
2	14	9.000	900	0,500	1,280	7.500	600	0,200	0,640	6.000	400	0,200	0,600	6.000	400	0,200	0,400
2	15	9.000	900	0,500	1,280	7.500	600	0,200	0,640	6.000	400	0,200	0,600	6.000	400	0,200	0,400
2	16	9.000	900	0,500	1,280	7.500	600	0,200	0,640	6.000	400	0,200	0,600	6.000	400	0,200	0,400
2	20	7.000	600	0,500	1,280	6.000	400	0,200	0,640	5.000	250	0,200	0,600	5.000	250	0,200	0,400
2	25	7.000	600	0,500	1,280	6.000	400	0,200	0,640	5.000	250	0,200	0,600	5.000	250	0,200	0,400
2	30	7.000	600	0,400	1,280	6.000	400	0,200	0,640	5.000	250	0,200	0,560	5.000	250	0,120	0,200
2	35	7.000	600	0,400	1,280	6.000	400	0,200	0,640	5.000	250	0,200	0,560	5.000	250	0,120	0,200
2	40	5.000	375	0,350	1,280	5.000	250	0,200	0,640	4.000	200	0,200	0,560	4.000	200	0,120	0,200
2	45	5.000	375	0,350	1,280	5.000	250	0,200	0,640	4.000	200	0,200	0,560	4.000	200	0,120	0,200
2	50	5.000	375	0,350	1,280	5.000	250	0,200	0,640	4.000	200	0,200	0,560	4.000	200	0,120	0,200
2,5	10	9.000	1.350	0,600	1,800	6.500	900	0,250	0,900	5.000	750	0,250	0,700	5.000	750	0,250	0,500
2,5	15	9.000	1.350	0,600	1,800	6.500	900	0,250	0,900	5.000	750	0,250	0,700	5.000	750	0,250	0,500
2,5	20	7.000	750	0,600	1,800	6.500	500	0,250	0,900	5.000	400	0,250	0,700	5.000	400	0,250	0,500
2,5	25	6.000	750	0,600	1,800	5.000	500	0,250	0,900	4.000	250	0,250	0,700	4.000	250	0,250	0,500
2,5	30	6.000	750	0,600	1,800	5.000	500	0,250	0,900	4.000	250	0,250	0,700	4.000	250	0,250	0,500
2,5	35	6.000	750	0,600	1,800	5.000	500	0,250	0,900	4.000	250	0,250	0,700	4.000	250	0,250	0,500
2,5	40	5.000	600	0,400	1,800	4.000	400	0,250	0,900	4.000	200	0,250	0,600	4.000	200	0,200	0,250
2,5	45	5.000	600	0,400	1,800	4.000	400	0,250	0,900	4.000	200	0,250	0,600	4.000	200	0,200	0,250
2,5	50	5.000	450	0,400	1,800	4.000	300	0,250	0,900	4.000	200	0,250	0,600	4.000	200	0,200	0,250
3	10	7.000	1.500	0,750	2,400	5.500	1.000	0,300	1,200	4.500	800	0,300	0,960	4.500	800	0,300	0,600
3	20	7.000	1.200	0,750	2,400	5.500	800	0,300	1,200	4.500	600	0,300	0,960	4.500	600	0,300	0,600
3	25	6.000	900	0,750	2,400	5.500	600	0,300	1,200	4.500	400	0,300	0,960	4.500	400	0,300	0,600
3	30	5.000	600	0,750	2,400	4.000	400	0,300	1,200	4.000	300	0,300	0,960	4.000	300	0,300	0,600
3	35	5.000	600	0,750	2,400	4.000	400	0,300	1,200	4.000	300	0,300	0,960	4.000	300	0,300	0,600
3	40	5.000	600	0,600	2,400	4.000	400	0,300	1,200	4.000	300	0,300	0,960	4.000	300	0,300	0,600
3	45	5.000	600	0,600	2,400	4.000	400	0,300	1,200	4.000	300	0,300	0,960	4.000	300	0,300	0,600
3	50	5.000	600	0,600	2,400	4.000	400	0,300	1,200	4.000	300	0,300	0,960	4.000	300	0,300	0,600

Max cutting depth



1. Use a rigid and precise machine and holder.
2. When machining carbon steel or hardened steel, using MQL (Minimum Quantity Lubrication / mist coolant) is recommended.
3. Please adjust conditions based on machining accuracy, machining shape and machining path.
4. When using a tool with a diameter of dia. 0.5 (R0.25) or less, or an L/D (effective length/tool diameter) ratio grater than 10, high loads can cause tool breakage. Therefore, adjust the cutting contions based on the machining situation.
5. When the available RPM is insufficient, reduce the RPM and feed rates in proportion

CUTTING CONDITIONS

Milling | Endmills | Cutting conditions

WXL-LN-EBD

High speed milling



		Cu				~32 HRC				33~41 HRC Hardened steel, pre-hardened steel				42~50 HRC Hardened steel, pre-hardened steel			
R	Lg (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)
0,05	0,3	50.000	280	0,003	0,005	50.000	150	0,003	0,003	50.000	100	0,003	0,003	50.000	70	0,003	0,003
0,05	0,5	50.000	220	0,003	0,005	50.000	120	0,003	0,003	50.000	80	0,003	0,003	50.000	50	0,003	0,003
0,1	0,3	50.000	490	0,008	0,010	50.000	400	0,005	0,005	50.000	380	0,005	0,005	50.000	380	0,005	0,005
0,1	0,5	50.000	490	0,008	0,010	50.000	400	0,005	0,005	50.000	380	0,005	0,005	50.000	380	0,005	0,005
0,1	0,75	50.000	440	0,008	0,010	50.000	360	0,005	0,005	50.000	340	0,005	0,005	50.000	340	0,005	0,005
0,1	1	50.000	440	0,008	0,010	50.000	360	0,005	0,005	50.000	340	0,005	0,005	50.000	340	0,005	0,005
0,1	1,25	50.000	390	0,008	0,010	47.000	320	0,005	0,005	47.000	300	0,005	0,005	47.000	300	0,005	0,005
0,1	1,5	50.000	360	0,008	0,010	45.000	300	0,005	0,005	45.000	280	0,005	0,005	45.000	280	0,005	0,005
0,1	1,75	50.000	350	0,008	0,010	42.000	260	0,005	0,005	42.000	240	0,005	0,005	42.000	240	0,005	0,005
0,1	2	50.000	320	0,008	0,010	38.000	230	0,005	0,005	38.000	210	0,005	0,005	37.000	200	0,005	0,005
0,15	0,5	50.000	750	0,008	0,020	50.000	620	0,005	0,010	50.000	600	0,005	0,010	50.000	600	0,005	0,010
0,15	0,6	50.000	730	0,008	0,020	50.000	600	0,005	0,010	50.000	570	0,005	0,010	50.000	570	0,005	0,010
0,15	0,75	50.000	730	0,008	0,020	50.000	600	0,005	0,010	50.000	570	0,005	0,010	50.000	570	0,005	0,010
0,15	1	50.000	730	0,008	0,020	50.000	600	0,005	0,010	50.000	570	0,005	0,010	50.000	570	0,005	0,010
0,15	1,25	50.000	730	0,008	0,020	50.000	600	0,005	0,010	50.000	570	0,005	0,010	50.000	570	0,005	0,010
0,15	1,5	50.000	730	0,008	0,020	50.000	600	0,005	0,010	50.000	570	0,005	0,010	50.000	570	0,005	0,010
0,15	1,75	50.000	610	0,008	0,020	47.000	510	0,005	0,010	47.000	480	0,005	0,010	47.000	480	0,005	0,010
0,15	2	50.000	580	0,008	0,010	45.000	480	0,005	0,005	45.000	450	0,005	0,005	45.000	450	0,005	0,005
0,15	2,25	50.000	490	0,008	0,010	45.000	400	0,005	0,005	45.000	380	0,005	0,005	45.000	380	0,005	0,005
0,15	2,5	50.000	360	0,008	0,010	40.000	300	0,005	0,005	40.000	280	0,005	0,005	40.000	280	0,005	0,005
0,15	2,75	50.000	320	0,008	0,010	38.000	250	0,005	0,005	38.000	230	0,005	0,005	38.000	230	0,005	0,005
0,15	3	50.000	290	0,008	0,010	38.000	250	0,005	0,005	38.000	230	0,005	0,005	37.000	230	0,005	0,005
0,2	0,5	50.000	1.100	0,015	0,040	50.000	920	0,020	0,010	50.000	870	0,010	0,020	50.000	870	0,010	0,020
0,2	0,75	50.000	1.090	0,015	0,040	50.000	900	0,020	0,010	50.000	850	0,010	0,020	50.000	850	0,010	0,020
0,2	1	50.000	1.090	0,015	0,040	50.000	900	0,020	0,010	50.000	850	0,010	0,020	50.000	850	0,010	0,020
0,2	1,5	50.000	970	0,015	0,040	50.000	800	0,020	0,010	50.000	760	0,010	0,020	50.000	760	0,010	0,020
0,2	2	50.000	850	0,015	0,040	50.000	700	0,020	0,010	50.000	660	0,010	0,020	50.000	660	0,010	0,020
0,2	2,5	50.000	670	0,012	0,030	45.000	550	0,015	0,008	45.000	520	0,010	0,015	45.000	520	0,008	0,015
0,2	3	48.000	540	0,008	0,020	43.000	500	0,005	0,010	43.000	470	0,010	0,010	43.000	470	0,005	0,010
0,2	3,5	45.000	460	0,008	0,020	40.000	420	0,005	0,010	40.000	400	0,010	0,010	40.000	400	0,005	0,010
0,2	4	40.000	400	0,008	0,010	36.000	370	0,005	0,005	36.000	350	0,010	0,005	35.000	340	0,005	0,005
0,25	1	50.000	1.420	0,023	0,045	50.000	1.100	0,015	0,030	50.000	1.050	0,010	0,030	50.000	1.050	0,015	0,030
0,25	1,5	50.000	1.420	0,023	0,045	50.000	1.100	0,015	0,030	50.000	1.050	0,010	0,030	50.000	1.050	0,015	0,030
0,25	2	50.000	1.400	0,023	0,045	50.000	1.000	0,015	0,030	50.000	950	0,010	0,030	50.000	950	0,015	0,030
0,25	2,5	50.000	1.380	0,023	0,045	50.000	1.000	0,015	0,030	50.000	950	0,010	0,030	50.000	950	0,015	0,030
0,25	3	50.000	1.190	0,015	0,040	48.000	900	0,010	0,020	48.000	850	0,010	0,020	48.000	850	0,010	0,020
0,25	3,5	50.000	1.140	0,015	0,040	45.000	700	0,010	0,020	45.000	650	0,010	0,020	45.000	650	0,010	0,020
0,25	4	45.000	1.000	0,015	0,020	43.000	600	0,010	0,010	43.000	570	0,010	0,010	43.000	570	0,010	0,010
0,25	4,5	38.000	940	0,015	0,020	38.000	500	0,010	0,010	38.000	470	0,010	0,010	38.000	470	0,010	0,010
0,25	5	30.000	760	0,008	0,020	30.000	400	0,005	0,010	30.000	380	0,005	0,010	29.000	360	0,005	0,010
0,3	1	50.000	1.660	0,045	0,100	50.000	1.400	0,030	0,050	50.000	1.300	0,030	0,050	50.000	1.300	0,030	0,050
0,3	1,5	50.000	1.600	0,045	0,100	50.000	1.300	0,030	0,050	50.000	1.200	0,030	0,050	50.000	1.200	0,030	0,050
0,3	2	50.000	1.600	0,045	0,100	50.000	1.300	0,030	0,050	50.000	1.200	0,030	0,050	50.000	1.200	0,030	0,050
0,3	2,5	50.000	1.550	0,045	0,100	50.000	1.200	0,030	0,050	50.000	1.100	0,030	0,050	50.000	1.100	0,030	0,050
0,3	3	50.000	1.550	0,030	0,060	50.000	1.200	0,020	0,030	50.000	1.100	0,020	0,030	50.000	1.100	0,020	0,030
0,3	3,5	50.000	1.340	0,030	0,060	45.000	1.000	0,020	0,030	45.000	950	0,020	0,030	45.000	950	0,020	0,030
0,3	4	50.000	1.200	0,015	0,040	40.000	900	0,010	0,020	40.000	850	0,010	0,020	40.000	850	0,010	0,020
0,3	4,5	45.000	1.040	0,015	0,040	34.000	780	0,010	0,020	34.000	740	0,010	0,020	34.000	740	0,010	0,020
0,3	5	30.000	960	0,015	0,040	30.000	680	0,010	0,020	30.000	640	0,010	0,020	30.000	640	0,010	0,020
0,3	5,5	30.000	820	0,015	0,040	28.000	650	0,010	0,020	28.000	610	0,010	0,020	28.000	610	0,010	0,020
0,3	6	30.000	720	0,015	0,040	26.000	600	0,010	0,020	26.000	570	0,010	0,020	25.000	540	0,010	0,020
0,4	2	50.000	2.200	0,060	0,160	50.000	2.000	0,040	0,080	50.000	1.900	0,040	0,080	50.000	1.900	0,040	0,080
0,4	3	50.000	1.740	0,060	0,160	48.000	1.600	0,040	0,080	48.000	1.500	0,040	0,080	48.000	1.500	0,040	0,080
0,4	4	50.000	1.680	0,060	0,160	40.000	1.200	0,040	0,080	40.000	1.100	0,040	0,080	40.000	1.100	0,040	0,080
0,4	5	43.000	1.600	0,045	0,100	34.000	950	0,030	0,050	34.000	900	0,030	0,050	34.000	900	0,030	0,050
0,4	6	32.000	1.260	0,045	0,100	30.000	800	0,030	0,050	30.000	760	0,030	0,050	30.000	760	0,030	0,050
0,4	7	30.000	1.000	0,020	0,080	25.000	600	0,010	0,020	25.000	570	0,010	0,020	25.000	570	0,010	0,020
0,4	8	24.000	720	0,010	0,040	23.000	450	0,005	0,010	23.000	420	0,005	0,010	23.000	420	0,005	0,010
0,5	2,5	50.000	3.270	0,075	0,200	50.000	3.400	0,050	0,100	50.000	3.200	0,050	0,100	50.000	3.200	0,050	0,100
0,5	3	50.000	3.060	0,075	0,200	45.000	3.200	0,050	0,100	45.000	3.000	0,050	0,100	45.000	3.000	0,050	0,100
0,5	4	50.000	3.000	0,075	0,200	40.000	3.000	0,050	0,100	40.000	2.850	0,050	0,100	40.000	2.850	0,050	0,100
0,5	5	47.000	2.870	0,075	0,200	36.000	2.300	0,050	0,100	36.000	2.100	0,050	0,100	36.000	2.100	0,050	0,100
0,5	6	43.000	2.600	0,075	0,200	30.000	2.000	0,050	0,100	30.000	1.900	0,050	0,100	30.000	1.900	0,050	0,100
0,5	7	30.000	2.350	0,075	0,150	27.000	1.700	0,050	0,100	27.000	1.600	0,050	0,100	27.000	1.600	0,050	0,100
0,5	8	27.000	2.000	0,075	0,150	26.000	1.600	0,050	0,100	26.000	1.500	0,050	0,100	26.000	1.500	0,050	0,100
0,5	9	26.000	1.540	0,045	0,075	24.000	1.200	0,030	0,050	24.000	1.100	0,030	0,050	24.000	1.100	0,030	0,050
0,5	10	24.000	1.400	0,015	0,040	22.000	1.100	0,010	0,020	22.000	1.000	0,010	0,020	21.000	950	0,010	0,020
0,6	4	40.000	3.000	0,120	0,210	40.000	3.000	0,060	0,120	40.000	2.850	0,060	0,120	40.000	2.850	0,060	0,120
0,6	6	35.000	2.600	0,090	0,210	32.000	2.100	0,060	0,120	32.000	2.000	0,060	0,120	32.000	2.000	0,060	0,120
0,6	8	30.000	2.000	0,090	0,210	25.000	1.700	0,060	0,120	25.000	1.600	0,060	0,120	25.000	1.600	0,060	0,120
0,6	10	21.000	1.400	0,075	0,120	20.000	1.200	0,050	0,100	20.000	1.100	0,050	0,100	18.000	990	0,050	0,100
0,6	12	20.000	1.000	0,045	0,100	19.000	900	0,030	0,050	17.000	850	0,030	0,050	16.000	800	0,030	0,050
0,7	8	30.000	2.100	0,140	0,245	25.000	1.700	0,070	0,140	25.000	1.600	0,070	0,140	25.000	1.600	0,070	0,140
0,7	12	22.000	1.210	0,060	0,140	19.000	1.000	0,030	0,070	19.000	950	0,030	0,070	19.000	950	0,030	0,070
0,75	3	50.000	5.330	0,150	0,300	50.000	4.800	0,075	0,150	50.000	4.800	0,075	0,150	50.000	4.800	0,075	0,150
0,75	4	42.000	4.110	0,150	0,300	40.000	3.900	0,075	0,150	40.000	3.700	0,075	0,150	40.000	3.700	0,075	0,150
0,75	6	32.000	3.000	0,150	0,300	30.000	2.900	0,075	0,150	30.000	2.700	0,075	0,150	30.000	2.700	0,075	0,150
0,75	8	30.000	2.650	0,150	0,300	24.000	2.300	0,075	0,150	24.000	2.100	0,075	0,150	24.000	2.100	0,075	0,150
0,75	10	30.000	2.400	0,150	0,300	24.000	2.000	0,075	0,150	24.000	1.900	0,075	0,150	24.000	1.900	0,075	0,150
0,75	12	24.000	1.400	0,150	0,200	21.000	1.400	0,075	0,100	21.000	1.300	0,075	0,100	21.000	1.300	0,075	0,100
0,75	14	22.000	1.400	0,100	0,200	18.000	1.200	0,050	0,100	18.000	1.100	0,050	0,100	17.000	1.100	0,050	0,100
0,8	4	40.000	4.500	0,160	0,320	38.000	4.000	0,080	0,160	38.000	3.800	0,080	0,160	38.000	3.600	0,080	0,160

CUTTING CONDITIONS

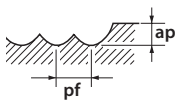
Milling | Endmills | Cutting conditions

WXL-LN-EBD

High speed milling

		Cu				~32 HRC				33~41 HRC Hardened steel, pre-hardened steel				42~50 HRC Hardened steel, pre-hardened steel			
R	Lg (mm)	S (min^{-1})	F (mm/min)	ap (mm)	pf (mm)	S (min^{-1})	F (mm/min)	ap (mm)	pf (mm)	S (min^{-1})	F (mm/min)	ap (mm)	pf (mm)	S (min^{-1})	F (mm/min)	ap (mm)	pf (mm)
0,8	8	26.000	3.000	0,160	0,320	24.000	3.000	0,080	0,160	24.000	2.800	0,080	0,160	23.000	2.600	0,080	0,160
0,8	12	24.000	2.400	0,120	0,200	21.000	1.800	0,050	0,100	21.000	1.700	0,050	0,100	20.000	1.600	0,050	0,100
0,8	16	18.000	1.600	0,100	0,200	16.000	800	0,050	0,100	16.000	760	0,050	0,100	15.000	700	0,050	0,100
0,9	8	25.000	3.200	0,180	0,540	24.000	3.000	0,090	0,270	24.000	2.800	0,090	0,270	23.000	2.600	0,090	0,270
0,9	12	22.000	2.500	0,180	0,360	18.000	1.800	0,090	0,180	15.800	1.500	0,090	0,180	14.700	1.350	0,090	0,180
0,9	16	16.000	1.200	0,100	0,240	16.000	980	0,050	0,120	14.000	850	0,050	0,120	13.000	780	0,050	0,120
1	3	50.000	5.800	0,200	0,400	50.000	5.600	0,100	0,200	50.000	5.600	0,100	0,200	47.000	5.300	0,100	0,200
1	4	50.000	5.800	0,200	0,400	50.000	5.600	0,100	0,200	50.000	5.600	0,100	0,200	47.000	5.300	0,100	0,200
1	6	38.000	4.000	0,200	0,400	36.000	3.000	0,100	0,200	36.000	2.800	0,100	0,200	34.000	2.600	0,100	0,200
1	8	27.000	3.360	0,200	0,400	25.000	2.600	0,100	0,200	25.000	2.400	0,100	0,200	23.000	2.200	0,100	0,200
1	10	22.000	3.050	0,200	0,400	20.000	2.400	0,100	0,200	20.000	2.200	0,100	0,200	19.000	2.000	0,100	0,200
1	12	16.000	2.580	0,200	0,400	16.000	2.000	0,100	0,200	16.000	1.900	0,100	0,200	15.000	1.700	0,100	0,200
1	14	15.000	2.400	0,200	0,300	15.000	1.800	0,100	0,200	15.000	1.700	0,100	0,200	14.000	1.500	0,100	0,200
1	16	14.000	2.200	0,200	0,200	14.000	1.700	0,100	0,100	14.000	1.600	0,100	0,100	13.000	1.400	0,100	0,100
1	18	13.000	2.000	0,200	0,200	13.000	1.600	0,100	0,100	13.000	1.500	0,100	0,100	12.000	1.300	0,100	0,100
1	20	12.000	1.200	0,100	0,200	12.000	1.200	0,050	0,100	11.000	1.100	0,050	0,100	10.000	1.000	0,000	0,100
1,25	6	32.000	5.550	0,250	0,400	28.000	4.600	0,100	0,200	28.000	4.300	0,100	0,200	25.000	3.700	0,100	0,200
1,25	10	21.000	4.000	0,250	0,400	20.000	3.300	0,100	0,200	20.000	3.100	0,100	0,200	18.000	2.700	0,100	0,200
1,25	15	17.000	3.000	0,250	0,400	17.000	2.800	0,100	0,200	17.000	2.600	0,100	0,200	16.000	2.400	0,100	0,200
1,25	20	15.000	1.800	0,250	0,400	15.000	1.800	0,100	0,200	15.000	1.700	0,100	0,200	14.000	1.500	0,100	0,200
1,25	25	12.000	1.010	0,060	0,100	12.000	1.000	0,030	0,050	12.000	950	0,030	0,050	10.000	860	0,030	0,050
1,25	30	10.000	800	0,060	0,100	-	-	-	-	-	-	-	-	-	-	-	-
1,5	6	42.000	6.800	0,300	0,600	41.500	6.200	0,150	0,300	41.500	6.200	0,150	0,300	32.000	4.800	0,150	0,300
1,5	8	32.000	4.600	0,300	0,600	30.000	4.500	0,150	0,300	30.000	4.200	0,150	0,300	25.000	3.500	0,150	0,300
1,5	10	28.000	4.000	0,300	0,600	25.000	3.800	0,150	0,300	25.000	3.600	0,150	0,300	20.000	2.800	0,150	0,300
1,5	12	24.000	3.100	0,300	0,600	20.000	3.000	0,150	0,300	20.000	2.800	0,150	0,300	18.000	2.500	0,150	0,300
1,5	14	22.000	2.900	0,300	0,600	18.000	2.700	0,150	0,300	18.000	2.500	0,150	0,300	15.000	2.000	0,150	0,300
1,5	15	20.000	2.800	0,250	0,600	16.000	2.400	0,100	0,300	16.000	2.200	0,100	0,300	13.000	1.700	0,100	0,300
1,5	16	20.000	2.600	0,250	0,400	16.000	2.000	0,100	0,200	16.000	1.900	0,100	0,200	13.000	1.500	0,100	0,200
1,5	20	16.000	2.200	0,250	0,400	14.000	1.800	0,100	0,200	14.000	1.700	0,100	0,200	11.000	1.300	0,100	0,200
1,5	25	16.000	1.800	0,125	0,200	12.000	1.200	0,050	0,100	12.000	1.100	0,050	0,100	9.000	820	0,050	0,100
1,5	30	12.000	1.000	0,075	0,100	10.000	800	0,030	0,050	9.000	760	0,030	0,050	7.800	590	0,030	0,050
1,75	10	26.000	5.400	0,375	0,600	25.000	3.750	0,150	0,300	25.000	3.500	0,150	0,300	19.500	2.660	0,150	0,300
1,75	15	20.000	4.000	0,300	0,600	18.000	3.000	0,100	0,300	18.000	2.800	0,100	0,300	14.000	2.180	0,100	0,300
1,75	20	18.000	3.000	0,300	0,400	16.000	2.700	0,100	0,200	16.000	2.500	0,100	0,200	12.000	1.850	0,100	0,200
1,75	25	14.000	2.800	0,200	0,200	12.000	2.000	0,100	0,100	12.000	1.900	0,100	0,100	9.000	1.400	0,100	0,100
1,75	30	10.000	2.200	0,125	0,200	10.000	1.600	0,050	0,100	10.000	1.500	0,050	0,100	8.000	1.200	0,050	0,100
1,75	35	10.000	1.200	0,100	0,100	10.000	1.000	0,050	0,050	10.000	950	0,050	0,500	7.000	670	0,050	0,050
2	8	31.000	5.700	0,400	1,000	31.000	5.700	0,200	0,500	31.000	5.700	0,200	0,500	24.000	4.400	0,200	0,500
2	10	25.000	4.500	0,400	1,000	25.000	4.500	0,200	0,500	25.000	4.200	0,200	0,500	20.000	3.300	0,200	0,500
2	12	20.000	4.000	0,400	1,000	20.000	3.600	0,200	0,500	20.000	3.400	0,200	0,500	16.000	2.700	0,200	0,500
2	14	20.000	4.000	0,400	1,000	20.000	3.600	0,200	0,500	20.000	3.400	0,200	0,500	16.000	2.700	0,200	0,500
2	15	20.000	4.000	0,400	1,000	20.000	3.600	0,200	0,500	20.000	3.400	0,200	0,500	16.000	2.700	0,200	0,500
2	16	20.000	3.460	0,400	0,600	18.000	3.200	0,200	0,500	18.000	3.000	0,200	0,500	14.000	2.300	0,200	0,500
2	20	18.000	3.000	0,400	0,500	16.000	2.800	0,200	0,400	16.000	2.600	0,200	0,400	12.000	1.900	0,200	0,400
2	25	18.000	3.000	0,250	0,600	16.000	2.800	0,100	0,300	16.000	2.600	0,100	0,300	12.000	1.900	0,100	0,300
2	30	16.000	2.850	0,250	0,400	14.000	2.400	0,100	0,200	14.000	2.200	0,100	0,200	11.000	1.700	0,100	0,200
2	35	14.000	2.200	0,250	0,400	12.000	1.800	0,100	0,200	12.000	1.700	0,100	0,200	9.000	1.700	0,100	0,200
2	40	12.000	1.600	0,125	0,200	10.000	1.300	0,050	0,100	10.000	1.200	0,050	0,100	7.000	840	0,050	0,100
2,5	10	25.000	5.600	0,500	1,250	25.000	5.400	0,250	0,500	25.000	5.400	0,250	0,500	19.000	4.000	0,250	0,500
2,5	15	20.000	4.400	0,500	1,250	20.000	4.200	0,250	0,500	20.000	3.900	0,250	0,500	16.000	3.100	0,250	0,500
2,5	20	18.000	3.800	0,500	1,250	16.000	3.500	0,250	0,500	16.000	3.300	0,250	0,500	12.000	2.400	0,250	0,500
2,5	25	20.000	3.400	0,400	0,750	15.000	3.200	0,200	0,300	15.000	3.000	0,200	0,300	12.000	2.400	0,200	0,300
2,5	30	16.000	2.900	0,250	0,750	14.000	2.500	0,100	0,300	14.000	2.300	0,100	0,300	11.000	1.800	0,100	0,300
2,5	35	14.000	2.200	0,250	0,750	12.000	1.600	0,100	0,300	12.000	1.500	0,100	0,300	9.000	1.100	0,100	0,300
2,5	40	12.000	1.800	0,250	0,500	10.000	1.200	0,100	0,200	10.000	1.100	0,100	0,200	8.000	880	0,100	0,200
2,5	45	9.000	1.200	0,200	0,250	9.000	900	0,100	0,100	9.000	850	0,100	0,100	7.000	660	0,100	0,100
2,5	50	8.000	1.100	0,200	0,250	8.000	800	0,100	0,100	8.000	760	0,100	0,100	6.000	570	0,100	0,100
3	10	22.000	5.900	0,750	1,250	20.000	5.400	0,300	0,500	20.000	5.000	0,300	0,500	15.000	3.750	0,300	0,500
3	20	18.000	4.400	0,750	1,250	16.000	4.200	0,300	0,500	16.000	3.900	0,300	0,500	12.000	2.900	0,300	0,500
3	25	14.000	4.000	0,600	1,250	12.000	3.200	0,300	0,500	12.000	3.000	0,300	0,500	9.000	2.250	0,300	0,500
3	30	10.000	3.200	0,600	1,250	10.000	2.600	0,300	0,500	10.000	2.400	0,300	0,500	8.000	1.900	0,300	0,500
3	35	9.000	3.000	0,400	1,000	9.000	2.300	0,200	0,400	9.000	2.100	0,200	0,400	7.000	1.600	0,200	0,400
3	40	9.000	2.800	0,400	0,750	9.000	2.000	0,200	0,300	9.000	1.900	0,200	0,300	7.000	1.400	0,200	0,300
3	45	8.000	2.500	0,400	0,750	8.000	1.800	0,200	0,300	8.000	1.700	0,200	0,300	6.500	1.300	0,200	0,300
3	50	7.000	2.300	0,400	0,750	7.000	1.600	0,200	0,300	7.000	1.500	0,200	0,300	5.500	1.100	0,200	0,300

Max cutting depth



1. Use a rigid and precise machine and holder.
2. When machining carbon steel or hardened steel, using MQL is recommended.
3. Please adjust conditions based on machining accuracy, machining shape and machining path.
4. When using a tool with a diameter of dia. 0.5 (R0.25) or less, or an L/D (effective length/tool diameter) ratio grater than 10, high loads can cause tool breakage. Therefore, adjust the cutting conditions based on the machining situation.
5. When the available RPM is insufficient, reduce the RPM and feed rates in proportion

CUTTING CONDITIONS

Milling | Endmills | Cutting conditions

WXL-PC-EBD

Regular milling



				Cu				~32 HRC				33~41 HRC Hardened steel, pre-hardened steel				42~50 HRC Hardened steel, pre-hardened steel			
R	θ	l2	Cutting angle	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)	S (min⁻¹)	F (mm/min)	ap (mm)	pf (mm)
0,1	0,5°	1	0,3°	32.000	200	0,020	0,020	32.000	150	0,010	0,010	32.000	150	0,010	0,010	32.000	100	0,005	0,005
0,1	0,5°	1,5	0,3°	32.000	200	0,020	0,020	32.000	150	0,010	0,010	32.000	150	0,010	0,010	32.000	100	0,005	0,005
0,1	0,5°	2	0,3°	32.000	150	0,020	0,020	32.000	100	0,010	0,010	32.000	100	0,010	0,010	32.000	80	0,005	0,005
0,1	0,5°	2,5	0,3°	32.000	150	0,010	0,010	32.000	100	0,005	0,005	32.000	100	0,005	0,005	32.000	80	0,005	0,005
0,1	0,5°	3	0,3°	32.000	100	0,010	0,010	32.000	80	0,005	0,005	32.000	80	0,005	0,005	32.000	60	0,003	0,005
0,1	1°	2	0,3°	32.000	150	0,020	0,020	32.000	100	0,010	0,010	32.000	100	0,010	0,010	32.000	80	0,005	0,005
0,1	1°	2,5	0,3°	32.000	150	0,020	0,020	32.000	100	0,010	0,010	32.000	100	0,010	0,010	32.000	80	0,005	0,005
0,1	1°	3	0,3°	32.000	150	0,010	0,010	32.000	100	0,005	0,005	32.000	100	0,005	0,005	32.000	80	0,005	0,005
0,15	0,5°	2	0,3°	32.000	600	0,020	0,030	32.000	300	0,010	0,015	32.000	200	0,010	0,015	32.000	200	0,005	0,005
0,15	0,5°	3	0,3°	32.000	450	0,020	0,020	32.000	300	0,010	0,010	32.000	200	0,010	0,010	32.000	200	0,010	0,010
0,15	1°	3	0,3°	32.000	450	0,020	0,020	32.000	300	0,010	0,015	32.000	200	0,010	0,015	32.000	200	0,005	0,005
0,15	1°	4	0,3°	32.000	450	0,020	0,020	32.000	300	0,010	0,010	32.000	200	0,010	0,010	32.000	200	0,010	0,010
0,2	0,5°	2	0,3°	27.000	450	0,030	0,050	32.000	400	0,015	0,025	32.000	300	0,015	0,020	32.000	300	0,010	0,010
0,2	0,5°	3	0,3°	27.000	450	0,025	0,050	27.000	300	0,015	0,025	27.000	200	0,015	0,020	27.000	200	0,010	0,010
0,2	0,5°	4	0,3°	27.000	450	0,020	0,050	27.000	300	0,015	0,025	27.000	200	0,015	0,020	27.000	200	0,010	0,010
0,2	0,5°	5	0,3°	27.000	400	0,015	0,050	27.000	300	0,005	0,015	27.000	200	0,005	0,012	27.000	200	0,005	0,010
0,2	0,5°	6	0,3°	27.000	300	0,010	0,030	27.000	300	0,005	0,015	27.000	200	0,005	0,012	27.000	200	0,005	0,010
0,2	1°	4	0,3°	27.000	450	0,025	0,050	27.000	300	0,015	0,025	27.000	200	0,015	0,020	27.000	200	0,010	0,010
0,2	1°	5	0,3°	27.000	450	0,020	0,050	27.000	300	0,015	0,025	27.000	200	0,015	0,020	27.000	200	0,010	0,010
0,2	1°	6	0,3°	27.000	400	0,015	0,050	27.000	300	0,005	0,015	27.000	200	0,005	0,012	27.000	200	0,005	0,010
0,25	0,5°	4	0,3°	32.000	600	0,040	0,050	32.000	400	0,020	0,025	32.000	300	0,020	0,020	32.000	300	0,010	0,015
0,25	0,5°	6	0,3°	27.000	450	0,040	0,050	20.000	200	0,020	0,025	20.000	150	0,020	0,020	20.000	150	0,010	0,010
0,25	0,5°	8	0,3°	21.000	300	0,020	0,030	20.000	200	0,010	0,015	20.000	150	0,010	0,010	20.000	150	0,010	0,010
0,25	0,5°	10	0,3°	21.000	300	0,020	0,030	20.000	200	0,010	0,015	20.000	150	0,010	0,010	20.000	150	0,005	0,010
0,25	1°	4	0,3°	32.000	600	0,040	0,050	32.000	400	0,020	0,025	32.000	300	0,020	0,020	32.000	300	0,010	0,010
0,25	1°	6	0,3°	27.000	450	0,040	0,050	32.000	400	0,020	0,025	32.000	300	0,020	0,020	32.000	300	0,010	0,010
0,25	1°	8	0,3°	27.000	450	0,040	0,050	20.000	200	0,020	0,025	20.000	150	0,020	0,020	20.000	150	0,010	0,010
0,25	1°	10	0,3°	21.000	300	0,020	0,030	20.000	200	0,020	0,025	20.000	150	0,020	0,020	20.000	150	0,010	0,010
0,25	1°	12	0,3°	21.000	300	0,020	0,030	20.000	200	0,010	0,015	20.000	150	0,010	0,010	20.000	150	0,010	0,010
0,3	0,5°	2	0,3°	32.000	675	0,045	0,120	32.000	450	0,030	0,060	32.000	300	0,030	0,050	32.000	300	0,030	0,030
0,3	0,5°	4	0,3°	30.000	375	0,045	0,120	25.000	250	0,030	0,060	24.000	200	0,030	0,050	24.000	200	0,030	0,030
0,3	0,5°	6	0,3°	30.000	375	0,045	0,120	25.000	250	0,030	0,060	24.000	200	0,030	0,040	24.000	200	0,020	0,020
0,3	0,5°	8	0,3°	25.000	225	0,045	0,120	20.000	150	0,030	0,060	20.000	150	0,030	0,040	20.000	150	0,020	0,020
0,3	0,5°	10	0,3°	25.000	225	0,045	0,120	20.000	150	0,030	0,060	20.000	150	0,030	0,040	20.000	150	0,020	0,020
0,3	0,5°	12	0,3°	25.000	225	0,045	0,120	20.000	150	0,030	0,060	20.000	150	0,020	0,040	20.000	150	0,010	0,010
0,3	0,5°	16	0,3°	20.000	150	0,025	0,050	20.000	150	0,030	0,060	20.000	150	0,010	0,040	20.000	150	0,010	0,010
0,3	1°	4	0,3°	30.000	375	0,045	0,120	25.000	250	0,030	0,060	24.000	200	0,030	0,050	24.000	200	0,030	0,030
0,3	1°	6	0,3°	30.000	375	0,045	0,120	25.000	250	0,030	0,060	24.000	200	0,030	0,040	24.000	200	0,020	0,020
0,3	1°	8	0,3°	30.000	375	0,045	0,120	25.000	250	0,030	0,060	24.000	200	0,030	0,040	24.000	200	0,020	0,020
0,3	1°	10	0,3°	25.000	225	0,045	0,120	20.000	150	0,030	0,060	20.000	150	0,030	0,040	20.000	150	0,020	0,020
0,3	1°	12	0,3°	25.000	225	0,045	0,120	20.000	150	0,030	0,060	20.000	150	0,030	0,040	20.000	150	0,020	0,020
0,3	1°	16	0,3°	25.000	225	0,045	0,120	20.000	150	0,030	0,060	20.000	150	0,030	0,040	20.000	150	0,020	0,020
0,4	0,5°	4	0,3°	27.000	675	0,060	0,160	23.000	450	0,040	0,080	21.000	300	0,040	0,060	21.000	300	0,040	0,080
0,4	0,5°	6	0,3°	24.000	375	0,060	0,120	21.000	250	0,040	0,060	19.000	200	0,040	0,050	19.000	200	0,030	0,050
0,4	0,5°	8	0,3°	24.000	375	0,060	0,120	21.000	250	0,040	0,060	19.000	200	0,040	0,050	19.000	200	0,030	0,050
0,4	0,5°	12	0,3°	22.000	225	0,060	0,120	19.000	150	0,040	0,060	17.000	150	0,040	0,050	17.000	150	0,020	0,050
0,4	1°	8	0,3°	24.000	375	0,060	0,120	21.000	250	0,040	0,060	19.000	200	0,040	0,050	19.000	200	0,030	0,050
0,4	1°	12	0,3°	24.000	375	0,060	0,120	21.000	250	0,040	0,060	19.000	200	0,040	0,050	19.000	200	0,020	0,050
0,4	1°	16	0,3°	22.000	225	0,060	0,120	19.000	150	0,040	0,060	17.000	150	0,040	0,050	17.000	150	0,020	0,020
0,5	0,5°	6	0,3°	28.000	750	0,075	0,200	25.000	500	0,050	0,100	21.000	300	0,050	0,080	21.000	300	0,050	0,050
0,5	0,5°	8	0,3°	28.000	750	0,075	0,200	25.000	500	0,050	0,100	21.000	300	0,050	0,080	21.000	300	0,050	0,050
0,5	0,5°	10	0,3°	21.000	450	0,075	0,150	19.000	300	0,050	0,100	16.000	200	0,050	0,080	16.000	200	0,050	0,050
0,5	0,5°	12	0,3°	21.000	450	0,075	0,150	19.000	300	0,050	0,100	16.000	200	0,050	0,080	16.000	200	0,050	0,050
0,5	0,5°	16	0,3°	18.000	300	0,060	0,120	17.000	200	0,030	0,050	14.000	150	0,030	0,040	14.000	150	0,010	0,025
0,5	0,5°	18	0,3°	18.000	300	0,060	0,120	17.000	200	0,030	0,050	14.000	150	0,030	0,040	14.000	150	0,010	0,025
0,5	0,5°	20	0,3°	18.000	300	0,060	0,120	17.000	200	0,030	0,050	14.000	150	0,030	0,040	14.000	150	0,010	0,025
0,5	0,5°	25	0,3°	16.000	300	0,060	0,120	13.000	200	0,030	0,050	10.000	150	0,030	0,040	10.000	150	0,010	0,015
0,5	0,5°	30	0,3°	16.000	300	0,060	0,120	13.000	200	0,030	0,050	10.000	150	0,030	0,040	10.000	150	0,010	0,015
0,5	0,5°	35	0,3°	13.000	300	0,040	0,120	13.000	200	0,010	0,050	10.000	150	0,010	0,040	10.000	150	0,005	0,015
0,5	1°	10	0,3°	28.000	750	0,075	0,200	25.000	500	0,050	0,100	21.000	300	0,050	0,080	21.000	300	0,050	0,050
0,5	1°	16	0,3°	21.000	450	0,075	0,150	19.000	300	0,050	0,100	16.000	200	0,050	0,080	16.000	200	0,050	0,050
0,5	1°	20	0,3°	21.000	450	0,075	0,150	17.000	200	0,030	0,050	14.000	150	0,030	0,040	14.000	150	0,010	0,020
0,5	1°	25	0,3°	18.000	300	0,060	0,120	17.000	200	0,030	0,050	14.000	150	0,030	0,040	14.000	150	0,010	0,020
0,5	1°	30	0,3°	18.000	300	0,060	0,120	17.000	200	0,030	0,050	14.000	150	0,030	0,040	14.000	150	0,010	0,015
0,5	1°	35	0,3°	18.000	300	0,060	0,120	17.000	200	0,030	0,050	14.000	150	0,030	0,040	14.000	150	0,010	0,015
0,5	1°	40	0,3°	18.000	300	0,060	0,120	17.000	200	0,030	0,050	14.000	150	0,030	0,040	14.000	150	0,010	0,015
0,5	1°	50	0,3°	16.000	300	0,060	0,120	13.000	200	0,030	0,050	10.000	150	0,030	0,040	10.000	150	0,010	0,015
0,5	1°	60	0,3°	16.000	300	0,060	0,120	13.000	200	0,030	0,050	10.000	150	0,030	0,040	10.000	150	0,010	0,015
0,5	1°	70	0,3°	12.000	300	0,060	0,120	13.000	200	0,020	0,050	10.000	150	0,020	0,040	10.000	150	0,010	0,015
0,5	1,5°	8	0,3°	28.000	750	0,075	0,200	25.000	500	0,050	0,100	21.000	300	0,050	0,080	21.000	300	0,050	0,050
0,5	1,5°	10	0,3°	28.000	750	0,075	0,200	25.000	500	0,050	0,100	21.000	300	0,050	0,080	21.000	300	0,050	0,050
0,5	1,5°	12	0,3°	28.000	750	0,075	0,200	25.000	500	0,050	0,100	21.000	300	0,050	0,080	21.000	300	0,050	0,050
0,5	1,5°	16	0,3°	21.000	450	0,075	0,150	19.000	300	0,050	0,100	16.000	200	0,050	0,080	16.000	200	0,050	0,050
0,5	1,5°	20	0,3°	21.000	450	0,075	0,150	19.000	300	0,050	0,100	16.000	200	0,050	0,080	16.000	200	0,050	0,050
0,5	1,5°	25	0,3°	21.000	450	0,075	0,150	19.000	300	0,050	0,100	16.000	200	0,050	0,080	16.000	200	0,050	0,050
0,5	1,5°	30	0,3°	21.000	450	0,075	0,150	19.000	300	0,050	0,100	16.000	200	0,050	0,080	16.000	200	0,050	0,050
0,5	1,5°	35	0,3°	21.000	450	0,075	0,150	17.000	200	0,030	0,050	14.000	150	0,030	0,040	14.000	150	0,010	0,020
0,5	2°	45	0,3°	21.000	450	0,075	0,150	19.000	300	0,050	0,100	16.000	200	0,050	0,080	16.000	200	0,050	0,050
0,6	0,5°	12	0,3°	20.000	450	0,090	0,240	17.000	300	0,060	0,120	14.000	200	0,060	0,100	14.000	200	0,060	0,060
0,6	0,5°	25	0,3°	16.000	300	0,090	0,180	14.000	200	0,060	0,090	11.000	150	0,060	0,070	11.000	150	0,020	0,030
0,6	1°	12	0,3°	20.000	450	0,090	0,240	17.000	300	0,060	0,120	14.000	200	0,060	0,100	14.000	200	0,060	0,060
0,6	1°	25	0,3°	16.000	300	0,090	0,240	14.000	200	0,060	0,090	11.000	150	0,060	0,070	11.000	150	0,020	0,030

WXL-PC-EBD

Regular milling

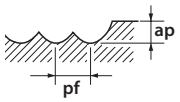
				Cu				~32 HRC				33~41 HRC Hardened steel, pre-hardened steel				42~50 HRC Hardened steel, pre-hardened steel			
R	θ	l2	Cutting angle	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)
0,6	1,5°	12	0,3°	20.000	600	0,090	0,240	17.000	450	0,060	0,120	14.000	300	0,060	0,100	14.000	300	0,060	0,060
0,6	1,5°	25	0,3°	20.000	450	0,090	0,240	17.000	300	0,060	0,120	14.000	200	0,060	0,100	14.000	200	0,060	0,060
0,75	0,5°	8	0,3°	18.000	750	0,140	0,300	15.000	500	0,080	0,150	12.000	350	0,080	0,150	12.000	300	0,080	0,150
0,75	0,5°	10	0,3°	17.000	450	0,140	0,300	15.000	300	0,080	0,150	12.000	250	0,080	0,150	12.000	250	0,080	0,150
0,75	0,5°	12	0,3°	17.000	450	0,120	0,300	15.000	300	0,080	0,150	12.000	250	0,080	0,150	12.000	250	0,080	0,150
0,75	0,5°	16	0,3°	17.000	450	0,120	0,240	15.000	300	0,080	0,120	12.000	250	0,080	0,100	12.000	250	0,075	0,100
0,75	0,5°	20	0,3°	13.000	300	0,120	0,200	12.000	200	0,060	0,100	9.500	150	0,060	0,100	9.500	150	0,050	0,100
0,75	0,5°	25	0,3°	13.000	300	0,120	0,200	12.000	200	0,060	0,100	9.500	150	0,060	0,100	9.500	150	0,050	0,100
0,75	0,5°	30	0,3°	13.000	300	0,120	0,200	12.000	200	0,060	0,100	9.500	150	0,060	0,100	9.500	150	0,035	0,100
0,75	0,5°	35	0,3°	13.000	300	0,090	0,200	12.000	200	0,060	0,100	9.500	150	0,060	0,100	9.500	150	0,030	0,100
0,75	1°	10	0,3°	18.000	750	0,140	0,300	15.000	500	0,080	0,150	12.000	350	0,080	0,150	12.000	300	0,080	0,150
0,75	1°	12	0,3°	17.000	450	0,140	0,300	15.000	300	0,080	0,150	12.000	250	0,080	0,150	12.000	250	0,080	0,150
0,75	1°	16	0,3°	17.000	450	0,120	0,300	15.000	300	0,080	0,150	12.000	250	0,080	0,150	12.000	250	0,080	0,150
0,75	1°	20	0,3°	17.000	450	0,120	0,240	15.000	300	0,080	0,120	12.000	250	0,080	0,100	12.000	250	0,075	0,100
0,75	1°	25	0,3°	17.000	450	0,120	0,240	15.000	300	0,080	0,120	12.000	250	0,080	0,100	12.000	250	0,050	0,100
0,75	1°	30	0,3°	13.000	300	0,090	0,200	12.000	200	0,060	0,100	9.500	150	0,060	0,100	9.500	150	0,030	0,100
0,75	1°	35	0,3°	13.000	300	0,090	0,200	12.000	200	0,060	0,100	9.500	150	0,060	0,100	9.500	150	0,020	0,100
0,75	1,5°	10	0,3°	18.000	750	0,120	0,300	15.000	500	0,080	0,150	12.000	350	0,080	0,150	12.000	300	0,080	0,150
0,75	1,5°	12	0,3°	17.000	450	0,120	0,300	15.000	300	0,080	0,150	12.000	250	0,080	0,150	12.000	250	0,080	0,150
0,75	1,5°	16	0,3°	17.000	450	0,120	0,300	15.000	300	0,080	0,150	12.000	250	0,080	0,150	12.000	250	0,080	0,150
0,75	1,5°	20	0,3°	17.000	450	0,120	0,300	15.000	300	0,080	0,150	12.000	250	0,080	0,150	12.000	250	0,080	0,150
0,75	1,5°	25	0,3°	17.000	450	0,120	0,240	15.000	300	0,080	0,120	12.000	250	0,080	0,100	12.000	250	0,075	0,100
0,75	1,5°	30	0,3°	17.000	450	0,120	0,240	15.000	300	0,080	0,120	12.000	250	0,080	0,100	12.000	250	0,075	0,100
0,75	1,5°	35	0,3°	13.000	300	0,075	0,200	12.000	200	0,060	0,100	9.500	150	0,060	0,100	9.500	150	0,050	0,100
0,75	2°	38,6	0,3°	17.000	450	0,120	0,240	15.000	300	0,080	0,120	12.000	250	0,080	0,100	12.000	250	0,075	0,100
1	0,5°	8	0,3°	16.500	1.050	0,200	0,560	16.500	700	0,100	0,280	13.500	500	0,100	0,280	13.500	500	0,100	0,200
1	0,5°	10	0,3°	16.500	1.050	0,200	0,560	16.500	700	0,100	0,280	13.500	500	0,100	0,280	13.500	500	0,100	0,200
1	0,5°	12	0,3°	16.500	1.050	0,200	0,560	16.500	700	0,100	0,280	13.500	500	0,100	0,280	13.500	500	0,100	0,200
1	0,5°	16	0,3°	14.000	750	0,150	0,560	13.000	500	0,100	0,280	10.000	300	0,100	0,280	10.000	300	0,100	0,200
1	0,5°	20	0,3°	14.000	750	0,150	0,560	13.000	500	0,100	0,280	10.000	300	0,100	0,280	10.000	300	0,100	0,200
1	0,5°	25	0,3°	11.000	375	0,150	0,420	10.000	250	0,100	0,210	8.000	200	0,100	0,180	8.000	200	0,060	0,100
1	0,5°	30	0,3°	11.000	375	0,150	0,420	10.000	250	0,100	0,210	8.000	200	0,100	0,180	8.000	200	0,060	0,100
1	0,5°	35	0,3°	11.000	375	0,150	0,420	10.000	250	0,100	0,210	8.000	200	0,100	0,180	8.000	200	0,060	0,100
1	0,5°	40	0,3°	11.000	375	0,150	0,420	10.000	250	0,100	0,210	8.000	200	0,100	0,180	8.000	200	0,060	0,100
1	1°	16	0,3°	16.500	1.050	0,200	0,560	16.500	700	0,100	0,280	13.500	500	0,100	0,280	13.500	500	0,100	0,200
1	1°	20	0,3°	14.000	750	0,200	0,560	13.000	500	0,100	0,280	10.000	300	0,100	0,280	10.000	300	0,100	0,200
1	1°	25	0,3°	14.000	750	0,150	0,560	13.000	500	0,100	0,280	10.000	300	0,100	0,280	10.000	300	0,100	0,200
1	1°	30	0,3°	11.000	375	0,150	0,420	10.000	250	0,100	0,210	8.000	200	0,100	0,180	8.000	200	0,080	0,100
1	1°	35	0,3°	11.000	375	0,150	0,420	10.000	250	0,100	0,210	8.000	200	0,100	0,180	8.000	200	0,080	0,100
1	1°	40	0,3°	11.000	375	0,150	0,420	10.000	250	0,100	0,210	8.000	200	0,100	0,180	8.000	200	0,060	0,100
1	1°	50	0,3°	11.000	375	0,150	0,420	10.000	250	0,100	0,210	8.000	200	0,100	0,180	8.000	200	0,060	0,100
1	1°	60	0,3°	11.000	375	0,150	0,420	10.000	250	0,100	0,210	8.000	200	0,100	0,180	8.000	200	0,060	0,100
1	1°	70	0,3°	11.000	375	0,150	0,420	10.000	250	0,100	0,210	8.000	200	0,100	0,180	8.000	200	0,060	0,100
1	1,5°	16	0,3°	16.500	1.050	0,200	0,560	16.500	700	0,100	0,280	13.500	500	0,100	0,280	13.500	500	0,100	0,200
1	1,5°	20	0,3°	16.500	1.050	0,200	0,560	16.500	700	0,100	0,280	13.500	500	0,100	0,280	13.500	500	0,100	0,200
1	1,5°	25	0,3°	14.000	750	0,150	0,560	13.000	500	0,100	0,280	10.000	300	0,100	0,280	10.000	300	0,100	0,200
1	1,5°	30	0,3°	14.000	750	0,150	0,560	13.000	500	0,100	0,280	10.000	300	0,100	0,280	10.000	300	0,100	0,200
1	1,5°	35	0,3°	14.000	750	0,150	0,560	13.000	500	0,100	0,280	10.000	300	0,100	0,280	10.000	300	0,100	0,200
1	1,5°	41,5	0,3°	11.000	375	0,150	0,420	10.000	250	0,100	0,210	8.000	200	0,100	0,180	8.000	200	0,060	0,100
1	2°	31,5	0,3°	14.000	750	0,150	0,560	13.000	500	0,100	0,280	10.000	300	0,100	0,280	10.000	300	0,100	0,200
1,5	0,5°	8	0,3°	15.000	1.200	0,200	0,840	9.500	800	0,150	0,420	7.500	600	0,150	0,420	7.500	600	0,150	0,300
1,5	0,5°	10	0,3°	15.000	1.200	0,200	0,840	9.500	800	0,150	0,420	7.500	600	0,150	0,420	7.500	600	0,150	0,300
1,5	0,5°	12	0,3°	12.000	900	0,200	0,840	9.500	600	0,150	0,420	7.500	400	0,150	0,360	7.500	400	0,150	0,300
1,5	0,5°	16	0,3°	10.000	900	0,200	0,840	9.500	600	0,150	0,420	7.500	400	0,150	0,360	7.500	400	0,150	0,300
1,5	0,5°	20	0,3°	10.000	450	0,200	0,840	8.500	300	0,150	0,420	6.500	250	0,150	0,360	6.500	250	0,150	0,300
1,5	0,5°	25	0,3°	10.000	450	0,200	0,840	8.500	300	0,150	0,420	6.500	250	0,150	0,360	6.500	250	0,150	0,300
1,5	0,5°	30	0,3°	10.000	450	0,200	0,840	8.500	300	0,150	0,420	6.500	250	0,150	0,300	6.500	250	0,090	0,150
1,5	0,5°	35	0,3°	10.000	450	0,200	0,840	8.500	300	0,150	0,420	6.500	250	0,150	0,300	6.500	250	0,090	0,150
1,5	0,5°	40	0,3°	9.000	375	0,200	0,840	7.500	250	0,150	0,420	6.000	200	0,150	0,300	6.000	200	0,090	0,150
1,5	0,5°	50	0,3°	9.000	375	0,200	0,840	7.500	250	0,150	0,420	6.000	200	0,150	0,300	6.000	200	0,090	0,150
1,5	1°	20	0,3°	10.000	900	0,200	0,840	9.500	600	0,150	0,420	7.500	400	0,150	0,360	7.500	400	0,150	0,300
1,5	1°	25	0,3°	10.000	450	0,200	0,840	8.500	300	0,150	0,420	6.500	250	0,150	0,360	6.500	250	0,150	0,300
1,5	1°	30	0,3°	10.000	450	0,200	0,840	8.500	300	0,150	0,420	6.500	250	0,150	0,360	6.500	250	0,150	0,300
1,5	1°	35	0,3°	10.000	450	0,200	0,840	8.500	300	0,150	0,420	6.500	250	0,150	0,300	6.500	250	0,090	0,150
1,5	1°	40	0,3°	10.000	450	0,200	0,840	8.500	300	0,150	0,420	6.500	250	0,150	0,300	6.500	250	0,090	0,150
1,5	1°	50	0,3°	9.000	375	0,200	0,840	7.500	250	0,150	0,420	6.000	200	0,150	0,300	6.000	200	0,090	0,150
1,5	1°	60	0,3°	9.000	375	0,200	0,840	7.500	250	0,150	0,420	6.000	200	0,150	0,300	6.000	200	0,090	0,150
1,5	1°	70	0,3°	9.000	375	0,200	0,840	7.500	250	0,150	0,420	6.000	200	0,150	0,300	6.000	200	0,090	0,150
1,5	1,5°	20	0,3°	10.000	900	0,300	0,840	9.500	600	0,150	0,420	7.500	400	0,150	0,360	7.500	400	0,150	0,300
1,5	1,5°	25	0,3°	10.000	450	0,250	0,840	8.500	300	0,150	0,420	6.500	250	0,150	0,360	6.500	250	0,150	0,300
1,5	1,5°	30	0,3°	10.000	450	0,250	0,840	8.500	300	0,150	0,420	6.500	250	0,150	0,360	6.500	250	0,150	0,300
1,5	1,5°	35	0,3°	10.000	450	0,250	0,840	8.500	300	0,150	0,420	6.500	250	0,150	0,360	6.500	250	0,150	0,300
1,5	1,5°	40	0,3°	10.000	450	0,250	0,840	8.500	300	0,150	0,420	6.500	250	0,150	0,360	6.500	250	0,150	0,300
1,5	1,5°	50	0,3°	10.000	450	0,200	0,840	8.500	300	0,150	0,420	6.500	250	0,150	0,300	6.500	250	0,090	0,150
1,5	1,5°	62,5	0,3°	10.000	450	0,200	0,840	8.500	300	0,150	0,420	6.500	250	0,150	0,300	6.500	250	0,090	0,150
1,5	1,5°	47,5	0,3°	10.000	450	0,250	0,840	8.500	300	0,150	0,420	6.500	250	0,150	0,360	6.500	250	0,150	0,300
2	1°	20	0,5°	9.000	900	0,500	1,280	7.500	600	0,200	0,640	6.000	400	0,200	0,600	6.000	400	0,200	0,400
2	1°	30	0,5°	7.000	600	0,500	1,280	6.000	400	0,200	0,640	5.000	250	0,200	0,600	5.000	250	0,200	0,400
2	1°	40	0,5°	7.000	600	0,400	1,280	6.000	400	0,200	0,640	5.000	250	0,200	0,560	5.000	250	0,120	0,300
2	1°	50	0,5°	7.000	600	0,400	1,280	6.000	400	0,200	0,640	5.000	250	0,200	0,560	5.000	250	0,120	0,200
2	1°	60	0,5°	5.000	375	0,350	1,280	5.000	250	0,200	0,640	4.000	200	0,200	0,560	4.000	200	0,120	0,200
2	1,5°	44,2	0,5°	7.000	600	0,500	1,280	6.000	400	0,200	0,640	5.000	250	0,200	0,600	5.000	250	0,200	0,400

WXL-PC-EBD

Regular milling

				Cu				~32 HRC				33~41 HRC Hardened steel, pre-hardened steel				42~50 HRC Hardened steel, pre-hardened steel			
R	θ	l2	Cutting angle	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)
2	2°	34	0,5°	7.000	600	0,500	1,280	6.000	400	0,200	0,640	5.000	250	0,200	0,600	5.000	250	0,200	0,500
2,5	1°	30	0,5°	7.000	750	0,600	1,800	6.500	500	0,250	0,900	5.000	400	0,250	0,700	5.000	400	0,250	0,500
2,5	1°	40	0,5°	6.000	750	0,600	1,800	5.000	500	0,250	0,900	4.000	250	0,250	0,700	4.000	250	0,250	0,500
2,5	1°	60	0,5°	5.000	600	0,400	1,800	4.000	400	0,250	0,900	4.000	200	0,250	0,600	4.000	200	0,200	0,250
2,5	1,5°	26,9	0,5°	9.000	1.350	0,600	1,800	6.500	900	0,250	0,900	5.000	750	0,250	0,700	5.000	750	0,250	0,500
2,5	1,5°	65,1	0,5°	6.000	750	0,600	1,800	5.000	500	0,250	0,900	4.000	250	0,250	0,700	4.000	250	0,250	0,500
2,5	2°	50,1	0,5°	6.000	750	0,600	1,800	5.000	500	0,250	0,900	4.000	250	0,250	0,700	4.000	250	0,250	0,500
3	1°	30	0,5°	7.000	1.200	0,750	2,400	5.500	800	0,300	1,200	4.500	600	0,300	0,960	4.500	600	0,300	0,600
3	1°	40	0,5°	5.000	600	0,750	2,400	4.000	400	0,300	1,200	4.000	300	0,300	0,960	4.000	300	0,300	0,600
3	1°	50	0,5°	5.000	600	0,600	2,400	4.000	400	0,300	1,200	4.000	300	0,300	0,960	4.000	300	0,300	0,600
3	1°	60	0,5°	5.000	600	0,600	2,400	4.000	400	0,300	1,200	4.000	300	0,300	0,960	4.000	300	0,300	0,600
3	1°	70	0,5°	5.000	600	0,600	2,400	4.000	400	0,300	1,200	4.000	300	0,300	0,960	4.000	300	0,300	0,300
3	1°	80	0,5°	5.000	600	0,450	2,400	4.000	400	0,200	1,200	4.000	300	0,200	0,960	4.000	300	0,200	0,300
3	1,5°	49	0,5°	5.000	600	0,600	2,400	4.000	400	0,300	1,200	4.000	300	0,300	0,960	4.000	300	0,300	0,600
3	2°	36	0,5°	7.000	1.200	0,750	2,400	5.500	800	0,300	1,200	4.500	600	0,300	0,960	4.500	600	0,300	0,600

Max cutting depth



1. Highly rigid machines and tool holders should be used. If not, machining should be kept below above-mentioned conditions
2. Tool vibrations should be kept at a minimum level for maximum accuracy.
3. Use a suitable cutting fluid with high smoke retardant properties.
4. For the milling of corners or removal of residue, reduce the cutting depth and feed to 70%..
5. More stable high-feed machining in corners can be attained by setting an R insertion or deceleration on the CAM or machine side.
6. When cutting load fluctuates (in the corners, etc.) or when high precision is required, be sure to control the rotational speed.
7. When cutting at greater than the recommended cutting angle, reduce the feed.
8. When cutting load is fluctuating, or when higher milling accuracy is required, keep machining conditions below the above-mentioned values.
9. When the rotational speed does not meet the recommended conditions, reduce the feed in proportion to the RPM that is suitable for your machine.
10. The chart above is intended as general guidelines for reference only. The given values should be adjusted individually based on actual machining conditions.
11. The cutting conditions are intended for intermediate machining after roughing.
12. When the work includes extensive roughing including flat areas, chattering is more likely to occur.
13. If the cutting depth is shallow, increase the cutting speed appropriately to minimize chattering.

WXL-PC-EBD

High speed milling

				Cu				~32 HRC				33~41 HRC Hardened steel, pre-hardened steel				42~50 HRC Hardened steel, pre-hardened steel			
R	θ	l2	Cutting angle	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)
0.1	0.5°	1	0,3°	50.000	440	0,007	0,010	50.000	360	0,005	0,005	50.000	340	0,005	0,005	50.000	340	0,005	0,005
0,1	0,5°	1,5	0,3°	50.000	440	0,007	0,010	50.000	360	0,005	0,005	50.000	340	0,005	0,005	50.000	340	0,005	0,005
0,1	0,5°	2	0,3°	50.000	360	0,007	0,010	45.000	300	0,005	0,005	45.000	280	0,005	0,005	45.000	280	0,005	0,005
0,1	0,5°	2,5	0,3°	50.000	320	0,007	0,010	38.000	230	0,005	0,005	38.000	210	0,005	0,005	37.000	200	0,005	0,005
0,1	0,5°	3	0,3°	50.000	250	0,007	0,010	38.000	200	0,005	0,005	38.000	180	0,005	0,005	37.000	150	0,003	0,005
0,1	1°	3,5	0,3°	50.000	440	0,007	0,010	50.000	360	0,005	0,005	50.000	340	0,005	0,005	50.000	340	0,005	0,005
0,1	1°	4	0,3°	50.000	360	0,007	0,010	45.000	300	0,005	0,005	45.000	280	0,005	0,005	45.000	280	0,005	0,005
0,1	1°	4,5	0,3°	50.000	320	0,007	0,010	38.000	230	0,005	0,005	38.000	210	0,005	0,005	37.000	200	0,005	0,005
1,5	0,5°	2	0,3°	50.000	730	0,007	0,020	50.000	600	0,005	0,010	50.000	570	0,005	0,010	50.000	570	0,005	0,005
1,5	0,5°	3	0,3°	50.000	580	0,007	0,010	45.000	480	0,005	0,005	45.000	450	0,005	0,005	45.000	450	0,005	0,005
1,5	1°	3	0,3°	50.000	610	0,007	0,020	47.000	510	0,005	0,010	47.000	480	0,005	0,010	47.000	480	0,005	0,005
1,5	1°	4	0,3°	50.000	580	0,007	0,010	45.000	480	0,005	0,005	45.000	450	0,005	0,005	45.000	450	0,005	0,005
0,2	0,5°	2	0,3°	50.000	970	0,015	0,040	50.000	800	0,010	0,020	50.000	760	0,010	0,020	50.000	760	0,010	0,010
0,2	0,5°	3	0,3°	50.000	670	0,012	0,030	45.000	550	0,008	0,015	45.000	520	0,008	0,015	45.000	520	0,008	0,010
0,2	0,5°	4	0,3°	48.000	540	0,007	0,020	43.000	500	0,005	0,010	43.000	470	0,005	0,010	43.000	470	0,005	0,010
0,2	0,5°	5	0,3°	45.000	480	0,007	0,020	40.000	420	0,005	0,010	40.000	400	0,005	0,010	40.000	400	0,005	0,010
0,2	0,5°	6	0,3°	40.000	400	0,007	0,010	36.000	370	0,005	0,005	36.000	350	0,005	0,005	35.000	340	0,005	0,005
0,2	1°	4	0,3°	50.000	670	0,012	0,030	45.000	550	0,008	0,015	45.000	520	0,008	0,015	45.000	520	0,008	0,010
0,2	1°	5	0,3°	48.000	540	0,007	0,020	43.000	500	0,005	0,010	43.000	470	0,005	0,010	43.000	470	0,005	0,010
0,2	1°	6	0,3°	45.000	480	0,007	0,020	40.000	420	0,005	0,010	40.000	400	0,005	0,010	40.000	400	0,005	0,010
0,25	0,5°	4	0,3°	50.000	1.200	0,015	0,040	48.000	900	0,010	0,020	48.000	850	0,010	0,020	48.000	850	0,010	0,015
0,25	0,5°	6	0,3°	38.000	940	0,015	0,020	38.000	500	0,010	0,010	38.000	470	0,010	0,010	38.000	470	0,010	0,010
0,25	0,5°	8	0,3°	30.000	760	0,007	0,020	30.000	400	0,005	0,010	30.000	380	0,005	0,010	29.000	360	0,005	0,010
0,25	0,5°	10	0,3°	30.000	500	0,005	0,020	30.000	400	0,005	0,010	30.000	300	0,005	0,010	29.000	250	0,005	0,010
0,25	1°	4	0,3°	50.000	1.200	0,015	0,040	48.000	900	0,010	0,020	48.000	850	0,010	0,020	48.000	850	0,010	0,010
0,25	1°	6	0,3°	50.000	1.200	0,015	0,040	48.000	900	0,010	0,020	48.000	850	0,010	0,020	48.000	850	0,010	0,010
0,25	1°	8	0,3°	50.000	1.200	0,015	0,040	48.000	900	0,010	0,020	48.000	850	0,010	0,020	48.000	850	0,010	0,010
0,25	1°	10	0,3°	30.000	760	0,007	0,020	30.000	400	0,005	0,010	30.000	380	0,005	0,010	29.000	360	0,005	0,010
0,25	1°	12	0,3°	30.000	760	0,007	0,020	30.000	400	0,005	0,010	30.000	380	0,005	0,010	29.000	360	0,005	0,010
0,3	0,5°	2	0,3°	50.000	1.550	0,030	0,060	50.000	1.200	0,020	0,030	50.000	1.100	0,020	0,030	50.000	1.100	0,020	0,030
0,3	0,5°	4	0,3°	50.000	1.350	0,030	0,060	45.000	1.000	0,020	0,030	45.000	950	0,020	0,030	45.000	950	0,020	0,030
0,3	0,5°	6	0,3°	35.000	960	0,015	0,040	30.000	680	0,010	0,020	30.000	640	0,010	0,020	30.000	640	0,010	0,020
0,3	0,5°	8	0,3°	30.000	720	0,015	0,040	26.000	600	0,010	0,020	26.000	570	0,010	0,020	25.000	540	0,010	0,020
0,3	0,5°	10	0,3°	30.000	500	0,015	0,040	26.000	480	0,010	0,020	26.000	450	0,010	0,020	25.000	380	0,010	0,020
0,3	0,5°	12	0,3°	30.000	500	0,010	0,040	26.000	480	0,007	0,020	26.000	450	0,007	0,020	25.000	380	0,007	0,010
0,3	0,5°	16	0,3°	30.000	400	0,007	0,040	26.000	380	0,005	0,020	26.000	360	0,005	0,020	25.000	300	0,005	0,010
0,3	1°	4	0,3°	50.000	1.350	0,030	0,060	45.000	1.000	0,020	0,030	45.000	950	0,020	0,030	45.000	950	0,020	0,030
0,3	1°	6	0,3°	35.000	960	0,015	0,040	30.000	680	0,010	0,020	30.000	640	0,010	0,020	30.000	640	0,010	0,020
0,3	1°	8	0,3°	35.000	960	0,015	0,040	30.000	680	0,010	0,020	30.000	640	0,010	0,020	30.000	640	0,010	0,020
0,3	1°	10	0,3°	30.000	720	0,015	0,040	26.000	600	0,010	0,020	26.000	570	0,010	0,020	25.000	540	0,010	0,020
0,3	1°	12	0,3°	30.000	720	0,015	0,040	26.000	600	0,010	0,020	26.000	570	0,010	0,020	25.000	540	0,010	0,020
0,3	1°	16	0,3°	30.000	500	0,015	0,040	26.000	480	0,010	0,020	26.000	450	0,010	0,020	25.000	380	0,010	0,020
0,4	0,5°	4	0,3°	50.000	1.750	0,060	0,160	48.000	1.600	0,040	0,080	48.000	1.500	0,040	0,060	48.000	1.500	0,040	0,040
0,4	0,5°	6	0,3°	43.000	1.600	0,045	0,100	34.000	950	0,030	0,050	34.000	900	0,030	0,050	34.000	900	0,020	0,025
0,4	0,5°	8	0,3°	32.000	1.250	0,045	0,100	30.000	800	0,030	0,050	30.000	760	0,030	0,050	30.000	760	0,020	0,025
0,4	0,5°	12	0,3°	24.000	720	0,010	0,040	23.000	450	0,005	0,010	23.000	420	0,005	0,010	23.000	420	0,005	0,025
0,4	1°	8	0,3°	43.000	1.600	0,045	0,100	34.000	950	0,030	0,050	34.000	900	0,030	0,050	34.000	900	0,020	0,025
0,4	1°	12	0,3°	32.000	1.250	0,045	0,100	30.000	800	0,030	0,050	30.000	760	0,030	0,050	30.000	760	0,020	0,025
0,4	1°	16	0,3°	24.000	720	0,010	0,040	23.000	450	0,005	0,010	23.000	420	0,005	0,010	23.000	420	0,005	0,015
0,5	0,5°	6	0,3°	47.000	2.850	0,075	0,200	36.000	2.300	0,050	0,100	36.000	2.100	0,050	0,080	36.000	2.100	0,050	0,050
0,5	0,5°	8	0,3°	30.000	2.350	0,075	0,150	27.000	1.700	0,050	0,100	27.000	1.600	0,050	0,080	27.000	1.600	0,050	0,050
0,5	0,5°	10	0,3°	27.000	2.000	0,075	0,150	26.000	1.600	0,050	0,100	26.000	1.500	0,050	0,080	26.000	1.500	0,050	0,050
0,5	0,5°	12	0,3°	24.000	1.400	0,015	0,040	22.000	1.100	0,010	0,020	22.000	1.000	0,010	0,050	21.000	950	0,010	0,020
0,5	0,5°	16	0,3°	24.000	1.000	0,015	0,040	22.000	770	0,010	0,020	22.000	700	0,010	0,020	21.000	680	0,010	0,020
0,5	0,5°	18	0,3°	24.000	1.000	0,010	0,040	22.000	770	0,007	0,020	22.000	700	0,007	0,020	21.000	680	0,007	0,020
0,5	0,5°	20	0,3°	24.000	1.000	0,010	0,030	22.000	770	0,007	0,015	22.000	700	0,007	0,015	21.000	680	0,007	0,015
0,5	0,5°	25	0,3°	20.000	800	0,010	0,030	18.000	600	0,007	0,015	18.000	480	0,007	0,015	17.000	550	0,007	0,015
0,5	0,5°	30	0,3°	20.000	800	0,007	0,030	18.000	600	0,005	0,015	18.000	480	0,005	0,015	17.000	550	0,005	0,015
0,5	0,5°	35	0,3°	15.000	550	0,005	0,030	14.000	450	0,005	0,010	12.000	400	0,005	0,010	11.000	350	0,005	0,010
0,5	1°	10	0,3°	30.000	2.350	0,075	0,150	27.000	1.700	0,050	0,100	27.000	1.600	0,050	0,050	27.000	1.600	0,050	0,050
0,5	1°	16	0,3°	24.000	1.400	0,015	0,040	22.000	1.100	0,010	0,020	22.000	1.000	0,010	0,020	21.000	950	0,010	0,020
0,5	1°	20	0,3°	24.000	1.000	0,015	0,040	22.000	770	0,010	0,020	22.000	700	0,010	0,020	21.000	680	0,010	0,015
0,5	1°	25	0,3°	24.000	1.000	0,015	0,040	22.000	770	0,010	0,020	22.000	700	0,010	0,020	21.000	680	0,010	0,015
0,5	1°	30	0,3°	24.000	1.000	0,010	0,040	22.000	770	0,007	0,020	22.000	700	0,007	0,020	21.000	680	0,007	0,015
0,5	1°	35	0,3°	24.000	1.000	0,010	0,030	22.000	770	0,007	0,015	22.000	700	0,007	0,015	21.000	680	0,007	0,015
0,5	1°	40	0,3°	22.000	1.000	0,010	0,030	20.000	770	0,007	0,015	20.000	700	0,007	0,015	19.000	680	0,007	0,015
0,5	1°	50	0,3°	20.000	800	0,010	0,030	18.000	600	0,007	0,015	18.000	480	0,007	0,015	17.000	550	0,007	0,010
0,5	1°	60	0,3°	18.000	800	0,007	0,030	16.000	600	0,005	0,015	16.000	480	0,005	0,015	15.000	550	0,005	0,015
0,5	1°	70	0,3°	15.000	600	0,005	0,030	14.000	480	0,005	0,015	13.000	380	0,005	0,015	12.000	450	0,005	0,015
0,5	1,5°	8	0,3°	47.000	2.850	0,075	0,200	36.000	2.300	0,050	0,100	36.000	2.100	0,050	0,080	36.000	2.100	0,050	0,050
0,5	1,5°	10	0,3°	30.000	2.350	0,075	0,150	27.000	1.700	0,050	0,100	27.000	1.600	0,050	0,080	27.000	1.600	0,050	0,050
0,5	1,5°	12	0,3°	30.000	2.350	0,075	0,150	27.000	1.700	0,050	0,100	27.000	1.600	0,050	0,080	27.000	1.600	0,050	0,050
0,5	1,5°	16	0,3°	24.000	1.400	0,015	0,040	22.000	1.100	0,010	0,020	22.000	1.000	0,010	0,020	21.000	950	0,010	0,020
0,5	1,5°	20	0,3°	24.000	1.400	0,015	0,040	22.000	1.100	0,010	0,020	22.000	1.000	0,010	0,020	21.000	950	0,010	0,020
0,5	1,5°	25	0,3°	24.000	1.400	0,015	0,040	22.000	1.100	0,010	0,020	22.000	1.000	0,010	0,020	21.000	950	0,010	0,020
0,5	1,5°	30	0,3°	24.000	1.000	0,015	0,040	22.000	770	0,010	0,020	22.000	700	0,010	0,020	21.000	680	0,010	0,020
0,5	1,5°	35	0,3°	24.000	1.000	0,015	0,040	22.000	770	0,010	0,020	22.000	700	0,010	0,020	21.000	680	0,010	0,020
0,5	2°	45	0,3°	24.000	1.400	0,015	0,040	22.000	1.100	0,010	0,020	22.000	1.000	0,010	0,020	21.000	950	0,010	0,020
0,6	0,5°	12	0,3°	30.000	2.000	0,090	0,210	25.000	1.700	0,060	0,120	25.000	1.600	0,060	0,100	25.000	1.600	0,060	0,060
0,6	0,5°	25	0,3°	24.000	1.000	0,020	0,040	22.000	770	0,015	0,020	22.000	700	0,015	0,020	21.000	680	0,015	0,030
0,6	1°	12	0,3°	30.000	2.200	0,090	0,210	25.000	2.000	0,060	0,120	25.000	2.000	0,060	0,100	25.000	1.900	0,060	0,060
0,6	1°	25	0,3°	30.000	2.000	0,040	0,210	25.000	1.700	0,060	0,090	25.000	1.600	0,060	0,050	25.000	1.600	0,020	0,030

CUTTING CONDITIONS

WXL-PC-EBD

High speed milling



				Cu				~32 HRC				33~41 HRC Hardened steel, pre-hardened steel				42~50 HRC Hardened steel, pre-hardened steel			
R	θ	l2	Cutting angle	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)
0,6	1,5°	12	0,3°	30.000	2.200	0,090	0,210	25.000	2.000	0,060	0,120	25.000	2.000	0,060	0,100	25.000	1.900	0,060	0,060
0,6	1,5°	25	0,3°	30.000	2.000	0,050	0,210	25.000	1.700	0,060	0,120	25.000	1.600	0.06	0.100	25.000	1.600	0.050	0.060
0,75	0,5°	8	0,3°	32.000	3.000	0,120	0,300	30.000	2.900	0,075	0,150	30.000	2.700	0,075	0,120	30.000	2.700	0,075	0,100
0,75	0,5°	10	0,3°	30.000	2.650	0,120	0,300	24.000	2.300	0,075	0,150	24.000	2.100	0,075	0.120	24.000	2.100	0,075	0,100
0,75	0,5°	12	0,3°	30.000	2.400	0,120	0,300	24.000	2.000	0,075	0,150	24.000	1.900	0,075	0.120	24.000	1.900	0,075	0,100
0,75	0,5°	16	0,3°	24.000	1.400	0,120	0,200	21.000	1.400	0,075	0,100	21.000	1.300	0,075	0.090	21.000	1.300	0,050	0,060
0,75	0,5°	20	0,3°	22.000	1.400	0,100	0,200	18.000	1.200	0,050	0,100	18.000	1.100	0,050	0.070	17.000	1.100	0,030	0,030
0,75	0,5°	25	0,3°	22.000	1.100	0,100	0,200	18.000	1.000	0,050	0,100	18.000	900	0,050	0.070	17.000	900	0,020	0,030
0,75	0,5°	30	0,3°	22.000	1.100	0,075	0,200	18.000	1.000	0,035	0,100	18.000	900	0,035	0.070	17.000	900	0,010	0,030
0,75	0,5°	35	0,3°	20.000	1.000	0,050	0,200	17.000	9.000	0,030	0,100	17.000	800	0,030	0.070	15.000	800	0,010	0,030
0,75	1°	10	0,3°	32.000	3.000	0,120	0,300	30.000	2.900	0,075	0,150	30.000	2.700	0,075	0.120	30.000	2.700	0,075	0,100
0,75	1°	12	0,3°	30.000	2.650	0,120	0,300	24.000	2.300	0,075	0,150	24.000	2.100	0,075	0.120	24.000	2.100	0,075	0,100
0,75	1°	16	0,3°	30.000	2.400	0,120	0,300	24.000	2.000	0,075	0,150	24.000	1.900	0,075	0.120	24.000	1.900	0,075	0,100
0,75	1°	20	0,3°	24.000	1.400	0,120	0,200	21.000	1.400	0,075	0,100	21.000	1.300	0,075	0.090	21.000	1.300	0,050	0,060
0,75	1°	25	0,3°	22.000	1.400	0,100	0,200	18.000	1.200	0,050	0,100	18.000	1.100	0,050	0.090	17.000	1.100	0,050	0,060
0,75	1°	30	0,3°	22.000	1.400	0,070	0,200	18.000	1.200	0,050	0,100	18.000	1.100	0,050	0.070	17.000	1.100	0,030	0,030
0,75	1°	35	0,3°	22.000	1.100	0,070	0,200	18.000	1.000	0,050	0,100	18.000	900	0,050	0.070	17.000	900	0,020	0,030
0,75	1,5°	10	0,3°	32.000	3.000	0,120	0,300	30.000	2.900	0,075	0,150	30.000	2.700	0,075	0.120	30.000	2.700	0,075	0,100
0,75	1,5°	12	0,3°	32.000	3.000	0,120	0,300	30.000	2.900	0,075	0,150	30.000	2.700	0,075	0.120	30.000	2.700	0,075	0,100
0,75	1,5°	16	0,3°	30.000	2.400	0,120	0,300	24.000	2.000	0,075	0,150	24.000	1.900	0,075	0.120	24.000	1.900	0,075	0,100
0,75	1,5°	20	0,3°	30.000	2.400	0,120	0,300	24.000	2.000	0,075	0,150	24.000	1.900	0,075	0.120	24.000	1.900	0,080	0,100
0,75	1,5°	25	0,3°	24.000	1.400	0,100	0,200	21.000	1.400	0,075	0,100	21.000	1.300	0,075	0.090	21.000	1.300	0,050	0,060
0,75	1,5°	30	0,3°	24.000	1.400	0,100	0,200	21.000	1.400	0,075	0,100	21.000	1.300	0,075	0.090	21.000	1.300	0,050	0,060
0,75	1,5°	35	0,3°	22.000	1.400	0,050	0,200	18.000	1.200	0,050	0,100	18.000	1.100	0,050	0.070	17.000	1.100	0,020	0,030
0,75	2°	38,6	0,3°	24.000	1.400	0,100	0,200	21.000	1.400	0,075	0,100	21.000	1.300	0,075	0,090	21.000	1.300	0,050	0,060
1	0.5°	8	0.3°	27.000	3.350	0,150	0,400	25.000	2.600	0,100	0,200	25.000	2.400	0,100	0,200	23.000	2.200	0,100	0,200
1	0,5°	10	0,3°	22.000	3.050	0,150	0,400	20.000	2.400	0,100	0,200	20.000	2.200	0,100	0,200	19.000	2.000	0,100	0,200
1	0,5°	12	0,3°	22.000	3.050	0,150	0,400	20.000	2.400	0,100	0,200	20.000	2.200	0,100	0,200	19.000	2.000	0,100	0,200
1	0,5°	16	0,3°	15.000	2.400	0,150	0,300	15.000	1.800	0,100	0,200	15.000	1.700	0,100	0,200	14.000	1.500	0,100	0,200
1	0,5°	20	0,3°	15.000	2.200	0,150	0,200	14.000	1.700	0,100	0,100	14.000	1.600	0,100	0,100	13.000	1.400	0,100	0,100
1	0,5°	25	0,3°	12.000	1.200	0,100	0,200	12.000	1.200	0,050	0,100	11.000	1.100	0,050	0,100	10.000	1.000	0,050	0,100
1	0,5°	30	0,3°	12.000	1.000	0,100	0,200	12.000	1.000	0,050	0,100	11.000	900	0,050	0,100	10.000	800	0,050	0,100
1	0,5°	35	0,3°	12.000	1.000	0,075	0,200	12.000	1.000	0,030	0,100	11.000	900	0,030	0,100	10.000	800	0,030	0,100
1	0,5°	40	0,3°	12.000	800	0,050	0,200	12.000	800	0,020	0,100	11.000	800	0,020	0,100	10.000	700	0,020	0,100
1	1°	16	0,3°	22.000	3.050	0,150	0,400	20.000	2.400	0,100	0,200	20.000	2.200	0,100	0,200	19.000	2.000	0,100	0,200
1	1°	20	0,3°	15.000	2.400	0,150	0,300	15.000	1.800	0,100	0,200	15.000	1.700	0,100	0,200	14.000	1.500	0,100	0,200
1	1°	25	0,3°	15.000	2.200	0,150	0,200	14.000	1.700	0,100	0,100	14.000	1.600	0,100	0,100	13.000	1.400	0,100	0,100
1	1°	30	0,3°	14.000	2.200	0,150	0,200	14.000	1.700	0,100	0,100	14.000	1.600	0,100	0,100	13.000	1.400	0,070	0,100
1	1°	35	0,3°	12.000	1.200	0,100	0,200	12.000	1.200	0,050	0,100	11.000	1.100	0,050	0,100	10.000	1.000	0,050	0,100
1	1°	40	0,3°	12.000	1.000	0,100	0,200	12.000	1.000	0,050	0,100	11.000	900	0,050	0,100	10.000	800	0,050	0,100
1	1°	50	0,3°	12.000	1.000	0,075	0,200	12.000	1.000	0,030	0,100	11.000	900	0,030	0,100	10.000	800	0,030	0,100
1	1°	60	0,3°	12.000	800	0,050	0,200	12.000	800	0,020	0,100	11.000	800	0,020	0,100	10.000	700	0,020	0,100
1	1°	70	0,3°	12.000	800	0,030	0,100	12.000	800	0,010	0,050	11.000	800	0,010	0,050	10.000	700	0,010	0,050
1	1,5°	16	0,3°	22.000	3.050	0,200	0,400	20.000	2.400	0,100	0,200	20.000	2.200	0,100	0,200	19.000	2.000	0,100	0,200
1	1,5°	20	0,3°	22.000	3.050	0,200	0,400	20.000	2.400	0,100	0,200	20.000	2.200	0,100	0,200	19.000	2.000	0,100	0,200
1	1,5°	25	0,3°	15.000	2.400	0,150	0,300	15.000	1.800	0,100	0,200	15.000	1.700	0,100	0,200	14.000	1.500	0,100	0,200
1	1,5°	30	0,3°	15.000	2.200	0,150	0,200	14.000	1.700	0,100	0,100	14.000	1.600	0,100	0,100	13.000	1.400	0,100	0,100
1	1,5°	35	0,3°	15.000	2.200	0,150	0,200	14.000	1.700	0,100	0,100	14.000	1.600	0,100	0,100	13.000	1.400	0,100	0,100
1	1,5°	41,5	0,3°	12.000	1.200	0,100	0,200	12.000	1.200	0,050	0,100	11.000	1.100	0,050	0,100	10.000	1.000	0,050	0,100
1	2°	31,5	0,3°	15.000	2.400	0,150	0,300	15.000	1.800	0,100	0,200	15.000	1.700	0,100	0,200	14.000	1.500	0,100	0,200
1,5	0,5°	8	0,3°	32.000	4.600	0,200	0,600	30.000	4.500	0,150	0,300	30.000	4.200	0,150	0,300	25.000	3.500	0,150	0,300
1,5	0,5°	10	0,3°	28.000	4.000	0,200	0,600	25.000	3.800	0,150	0,300	25.000	3.600	0,150	0,300	20.000	2.800	0,150	0,300
1,5	0,5°	12	0,3°	28.000	4.000	0,200	0,600	25.000	3.800	0,150	0,300	25.000	3.600	0,150	0,300	20.000	2.800	0,150	0,300
1,5	0,5°	16	0,3°	22.000	2.900	0,200	0,600	18.000	2.700	0,150	0,300	18.000	2.500	0,150	0,300	15.000	2.000	0,150	0,300
1,5	0,5°	20	0,3°	20.000	2.600	0,150	0,400	16.000	2.000	0,100	0,200	16.000	1.900	0,100	0,200	13.000	1.500	0,100	0,200
1,5	0,5°	25	0,3°	16.000	2.200	0,150	0,400	14.000	1.800	0,100	0,200	14.000	1.700	0,100	0,200	11.000	1.300	0,100	0,200
1,5	0,5°	30	0,3°	16.000	1.800	0,125	0,200	12.000	1.200	0,050	0,100	12.000	1.100	0,050	0,100	9.000	820	0,050	0,100
1,5	0,5°	35	0,3°	12.000	1.000	0,075	0,100	10.000	800	0,030	0,050	9.000	760	0,030	0,050	7.800	590	0,030	0,050
1,5	0,5°	40	0,3°	12.000	800	0,075	0,100	10.000	600	0,030	0,050	9.000	600	0,030	0,050	7.800	480	0,030	0,050
1,5	0,5°	50	0,3°	10.000	650	0,050	0,100	8.000	500	0,020	0,050	7.500	500	0,020	0,050	6.200	400	0,020	0,050
1,5	1°	20	0,3°	22.000	2.900	0,200	0,600	18.000	2.700	0,150	0,300	18.000	2.500	0,150	0,300	15.000	2.000	0,150	0,300
1,5	1°	25	0,3°	20.000	2.600	0,200	0,400	16.000	2.000	0,100	0,200	16.000	1.900	0,100	0,200	13.000	1.500	0,100	0,200
1,5	1°	30	0,3°	16.000	2.200	0,200	0,400	14.000	1.800	0,100	0,200	14.000	1.700	0,100	0,200	11.000	1.300	0,100	0,200
1,5	1°	35	0,3°	16.000	1.800	0,125	0,200	12.000	1.200	0,050	0,100	12.000	1.100	0,050	0,100	9.000	820	0,050	0,100
1,5	1°	40	0,3°	16.000	1.800	0,125	0,200	12.000	1.200	0,050	0,100	12.000	1.100	0,050	0,100	9.000	820	0,050	0,100
1,5	1°	50	0,3°	12.000	1.000	0,075	0,100	10.000	800	0,030	0,050	9.000	760	0,030	0,050	7.800	590	0,030	0,050
1,5	1°	60	0,3°	12.000	800	0,075	0,100	10.000	600	0,030	0,050	9.000	600	0,030	0,050	7.800	480	0,030	0,050
1,5	1°	70	0,3°	10.000	650	0,050	0,100	8.000	500	0,020	0,050	7.500	500	0,020	0,050	6.200	400	0,020	0,050
1,5	1,5°	20	0,3°	22.000	2.900	0,250	0,600	18.000	2.700	0,150	0,300	18.000	2.500	0,150	0,300	15.000	2.000	0,150	0,300
1,5	1,5°	25	0,3°	20.000	2.600	0,200	0,400	16.000	2.000	0,100	0,200	16.000	1.900	0,100	0,200	13.000	1.500	0,100	0,200
1,5	1,5°	30	0,3°	20.000	2.600	0,200	0,400	16.000	2.000	0,100	0,200	16.000	1.900	0,100	0,200	13.000	1.500	0,100	0,200
1,5	1,5°	35	0,3°	16.000	2.200	0,200	0,400	14.000	1.800	0,100	0,200	14.000	1.700	0,100	0,200	11.000	1.300	0,100	0,200
1,5	1,5°	40	0,3°	16.000	2.200	0,200	0,400	14.000	1.800	0,100	0,200	14.000	1.700	0,100	0,200	11.000	1.300	0,100	0,200
1,5	1,5°	50	0,3°	16.000	1.800	0,125	0,200	12.000	1.200	0,050	0,100	12.000	1.100	0,050	0,100	9.000	820	0,050	0,100
1,5	1,5°	62,5	0,3°	12.000	1.000	0,075	0,100	10.000	800	0,030	0,050	9.000	760	0,030	0,050	7.800	590	0,030	0,050
1,5	1,5°	47,5	0,3°	16.000	2.200	0,250	0,400	14.000	1.800	0,100	0,200	14.000	1.700	0,100	0,200	11.000	1.300	0,100	0,200
2	1°	20	0,5°	20.000	3.450	0,400	0,600	18.000	3.200	0,200	0,500	18.000	3.000	0,200	0,500	14.000	2.300	0,200	0,400
2	1°	30	0,5°	18.000	3.000	0,400	0,500	16.000	2.800	0,200	0,400	16.000	2.600	0,200	0,400	12.000	1.900	0,200	0,400
2	1°	40	0,5°	18.000	3.000	0,250	0,600	16.000	2.800	0,100	0,300	16.000	2.600	0,100	0,300	12.000	1.900	0,100	0,300
2	1°	50	0,5°	14.000	2.200	0,250	0,400	12.000	1.800	0,100	0,200	12.000	1.700	0,100	0,200	9.000	1.700	0,100	0,200
2	1°	60	0,5°	16.000	1.800	0,125	0,200	12.000	1.200	0,050	0,100	12.000	1.100	0,050	0,100	9.000	820	0,050	0,100

CUTTING CONDITIONS

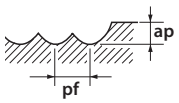
Milling | Endmills | Cutting conditions

WXL-PC-EBD

High speed milling

				Cu				~32 HRC				33~41 HRC Hardened steel, pre-hardened steel				42~50 HRC Hardened steel, pre-hardened steel			
R	θ	l2	Cutting angle	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)
2	1,5°	44,2	0,5°	18.000	3.000	0,250	0,600	16.000	2.800	0,100	0,300	16.000	2.600	0,100	0,300	12.000	1.900	0,100	0,300
2	2°	34	0,5°	20.000	3.450	0,400	0,600	18.000	3.200	0,200	0,500	18.000	3.000	0,200	0,500	14.000	2.300	0,200	0,500
2,5	1°	30	0,5°	20.000	3.400	0,400	0,750	15.000	3.200	0,200	0,300	15.000	3.000	0,200	0,300	12.000	2.400	0,200	0,300
2,5	1°	40	0,5°	16.000	2.900	0,250	0,750	14.000	2.500	0,100	0,300	14.000	2.300	0,100	0,300	11.000	1.800	0,100	0,300
2,5	1°	60	0,5°	12.000	1.800	0,250	0,500	10.000	1.200	0,100	0,200	10.000	1.100	0,100	0,200	8.000	880	0,100	0,200
2,5	1,5°	26,9	0,5°	18.000	3.800	0,500	1,250	16.000	3.500	0,250	0,500	16.000	3.300	0,250	0,500	12.000	2.400	0,250	0,500
2,5	1,5°	65,1	0,5°	14.000	2.200	0,250	0,750	12.000	1.600	0,100	0,300	12.000	1.500	0,100	0,300	9.000	1.100	0,100	0,300
2,5	2°	50,1	0,5°	16.000	2.900	0,250	0,750	14.000	2.500	0,100	0,300	14.000	2.300	0,100	0,300	11.000	1.800	0,100	0,300
3	1°	30	0,5°	14.000	4.000	0,600	1,250	12.000	3.200	0,300	0,500	12.000	3.000	0,300	0,500	9.000	2.250	0,300	0,500
3	1°	40	0,5°	10.000	3.200	0,600	1,250	10.000	2.600	0,300	0,500	10.000	2.400	0,300	0,500	8.000	1.900	0,300	0,500
3	1°	50	0,5°	9.000	3.000	0,400	1,000	9.000	2.300	0,200	0,400	9.000	2.100	0,200	0,400	7.000	1.600	0,200	0,400
3	1°	60	0,5°	9.000	2.800	0,400	0,750	9.000	2.000	0,200	0,300	9.000	1.900	0,200	0,300	7.000	1.400	0,200	0,300
3	1°	70	0,5°	7.000	2.300	0,400	0,750	7.000	1.600	0,200	0,300	7.000	1.500	0,200	0,300	5.500	1.100	0,200	0,300
3	1°	80	0,5°	6.000	2.000	0,300	0,750	6.000	1.300	0,150	0,300	6.000	1.200	0,150	0,300	5.000	900	0,150	0,300
3	1,5°	49	0,5°	10.000	3.200	0,600	1,250	10.000	2.600	0,300	0,500	10.000	2.400	0,300	0,500	8.000	1.900	0,300	0,500
3	2°	36	0,5°	14.000	4.000	0,600	1,250	12.000	3.200	0.300	0.500	12.000	3.000	0.300	0.500	9.000	2.250	0.300	0.500

Max cutting depth



1. Highly rigid machines and tool holders should be used. If not, machining should be kept below above-mentioned conditions
2. Tool vibrations should be kept at a minimum level for maximum accuracy.
3. Use a suitable cutting fluid with high smoke retardant properties.
4. For the milling of corners or removal of residue, reduce the cutting depth and feed to 70%..
5. More stable high-feed machining in corners can be attained by setting an R insertion or deceleration on the CAM or machine side.
6. When cutting load fluctuates (in the corners, etc.) or when high precision is required, be sure to control the rotational speed.
7. When cutting at greater than the recommended cutting angle, reduce the feed.
8. When cutting load is fluctuating, or when higher milling accuracy is required, keep machining conditions below the above-mentioned values.
9. When the rotational speed does not meet the recommended conditions, reduce the feed in proportion to the RPM that is suitable for your machine.
10. The chart above is intended as general guidelines for reference only. The given values should beadjusted individually based on actual machining conditions.
11. The cutting conditions are intended for intermediate machining after roughing.
12. When the work includes extensive roughing including flat areas, chattering is more likely to occur.
13. If the cutting depth is shallow, increase the cutting speed appropriately to minimize chattering.

AM-CRE

Radius type

	Prehardened Steel • Hardened Steel ~45HRC		Hardened Steel ~65HRC		Stainless Steel ≤200HB		Cobalt Chronium Based Alloy (Stellite)		Titanium Alloy		Ni based Alloy (Inconel 718)	
Vc	50~70m/min		40~60m/min		60~80m/min		50~70m/min		40~60m/min		20~40m/min	
Ø	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)
6xR1,5	3.200	960	2.700	800	3.700	1.120	3.200	960	2.700	800	1.600	480
8xR2	2.400	720	2.000	600	2.800	840	2.400	720	2.000	600	1.200	360
10xR2	1.900	920	1.600	760	2.200	1.070	1.900	920	1.600	760	960	460
12xR2	1.600	1.270	1.300	1.060	1.900	1.490	1.600	1.270	1.300	1.060	800	640
16xR3	1.200	1.430	1.000	1.190	1.400	1.670	1.200	1.430	1.000	1.190	600	720
20xR3	1.000	1.530	800	1.270	1.100	1.780	1.000	1.530	800	1.270	480	760

Depth of cut

ae	ap
Max:0,5mm	Max:0,5mm

1. This tool is recommended for the roughing of additive manufacturing and mold overlay surfaces.
2. Please use machines and holders that are rigid and highly accurate.
3. The values listed above are for reference. Please set the cutting condition in accordance with the actual machining environment.
4. Please reduce the feed rate when the depth of cut is greater than specified.
5. Please adjust the speed, feed and depth of cut accordingly when the overhang length is longer than specified.
6. Please use a suitable fluid with high smoke retardant properties.
7. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.
8. Please use water-soluble coolant when machining stainless steel, cobalt-chromium based alloy, titanium alloy, and Ni-based alloy.
9. Tool runout should be kept to a minimum for maximum accuracy.
10. When the cutting load fluctuates in areas such as the corners, please reduce the rotational speed.

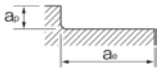
AM-HFC

High Feed Radius type

Frontal Milling

	Prehardened Steel • Hardened Steel ~45HRC		Hardened Steel ~62HRC		Hardened Steel ~70HRC		Stainless Steel ≤200HB		Cobalt Chromium Based Alloy (Stellite)		Titanium Alloy		Ni based Alloy (Inconel 718)	
Vc	90~110m/min		70~90m/min		50~70m/min		100~120m/min		90~110m/min		70~90m/min		30~50m/min	
DC x rt	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
4 × R0,5	7.960	5.730	6.370	4.590	4.780	1.720	8.760	6.310	7.960	5.730	6.370	4.590	3.180	760
5 × R0,6	6.370	5.730	5.100	4.590	3.820	1.720	7.010	6.310	6.370	5.730	5.100	4.590	2.550	770
6 × R0,8	5.310	5.730	4.250	4.590	3.180	1.720	5.840	6.310	5.310	5.730	4.250	4.590	2.120	760
8 × R1	3.980	5.730	3.180	4.580	2.390	1.720	4.380	6.310	3.980	5.730	3.180	4.580	1.590	760
10 × R1,2	3.180	5.720	2.550	4.590	1.910	1.720	3.500	6.300	3.180	5.720	2.550	4.590	1.270	760
12 × R1,5	2.650	5.720	2.120	4.580	1.590	1.720	2.920	6.310	2.650	5.720	2.120	4.580	1.060	760

Depth of cut



ae	ap
Max: 0,5D	Max: 0,04D

If the pick amount is 0.5 x D or more, cusp may occur on the machined surface.

During machining, please program the milling paths according to the recommended simulated R (rt) respective to the individual end mill diameter.

AM-HFC

High Feed Radius type

Side Milling

	Prehardened Steel • Hardened Steel ~45HRC		Hardened Steel ~62HRC		Hardened Steel ~70HRC		Stainless Steel ≤200HB		Cobalt Chromium Based Alloy (Stellite)		Titanium Alloy		Ni based Alloy (Inconel 718)	
Vc	80~100m/min		50~70m/min		30~50m/min		90~110m/min		80~100m/min		50~70m/min		20~40m/min	
DC x rt	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
4 × R0,5	7.170	1.200	4.780	570	3.180	230	7.960	1.340	7.170	1.200	4.780	570	2.390	230
5 × R0,6	5.730	1.200	3.820	570	2.550	230	6.370	1.340	5.730	1.200	3.820	570	1.910	230
6 × R0,8	4.780	1.200	3.180	570	2.120	230	5.310	1.340	4.780	1.200	3.180	570	1.590	230
8 × R1	3.580	1.720	2.390	800	1.590	380	3.980	1.910	3.580	1.720	2.390	800	1.190	230
10 × R1,2	2.870	1.720	1.910	800	1.270	380	3.180	1.910	2.870	1.720	1.910	800	960	230
12 × R1,5	2.390	1.720	1.590	800	1.060	380	2.650	1.910	2.390	1.720	1.590	800	800	230

Depth of cut

ae	ap
Max: 0,05D	Max: 1,5D

ae	ap
Max: 0,02D	Max: 1,5D

ae	ap
Max: 0,02D	Max: 1D

ae	ap
Max: 0,05D	Max: 1,5D

ae	ap
Max: 0,02D	Max: 1,5D

1. This tool is recommended for the roughing of additive manufacturing and mold overlay surfaces.
2.Please use machines and holders that are rigid and highly accurate.
3. The values listed above are for reference. Please set the cutting condition in accordance with the actual machining environment.
4. Please reduce the feed rate when the depth of cut is greater than specified.
5. The above table is a guide when the amount of protrusion of the tool is 4 x D or less. If the amount of protrusion is large, chattering is likely to occur, so adjust the rotation speed, feed rate and depth of cut with reference to the coefficients.
6. Please use a suitable fluid with high smoke retardant properties.
7. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.
8. Please use water-soluble coolant when machining stainless steel, cobalt-chromium alloy, titanium alloy, and Ni-based alloy.
9.Tool runout should be kept to a minimum for maximum accuracy.
10. When the cutting load fluctuates in areas such as the corners, please reduce the rotational speed.

Tool extension coefficients

Overhang Length	Cutting Speed	ap	fz
L/D ≤ 4	100%	100%	100%
4 < L/D ≤ 5	90%	75%	80%
5 < L/D ≤ 6	80%	50%	60%

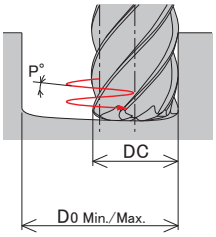
CUTTING CONDITIONS

AM-HFC

High Feed Radius type Maximum Ramping Angle (E°)

DC x rt	Ramping Angle E°	Helical Milling (mm) D0 Min.	Helical Milling (mm) D0 Max.	Helical Angle P°
4×R0,5	3°	6	7	1,5°
5×R0,6	3°	7,5	9	1,5°
6×R0,8	3°	9	11	1,5°
8×R1	3°	12	15	1,5°
10×R1,2	3°	15	19	1,5°
12×R1,5	3°	18	23	1,5°

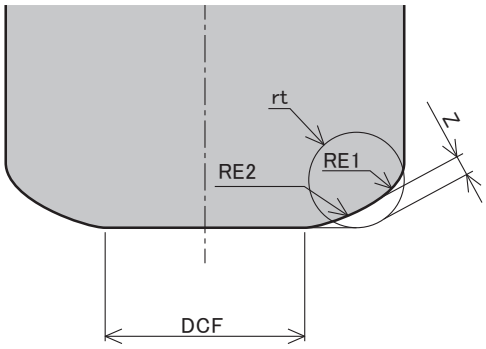




Edge shape definitions for the purpose of creating a program

DC	rt	Remainder Z
4	R0,5	0,11
5	R0,6	0,15
6	R0,8	0,17
8	R1	0,22
10	R1,2	0,31
12	R1,5	0,36

During machining, please program the milling paths according to the recommended simulated R (rt) respective to the individual end mill diameter.



AM-EBT

Ball type

	Prehardened Steel • Hardened Steel ~45HRC		Hardened Steel ~65HRC		Stainless Steel ≤200HB		Cobalt Chronium Based Alloy (Stellite)		Titanium Alloy		Ni based Alloy (Inconel 718)	
Vc	50~70m/min		40~60m/min		60~80m/min		50~70m/min		40~60m/min		20~40m/min	
R	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
3	3.200	960	2.700	800	3.700	1.120	3.200	960	2.700	800	1.600	480
4	2.400	860	2.000	720	2.800	1.000	2.400	860	2.000	720	1.200	430
5	1.900	860	1.600	720	2.200	1.000	1.900	860	1.600	720	960	430
6	1.600	960	1.300	800	1.900	1.120	1.600	960	1.300	800	800	480
8	1.200	790	1.000	660	1.400	920	1.200	790	1.000	660	600	390
10	1.000	720	800	600	1.100	840	1.000	720	800	600	480	360
Depth of cut	Dc: R≤6 ap: Max:0,15D; 8≤R Max:3mm; pf: 0,05D											

1. This tool is recommended for the roughing of additive manufacturing and mold overlay surfaces.
2. Please use machines and holders that are rigid and highly accurate.
3. The values listed above are for reference. Please set the cutting condition in accordance with the actual machining environment.
4. Please adjust the speed, feed and depth of cut accordingly when the overhang length is longer than specified.
5. Please use a suitable fluid with high smoke retardant properties.
6. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.
7. Please use water-soluble coolant when machining stainless steel, cobalt-chromium based alloy, titanium alloy, and Ni-based alloy.
8. Tool runout should be kept to a minimum for maximum accuracy.
9. When the cutting load fluctuates in areas such as the corners, please reduce the rotational speed.

PHX-LN-CRE

Rib groove milling & Contour line finish milling



			Slotting CENA1 · STAVAX · HPM38 · SKD61 42~55HRC				Contour offset CENA1 · STAVAX · HPM38 · SKD61 42~55HRC				Contour line finish milling CENA1 · STAVAX · HPM38 · SKD61 42~55HRC		
Ø	R	l2	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)	S (min^{-1})	F (mm/min)	ae (mm)
0,8	0,1	2	18,000	720	0,020	0,200	18,000	930	0,020	0,200	18,000	1,150	0,015
0,8	0,1	4	18,000	720	0,020	0,200	18,000	930	0,020	0,200	18,000	1,150	0,015
0,8	0,1	6	18,000	720	0,020	0,200	18,000	930	0,020	0,200	18,000	1,150	0,015
0,8	0,1	8	15,000	540	0,013	0,200	15,000	630	0,013	0,200	16,000	700	0,013
1	0,1	4	18,000	830	0,030	0,230	18,000	880	0,030	0,230	18,000	1,440	0,015
1	0,1	6	18,000	830	0,024	0,230	18,000	880	0,024	0,230	18,000	1,440	0,015
1	0,1	8	15,000	750	0,013	0,230	15,000	800	0,013	0,230	15,000	1,200	0,015
1	0,1	10	12,000	300	0,007	0,200	12,000	400	0,007	0,200	12,000	960	0,015
1	0,1	12	10,500	220	0,006	0,180	10,500	288	0,006	0,180	10,500	840	0,015
1	0,2	4	18,000	830	0,030	0,230	18,000	880	0,030	0,230	18,000	1,440	0,018
1	0,2	6	18,000	830	0,024	0,230	18,000	880	0,024	0,230	18,000	1,440	0,018
1	0,2	8	15,000	750	0,013	0,230	15,000	800	0,013	0,230	15,000	1,200	0,018
1	0,2	10	12,000	300	0,007	0,200	12,000	400	0,007	0,200	12,000	960	0,018
1	0,2	12	10,500	220	0,006	0,180	10,500	290	0,006	0,180	10,500	840	0,018
1	0,3	4	18,000	830	0,030	0,230	18,000	1,000	0,030	0,230	18,000	1,440	0,022
1	0,3	6	18,000	830	0,024	0,230	18,000	890	0,024	0,230	18,000	1,440	0,022
1,5	0,1	4	16,000	1,230	0,030	0,340	16,000	1,300	0,030	0,340	18,000	1,620	0,015
1,5	0,1	8	16,000	1,230	0,026	0,340	16,000	1,300	0,026	0,340	18,000	1,620	0,015
1,5	0,1	12	10,000	480	0,013	0,300	10,000	750	0,013	0,300	10,000	900	0,015
1,5	0,2	4	16,000	1,230	0,030	0,340	16,000	1,300	0,030	0,340	18,000	1,620	0,018
1,5	0,2	6	16,000	1,230	0,029	0,340	16,000	1,300	0,029	0,340	18,000	1,620	0,018
1,5	0,2	8	16,000	1,230	0,026	0,340	16,000	1,300	0,026	0,340	18,000	1,620	0,018
2	0,1	8	12,000	1,300	0,030	0,460	12,000	1,760	0,030	0,460	18,000	1,620	0,015
2	0,1	10	12,000	1,200	0,030	0,460	12,000	1,620	0,030	0,460	15,000	1,350	0,015
2	0,1	12	12,000	1,150	0,024	0,460	12,000	1,320	0,024	0,460	13,000	1,170	0,015
2	0,1	16	7,600	780	0,012	0,460	7,600	750	0,012	0,460	7,000	630	0,015
2	0,3	8	12,000	1,300	0,050	0,460	12,000	1,620	0,050	0,460	18,000	1,620	0,022
2	0,3	12	12,000	1,150	0,040	0,460	12,000	1,320	0,040	0,460	13,000	1,170	0,022
2	0,5	6	12,000	1,300	0,080	0,450	12,000	1,760	0,080	0,450	18,000	1,620	0,025
2	0,5	8	12,000	1,300	0,075	0,450	12,000	1,760	0,075	0,450	18,000	1,620	0,025
2	0,5	10	12,000	1,200	0,070	0,450	12,000	1,620	0,070	0,450	15,000	1,350	0,025
2	0,5	12	12,000	1,150	0,060	0,450	12,000	1,320	0,060	0,450	13,000	1,170	0,025
3	0,3	12	8,000	1,200	0,046	0,700	8,000	1,400	0,046	0,700	13,000	1,170	0,022

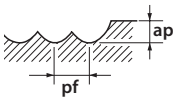
PHX-LN-DBT

Vibration control



			High feed roughing ~40HRC SKT4 • SKD61 • NAK80 • HPM1 • DH** SCM • S40C~S60C • CoCrMo 42~55HRC				Semi-roughing 40~60HRC DH** • DAC** • ZHD** • SKD61 • SKD11 • Ti-6Al-4V(H) • CoCr • SKT4 • NAK80 • HPM** • SCM** 42~55HRC				Slotting ~60HRC DH** • DAC** • ZHD** • SKD61 • SKD11 • Ti-6Al-4V(H) • CoCr • SKT4 • NAK80 • HPM** • SCM**				Finishing ~60HRC DH** • DAC** • ZHD** • SKD61 • SKD11 • Ti-6Al-4V(H) • CoCr • SKT4 • NAK80 • HPM** • SCM**				
R	l1	Angle	S (min-1)	F (mm/min)	ap (mm)	Pf (mm)	S (min-1)	F (mm/min)	ap (mm)	Pf (mm)	S (min-1)	F (mm/min)	ap (min-1)	Last pitch*1	S (min-1)	F (mm/min)	ap (mm)	Pf (mm)	Clearance (mm)
0,3	1	0,3°	18.000	1.200	0,060	0,140	18.000	1.000	0,050	0,100	18.000	300	0,050	0,050	18.000	700	0,018	0,018	0,03
0,3	2	0,3°	18.000	1.000	0,050	0,120	18.000	850	0,040	0,100	18.000	255	0,040	0,050	18.000	700	0,018	0,018	0,03
0,3	3	0,3°	18.000	850	0,040	0,120	18.000	700	0,030	0,080	18.000	210	0,030	0,040	18.000	700	0,018	0,018	0,025
0,3	4	0,3°	18.000	700	0,030	0,100	18.000	600	0,025	0,080	18.000	180	0,025	0,040	18.000	700	0,018	0,018	0,02
0,3	6	0,3°	18.000	500	0,020	0,090	16.000	400	0,020	0,060	16.000	120	0,020	0,030	16.000	620	0,018	0,018	0,01
0,5	4	0,3°	18.000	1.200	0,080	0,200	18.000	1.100	0,070	0,160	18.000	330	0,070	0,070	18.000	900	0,030	0,030	0,05
0,5	6	0,3°	18.000	1.000	0,050	0,160	18.000	900	0,050	0,160	18.000	270	0,050	0,070	18.000	900	0,030	0,030	0,05
0,5	8	0,3°	16.000	800	0,040	0,160	16.000	700	0,040	0,160	16.000	210	0,040	0,050	16.000	720	0,030	0,030	0,03
0,5	10	0,3°	12.000	650	0,040	0,160	10.000	550	0,030	0,150	10.000	160	0,030	0,050	12.000	540	0,030	0,030	0,03
0,5	12	0,3°	8.000	420	0,030	0,150	8.000	420	0,030	0,150	-	-	-	-	8.000	360	0,030	0,030	0,02
0,5	14	0,3°	7.000	350	0,020	0,130	7.000	350	0,020	0,130	-	-	-	-	7.000	320	0,030	0,030	0,02
0,5	16	0,3°	6.000	260	0,010	0,100	6.000	260	0,010	0,100	-	-	-	-	6.000	270	0,020	0,020	0,01
0,75	6	0,3°	18.000	1.500	0,100	0,300	16.000	1.300	0,100	0,230	16.000	390	0,100	0,100	18.000	1.100	0,040	0,040	0,05
0,75	8	0,3°	16.000	1.300	0,080	0,300	16.000	1.150	0,080	0,230	16.000	340	0,080	0,100	16.000	960	0,040	0,040	0,05
0,75	10	0,3°	15.000	1.100	0,060	0,250	15.000	950	0,060	0,230	15.000	280	0,060	0,100	15.000	900	0,040	0,040	0,03
0,75	12	0,3°	10.000	700	0,040	0,200	10.000	600	0,030	0,200	10.000	180	0,030	0,100	10.000	600	0,040	0,040	0,02
0,75	16	0,3°	7.500	400	0,025	0,150	7.500	400	0,020	0,150	7.500	120	0,020	0,070	10.000	600	0,040	0,040	0,01
1	6	0,3°	18.000	1.600	0,200	0,600	15.000	1.400	0,200	0,300	15.000	420	0,200	0,100	15.000	1.800	0,060	0,050	0,1
1	8	0,3°	14.000	1.400	0,180	0,500	14.000	1.200	0,150	0,300	14.000	360	0,150	0,100	12.000	1.500	0,060	0,050	0,07
1	10	0,3°	12.000	1.250	0,160	0,400	12.000	1.100	0,120	0,300	12.000	330	0,120	0,100	12.000	1.500	0,060	0,050	0,07
1	12	0,3°	10.000	1.050	0,140	0,400	10.000	900	0,100	0,300	10.000	300	0,100	0,100	10.000	1.200	0,060	0,050	0,07
1	14	0,3°	8.000	850	0,120	0,350	8.000	700	0,080	0,300	8.000	240	0,080	0,100	8.000	1.000	0,060	0,050	0,05
1	16	0,3°	7.500	780	0,120	0,400	7.500	650	0,070	0,250	7.500	260	0,070	0,070	7.500	950	0,060	0,050	0,03
1	18	0,3°	6.800	700	0,100	0,400	6.800	630	0,060	0,200	6.800	250	0,060	0,070	6.800	700	0,060	0,050	0,03
1	20	0,3°	6.200	650	0,100	0,400	6.200	600	0,050	0,200	6.200	240	0,050	0,050	6.200	600	0,060	0,050	0,02
1	22	0,3°	6.000	600	0,080	0,300	6.000	450	0,050	0,150	6.000	180	0,050	0,050	6.000	550	0,060	0,050	0,02
1,5	12	0,3°	12.000	1.700	0,300	0,700	8.000	1.200	0,250	0,500	8.000	480	0,250	0,150	11.000	2.050	0,090	0,080	0,1
1,5	16	0,3°	10.000	1.550	0,250	0,700	8.000	1.200	0,200	0,500	8.000	480	0,200	0,150	10.000	1.900	0,090	0,080	0,07
1,5	20	0,3°	7.500	1.150	0,200	0,600	7.200	1.100	0,200	0,500	7.200	440	0,200	0,150	7.500	1.400	0,090	0,080	0,07
1,5	25	0,3°	4.800	750	0,180	0,600	4.600	700	0,180	0,500	4.600	280	0,180	0,150	4.800	900	0,090	0,080	0,05
2	16	0,5°	9.300	1.900	0,270	1,000	6.000	1.200	0,270	0,800	6.000	480	0,270	0,200	9.000	2.250	0,120	0,100	0,1
2	20	0,5°	7.600	1.550	0,250	1,000	6.000	1.150	0,250	0,800	6.000	450	0,250	0,200	8.200	2.050	0,120	0,100	0,1
2	25	0,5°	6.100	1.250	0,230	0,800	5.500	1.100	0,230	0,600	5.500	420	0,230	0,200	5.500	1.350	0,120	0,100	0,07
3	20	0,5°	8.000	3.000	0,430	1,500	4.000	1.200	0,300	1,000	4.000	480	0,300	0,200	8.000	1.800	0,180	0,160	0,1
3	30	0,5°	5.100	1.500	0,340	1,200	4.000	1.150	0,300	1,000	4.000	480	0,300	0,200	5.100	1.150	0,180	0,160	0,07

Max cutting depth





VU-TBR

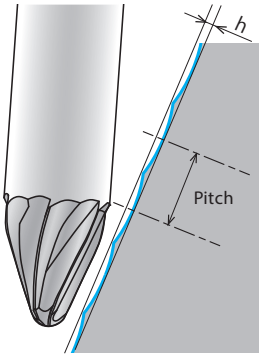
Using peripheral edge R (RE2)

	Carbon Steel • Alloy Steel S55C • SCM • SKT				Hardened Steel • Prehardened Steel SKT • SKD • NAK55 • HPM1				Hardened Steel • Prehardened Steel			
Vc	~30HRC				30~45HRC				45~55HRC			
Ø	S (min^{-1})	F (mm/min)	Pitch	Depth of Cut (mm)	S (min^{-1})	F (mm/min)	Pitch	Depth of Cut (mm)	S (min^{-1})	F (mm/min)	Pitch	Depth of Cut (mm)
R0,5 × R150 × 20°	10.700	3.400	Based on Cusp height (see chart below)	0,3	8.800	2.500	Based on Cusp height (see chart below)	0,3	6.800	1.600	Based on Cusp height (see chart below)	0,3
R1 × R150 × 20°	7.300	2.300		0,3	6.000	1.700		0,3	4.700	1.100		0,3
R1,5 × R300 × 20°	5.600	1.800		0,3	4.600	1.300		0,3	3.600	900		0,3
R2 × R300 × 20°	4.500	2.200		0,3	3.700	1.600		0,3	2.900	1.000		0,3
R2,5 × R500 × 20°	3.400	1.600		0,3	2.800	1.200		0,3	2.200	800		0,3
R3 × R500 × 20°	3.300	1.600		0,3	2.700	1.100		0,3	2.100	800		0,3

1. Use a rigid and precise machine and holder.
2. Use a coolant with low air-blow or fuming property according to the work material. MQL (oil mist coolant) is recommended for cutting hardened steels.
3. "Using tip R (RE1)" is the guide to use the tip R. Please adjust the rotation speed, feed rate and cutting pitch based on the cutting shape, machine rigidity, workpiece and holding conditions.
4. When chattering, vibration or abnormal cutting noise occurs, please adjust the rotation speed, feed rate and cutting pitch.
5. In order to change the rotation speed, both the rotation speed and the feed rate should be changed at the same ratio.

Theoretical Cusp Height

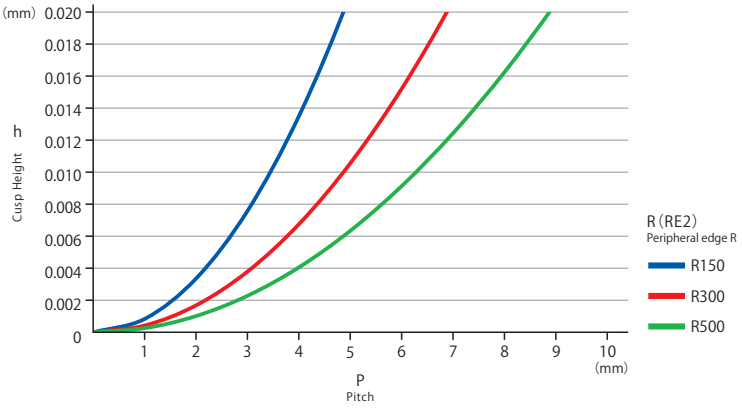
(VU-TBR) Taper Barrel Type



$$h = 0.5 \times \left(2 \times RE2 - \sqrt{(2 \times RE2)^2 - P^2}\right)$$

h: Cusp height P: Pitch RE2: peripheral edge R

Cusp Height and Pitch



VU-TBR

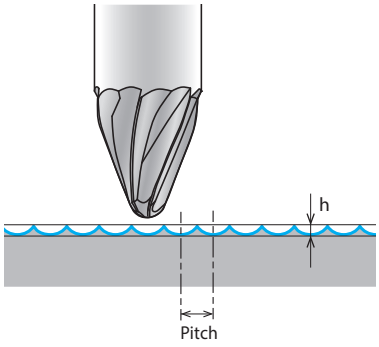
Using Tip R (RE1)

	Carbon Steel • Alloy Steel S55C • SCM • SKT				Hardened Steel • Prehardened Steel SKT • SKD • NAK55 • HPM1				Hardened Steel • Prehardened Steel			
Vc	~30HRC				30~45HRC				45~55HRC			
Ø	S (min-1)	F (mm/min)	Pitch	Depth of Cut (mm)	S (min-1)	F (mm/min)	Pitch	Depth of Cut (mm)	S (min-1)	F (mm/min)	Pitch	Depth of Cut (mm)
R0,5 × R150 × 20°	19.500	6.200	Based on Cusp height (see chart below)	~0,1	15.600	4.400	Based on Cusp height (see chart below)	~0,1	13.600	3.300	Based on Cusp height (see chart below)	~0,1
R1 × R150 × 20°	13.000	4.300		~0,2	10.700	3.000		~0,2	9.300	2.200		~0,2
R1,5 × R300 × 20°	10.300	3.300		~0,25	8.200	2.300		~0,25	7.200	1.700		~0,25
R2 × R300 × 20°	8.300	4.000		~0,3	6.600	2.800		~0,3	5.800	2.100		~0,3
R2,5 × R500 × 20°	6.300	3.000		~0,3	5.000	2.100		~0,3	4.400	1.600		~0,3
R3 × R500 × 20°	6.000	2.900		~0,3	4.800	2.000		~0,3	4.200	1.500		~0,3

1. Use a rigid and precise machine and holder.
2. Use a coolant with low air-blow or fuming property according to the work material. MQL (oil mist coolant) is recommended for cutting hardened steels.
3. "Using tip R (RE1)" is the guide to use the tip R. Please adjust the rotation speed, feed rate and cutting pitch based on the cutting shape, machine rigidity, workpiece and holding conditions.
4. When chattering, vibration or abnormal cutting noise occurs, please adjust the rotation speed, feed rate and cutting pitch.
5. In order to change the rotation speed, both the rotation speed and the feed rate should be changed at the same ratio.

Theoretical Cusp Height

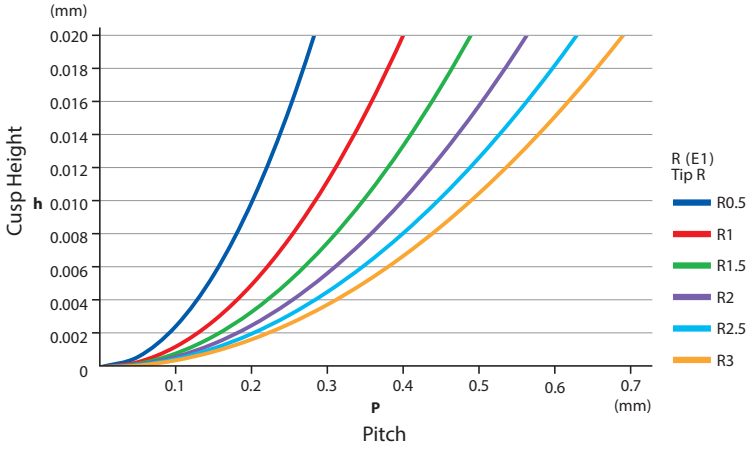
(VU-TBR) Taper Barrel Type



$$h = 0.5 \times \left(2 \times RE1 - \sqrt{(2 \times RE1)^2 - P^2}\right)$$

h: Cusp height
P: Pitch
RE1: peripheral edge R

Cusp Height and Pitch



VU-EGG-(H)

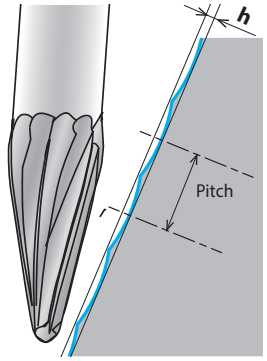
Using peripheral edge R (RE2)

	Carbon Steel • Alloy Steel S55C • SCM • SKT				Hardened Steel • Prehardened Steel SKT • SKD • NAK55 • HPM1				Hardened Steel • Prehardened Steel				Hardened Steel • Prehardened Steel Only VU-EGG-H only, not recommendable for VU-EGG			
Vc	~30HRC				30~45HRC				45~55HRC				55~62HRC			
Ø	S (min-1)	F (mm/min)	Pitch	Depth of Cut (mm)	S (min-1)	F (mm/min)	Pitch	Depth of Cut (mm)	S (min-1)	F (mm/min)	Pitch	Depth of Cut (mm)	S (min-1)	F (mm/min)	Pitch	Depth of Cut (mm)
R1,5XR50	7.300	1.400	Based on Cusp height (see chart below)	0,3	6.000	1.100	Based on Cusp height (see chart below)	0,3	4.700	700	Based on Cusp height (see chart below)	0,3	4.000	500	Based on Cusp height (see chart below)	0,3

1. Use a rigid and precise machine and holder.
2. Use a coolant with low air-blow or fuming property according to the work material. MQL (oil mist coolant) is recommended for cutting hardened steels.
3. "Using tip R (RE1)" is the guide to use the tip R. Please adjust the rotation speed, feed rate and cutting pitch based on the cutting shape, machine rigidity, workpiece and holding conditions.
4. When chattering, vibration or abnormal cutting noise occurs, please adjust the rotation speed, feed rate and cutting pitch.
5. In order to change the rotation speed, both the rotation speed and the feed rate should be changed at the same ratio.

Theoretical Cusp Height

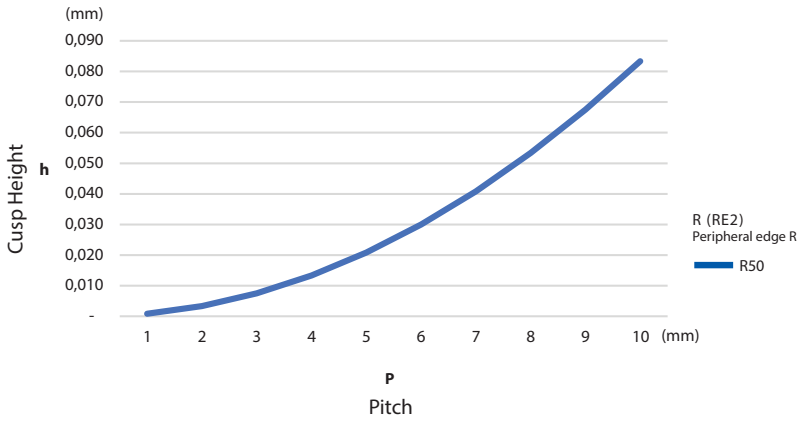
(VU-EGG) Oval shape end-mill



$$h = 0.5 \times \left(2 \times RE2 - \sqrt{(2 \times RE2)^2 - P^2}\right)$$

h: Cusp height
P: Peripheral edge R
RE2: peripheral edge R

Cusp Height and Pitch



VU-EGG-(H)

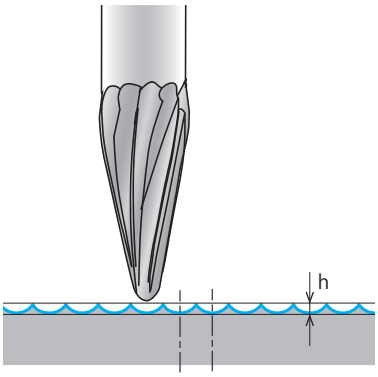
Using Tip R (RE1)

	Carbon Steel • Alloy Steel S55C • SCM • SKT				Hardened Steel • Prehardened Steel SKT • SKD • NAK55 • HPM1				Hardened Steel • Prehardened Steel				Hardened Steel • Prehardened Steel Only VU-EGG-H only, not recommendable for VU-EGG			
Vc	~30HRC				30~45HRC				45~55HRC				55~62HRC			
Ø	S (min^{-1})	F (mm/min)	Pitch	Depth of Cut (mm)	S (min^{-1})	F (mm/min)	Pitch	Depth of Cut (mm)	S (min^{-1})	F (mm/min)	Pitch	Depth of Cut (mm)	S (min^{-1})	F (mm/min)	Pitch	Depth of Cut (mm)
R1,5XR50	10.300	1.900	Based on Cusp height (see chart below)	~ 0,25	8.200	1.300	Based on Cusp height (see chart below)	~ 0,25	7.200	1.000	Based on Cusp height (see chart below)	~ 0,25	6.100	610	Based on Cusp height (see chart below)	~ 0,25

1. Use a rigid and precise machine and holder.
2. Use a coolant with low air-blow or fuming property according to the work material. MQL (oil mist coolant) is recommended for cutting hardened steels.
3. "Using tip R (RE1)" is the guide to use the tip R. Please adjust the rotation speed, feed rate and cutting pitch based on the cutting shape, machine rigidity, workpiece and holding conditions.
4. When chattering, vibration or abnormal cutting noise occurs, please adjust the rotation speed, feed rate and cutting pitch.
5. In order to change the rotation speed, both the rotation speed and the feed rate should be changed at the same ratio.

Theoretical Cusp Height

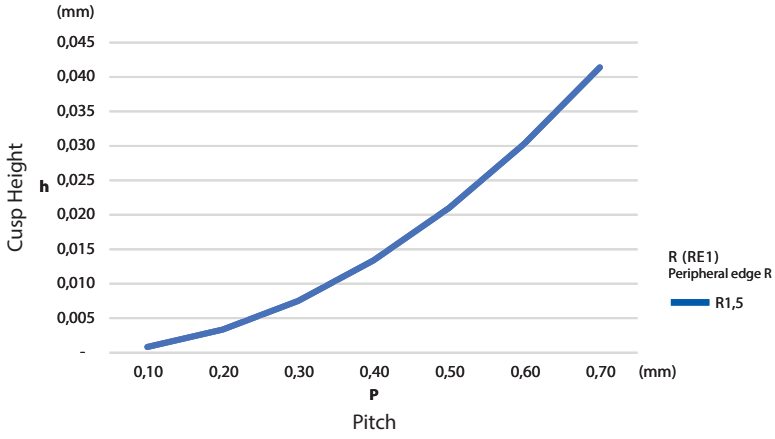
(VU-EGG-H) Oval Type



$$h = 0.5 \times \left(2 \times RE1 - \sqrt{(2 \times RE1)^2 - P^2}\right)$$

h: Cusp height
P: Pitch
RE1: peripheral edge R

Cusp Height and Pitch



AE-VTSS

Slot Milling



	Mild Steel • Carbon Steel • Cast Iron SS400 • S55C • FC250 ~750N/mm²		Alloy Steel • Tool Steel SCM • SKS • SKD ~30HRC		Prehardened Steel • Hardened Steel PX5 • NAK80 30~45HRC		Stainless Steel SUS304 • SUS420 ≤200HB		Precipitation Stainless Steel SUS630		Titanium Alloy Ti-6Al-4V	
Cutting Speed	100		70		60		60		50		50	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
3	10.600	650	7.400	480	6.400	350	6.400	330	5.300	300	5.300	280
4	8.000	670	5.600	500	4.800	350	4.800	340	4.000	320	4.000	310
5	6.400	710	4.500	560	3.800	420	3.800	390	3.200	340	3.200	330
6	5.300	740	3.700	620	3.200	460	3.200	260	2.700	330	2.700	320
8	4.000	630	2.800	500	2.400	440	2.400	260	2.000	310	2.000	300
10	3.200	580	2.200	490	1.900	380	1.900	240	1.600	290	1.600	280
12	2.700	560	1.900	460	1.600	380	1.600	230	1.300	290	1.300	280
Depth of cut	ap 0,5D								ap 0,25D			

Side Milling



	Mild Steel • Carbon Steel • Cast Iron SS400 • S55C • FC250 ~750N/mm²		Alloy Steel • Tool Steel SCM • SKS • SKD ~30HRC		Prehardened Steel • Hardened Steel PX5 • NAK80 30~45HRC		Stainless Steel SUS304 • SUS420 ≤200HB		Precipitation Stainless Steel SUS630		Titanium Alloy Ti-6Al-4V	
Cutting Speed	100		90		80		70		70		60	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
3	10.600	960	9.600	610	8.500	460	7.400	310	7.400	330	6.400	310
4	8.000	1.060	7.200	650	6.400	480	5.600	350	5.600	360	4.800	340
5	6.400	1.150	5.700	690	5.100	540	4.500	370	4.500	370	3.800	340
6	5.300	1.190	4.800	870	4.200	630	3.700	420	3.700	380	3.200	360
8	4.000	1.020	3.600	870	3.200	620	2.800	400	2.800	300	2.400	280
10	3.200	960	2.900	780	2.500	530	2.200	380	2.200	280	1.900	270
12	2.700	810	2.400	720	2.100	440	1.900	360	1.900	280	1.600	250
Depth of cut	ap 1D	ae 0,2D										

Plunging



	Mild Steel • Carbon Steel • Cast Iron SS400 • S55C • FC250 ~750N/mm²		Alloy Steel • Tool Steel SCM • SKS • SKD ~30HRC		Prehardened Steel • Hardened Steel PX5 • NAK80 30~45HRC		Stainless Steel SUS304 • SUS420 ≤200HB		Precipitation Stainless Steel SUS630		Titanium Alloy Ti-6Al-4V	
Cutting Speed	100		70		60		60		50		50	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
3	10.600	250	7.400	115	6.400	110	6.400	110	5.300	60	5.300	60
4	8.000	250	5.600	115	4.800	110	4.800	110	4.000	60	4.000	60
5	6.400	285	4.500	120	3.800	110	3.800	110	3.200	65	3.200	65
6	5.300	320	3.700	120	3.200	110	3.200	110	2.700	70	2.700	70
8	4.000	300	2.800	110	2.400	100	2.400	100	2.000	65	2.000	65
10	3.200	290	2.200	105	1.900	95	1.900	95	1.600	60	1.600	60
12	2.700	275	1.900	100	1.600	90	1.600	90	1.300	55	1.300	55
Depth of cut	ap ≤0,5D											

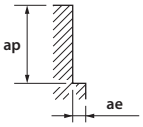
1. Use a rigid and precise machine and holder.
2. The rotational speed is calculated by the median of the recommended cutting speed. Adjustment may be necessary depending on the rigidity of the workpiece fixture and machine.
3. Please use a suitable fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.
5. Please use water-soluble coolant when machining stainless steel, precipitation stainless steel, titanium alloy.
6. Reduce speed and feed as well as depth of cut when high precision is required.

WX-G-ETSS

Side milling (Contour line finish)

	C≤0,2% - GG E24 • XC48 • GG25 750 N/mm²			~30 HRC 350NCD16 • 40CMD8			SUS 316 ~ 304 800 N/mm²			30~38 HRC Z38CDV5 • Z40CDV5			45~55 HRC Z38CDV5			55~60 HRC Z160CDV12		
Vc	100 (m/min)			80 (m/min)			80 (m/min)			60 (m/min)			60 (m/min)			30 (m/min)		
Ø	S (min-1)	F (mm/min)	AZ (mm)	S (min-1)	F (mm/min)	AZ (mm)	S (min-1)	F (mm/min)	AZ (mm)	S (min-1)	F (mm/min)	AZ (mm)	S (min-1)	F (mm/min)	AZ (mm)	S (min-1)	F (mm/min)	AZ (mm)
3	10.610	589	0,027	8.488	458	0,018	6.366	267	0,014	6.366	344	0,018	6.366	210	0,011	3.183	105	0,011
4	7.958	907	0,038	6.366	477	0,025	4.775	272	0,019	4.775	358	0,025	4.775	229	0,016	2.387	107	0,015
5	6.366	955	0,05	5.093	519	0,034	3.820	298	0,026	3.820	390	0,034	3.820	241	0,021	1.910	115	0,02
6	5.305	987	0,062	4.244	547	0,043	3.183	306	0,032	3.183	411	0,043	3.183	248	0,026	1.592	119	0,025
8	3.979	883	0,074	3.183	535	0,056	2.387	272	0,038	2.387	401	0,056	2.387	222	0,031	1.194	107	0,03
10	3.183	793	0,083	2.546	519	0,068	1.910	241	0,042	1.910	390	0,068	1.910	195	0,034	955	95	0,033
12	2.653	796	0,100	2.122	497	0,078	1.592	239	0,050	1.592	372	0,078	1.592	196	0,041	796	95	0,04
16	1.989	657	0,100	1.592	525	0,110	1.194	286	0,080	1.194	394	0,110	1.194	190	0,053	597	90	0,05

Max cutting depth



D	ap	ae
< 6	1,5D	0,02D
≥ 6	1,5D	0,05D

ap	ae
1,5D	0,02D

ap max = 0,5mm

ap	ae
1D	0,02D

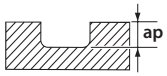
ap max = 0,5mm

Attention : sparks and/or flames can cause coolant fire. Be sure adequate fire prevention is available.
1. Speeds and feeds are designed to be used in conjunction with small passes on a high speed & precision machine.
2. Do not use inflammable coolant. Using worn tools may generate sparks.
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emission.

Slotting

	C≤0,2% - GG E24 • XC48 • GG25 750 N/mm²			~30 HRC 350NCD16 • 40CMD8			SUS 316 ~ 304 800 N/mm²			30~38 HRC Z38CDV5 • Z40CDV5			45~55 HRC Z38CDV5			55~60 HRC Z160CDV12		
Vc	80 (m/min)			60 (m/min)			50 (m/min)			55 (m/min)			45 (m/min)			20 (m/min)		
Ø	S (min-1)	F (mm/min)	AZ (mm)	S (min-1)	F (mm/min)	AZ (mm)	S (min-1)	F (mm/min)	AZ (mm)	S (min-1)	F (mm/min)	AZ (mm)	S (min-1)	F (mm/min)	AZ (mm)	S (min-1)	F (mm/min)	AZ (mm)
3	8.488	688	0,027	6.897	372	0,018	5.305	223	0,014	5.836	245	0,014	4.775	158	0,011	2.122	70	0.011
4	6.366	726	0,038	5.173	388	0,025	3.979	227	0,019	4.377	249	0,019	3.581	172	0,016	1.592	72	0,015
5	5.093	764	0,050	4.138	422	0,034	3.183	248	0,026	3.501	273	0,026	2.865	180	0,021	1.273	76	0,020
6	4.244	789	0,062	3.448	445	0,043	2.653	255	0,032	2.918	280	0,032	2.387	186	0,026	1.061	80	0,025
8	3.183	707	0,074	2.586	434	0,056	1.989	233	0,039	2.188	256	0,039	1.790	167	0,031	796	72	0,030
10	2.546	672	0,088	2.069	422	0,068	1.592	224	0,047	1.751	247	0,047	1.432	146	0,034	637	63	0,033
12	2.122	637	0,100	1.724	403	0,078	1.326	215	0,054	1.459	236	0,054	1.194	147	0,041	531	64	0,040
16	1.592	573	0,120	1.293	388	0,100	995	239	0,080	1.094	263	0,080	895	142	0,053	398	60	0,05 0

Max cutting depth



ap = 0,3D
ap max = 3mm

ap max = 0,2D

Attention : sparks and/or flames can cause coolant fire. Be sure adequate fire prevention is available.
1. Speeds and feeds are designed to be used in conjunction with small passes on a high speed & precision machine set-up.
2. Do not use inflammable coolant. Using worn tools may generate sparks.
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emission.

CUTTING CONDITIONS

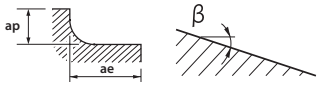
Milling | Endmills | Cutting conditions

WX-HS-CRE

High speed milling

	GG		30~38 HRC SKT • SKD • NAK55 • HPM50		38~45 HRC - SUS SUS304 • SKD • NAK80 • HPM50		45~55 HRC		55~60 HRC	
Ø	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)
6 X R 1,5	10.600	14.000	10.600	12.700	7.950	9.550	7.950	8.600	5.300	3.800
8 X R 2	7.950	14.000	7.950	12.700	5.950	9.550	5.950	8.600	4.000	3.800
10 X R 2	6.350	14.000	6.350	12.700	4.750	9.550	4.750	8.600	3.200	3.800
12 X R 3	5.300	14.000	5.300	12.700	4.000	9.550	4.000	8.600	2.650	3.800

Max cutting depth



ap	ae
0,1xR	0,3D

R	ap	ae
≤2	0,1xR	0,3D
>2	0,2mm	0,3D

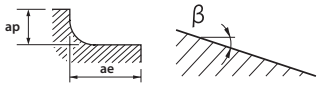
R	ap	ae
≤2	0,05xR	0,3D
>2	0,1mm	0,3D

1. Use a rigid and precise machine and holder.
2. These milling conditions are based on milling with circular interpolation at corners.For milling without circular interpolation much as right angle corners), reduce the speed to 50-70% and the cutting depth to 50-80% of the above conditions.
3. We suggest using air blow or MQL (mist).
4. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
5. When WX(S)-CRE enters in Z axis, reduce the feed speed to 30-60% of the above conditions with machining incline angle ß < 2°
6. These milling conditions are for a tool extension length: less than 4 x D. For a longer tool extension, reduce the speed, feed rate, and the cutting depth in accordance with the respective coefficients, to prevent chattering.

Low speed, high feed milling

	GG		30~38 HRC SKT • SKD • NAK55 • HPM50		38~45 HRC - SUS SUS304 • SKD • NAK80 • HPM50		45~55 HRC		55~60 HRC	
Ø	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)
6 X R 1,5	5.300	7.000	4.250	5.100	3.700	4.450	2.650	2.850	1.600	1.150
8 X R 2	4.000	7.000	3.200	5.100	2.800	4.450	2.000	2.850	1.200	1.150
10 X R 2	3.200	7.000	2.550	5.100	2.250	4.450	1.600	2.850	955	1.150
12 X R 3	2.650	7.000	2.100	5.100	1.850	4.450	1.350	2.850	795	1.150

Max cutting depth



ap	ae
0,1xR	0,3D

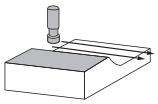
R	ap	ae
≤2	0,1xR	0,3D
>2	0,2mm	0,3D

R	ap	ae
≤2	0,05xR	0,3D
>2	0,1mm	0,3D

1. Use a rigid and precise machine and holder.
2. These milling conditions are based on milling with circular interpolation at corners.For milling without circular interpolation much as right angle corners), reduce the speed to 50-70% and the cutting depth to 50-80% of the above conditions.
3. We suggest using air blow or MQL (mist).
4. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
5. When WX(S)-CRE enters in Z axis, reduce the feed speed to 30-60% of the above conditions with machining incline angle ß < 2°
6. These milling conditions are for a tool extension length: less than 4 x D. For a longer tool extension, reduce the speed, feed rate, and the cutting depth in accordance with the respective coefficients, to prevent chattering.

(%)Tool extension coefficients

Overhang length	Cutting speed	ap	feed
L/D ≤ 4	100	100	100
L/D = 5	60~80	60~80	70~90
L/D = 6	40~60	40~60	60~80



1. When milling flat areas with a stable load, the speed and the feed rate of the high-speed conditions can be further increased to 150 - 200%.
2. The ultra-high speed conditions are for a tool extension length : less than 4 x D. If the tool extension length is over 4 x D, do not refer to it.

CUTTING CONDITIONS

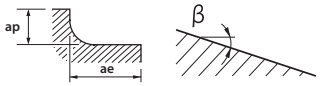
Milling | Endmills | Cutting conditions

WX-CRE

High speed milling

	GG		30~38 HRC SKT • SKD • NAK55 • HPM50		38~45 HRC - SUS SUS304 • SKD • NAK80 • HPM50		45~55 HRC		55~60 HRC	
Ø	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)
2 X R 0,5	31.850	10.500	32.000	9.550	24.000	7.150	24.000	6.450	16.000	2.850
3 X R 0,75	21.000	12.500	21.000	12.000	16.000	8.400	16.000	7.850	10.500	3.300
4 X R 1	16.000	13.000	16.000	12.000	12.000	9.000	12.000	8.200	7.950	3.550
5 X R 1,2	12.500	14.000	12.500	12.500	9.550	9.550	9.550	8.600	6.350	3.800
6 X R 1,5	10.600	14.000	10.600	12.700	7.950	9.550	7.950	8.600	5.300	3.800
7 X R 1,5	9.100	12.000	9.100	10.900	6.800	8.200	6.800	7.350	4.550	3.250
8 X R 2	7.950	14.000	7.950	12.700	5.950	9.550	5.950	8.600	4.000	3.800
9 X R 2	7.050	12.400	7.050	11.300	5.300	8.500	5.300	7.650	3.550	3.400
10 X R 2	6.350	14.000	6.350	12.700	4.750	9.550	4.750	8.600	3.200	3.800
11 X R 2	5.800	12.700	5.800	11.600	4.350	8.700	4.350	7.800	2.900	3.500
12 X R 3	5.300	14.000	5.300	12.700	4.000	9.550	4.000	8.600	2.650	3.800
13 X R 3	4.900	12.900	4.900	11.800	3.650	8.800	3.650	7.950	2.450	3.550

Max cutting depth



ap	ae
0,1xR	0,3D

R	ap	ae
≤2	0,1xR	0,3D
>2	0,2mm	0,3D

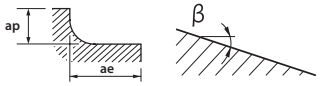
R	ap	ae
≤2	0,05xR	0,3D
>2	0,1mm	0,3D

1. Use a rigid and precise machine and holder.
2. These milling conditions are based on milling with circular interpolation at corners.For milling without circular interpolation much as right angle corners), reduce the speed to 50-70% and the cutting depth to 50-80% of the above conditions.
3. We suggest using air blow or MQL (mist).
4. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
5. When WX(S)-CRE enters in Z axis, reduce the feed speed to 30-60% of the above conditions with machining incline angle ß < 2°
6. These milling conditions are for a tool extension length: less than 4 x D. For a longer tool extension, reduce the speed, feed rate, and the cutting depth in accordance with the respective coefficients, to prevent chattering.

Low speed, high feed milling

	GG		30~38 HRC SKT • SKD • NAK55 • HPM50		38~45 HRC - SUS SUS304 • SKD • NAK80 • HPM50		45~55 HRC		55~60 HRC	
Ø	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)
2 X R 0,5	16.000	5.250	12.500	3.800	11.000	3.350	7.950	2.150	4.750	860
3 x R 0,75	10.500	6.250	8.500	4.500	7.450	3.900	5.300	2.600	3.200	995
4 X R 1	7.950	6.600	6.350	4.800	5.550	4.200	4.000	2.750	2.400	1.050
5 X R 1,2	6.350	7.000	5.100	5.100	4.450	4.450	3.200	2.850	1.900	1.150
6 X R 1,5	5.300	7.000	4.250	5.100	3.700	4.450	2.650	2.850	1.600	1.150
7 X R 1,5	4.550	6.000	3.650	4.350	3.200	3.800	2.250	2.450	1.350	980
8 X R 2	4.000	7.000	3.200	5.100	2.800	4.450	2.000	2.850	1.200	1.150
9 X R 2	3.550	6.200	2.850	4.550	2.500	3.950	1.750	2.550	1.050	1.000
10 X R 2	3.200	7.000	2.550	5.100	2.250	4.450	1.600	2.850	955	1.150
11 X R 2	2.900	6.350	2.300	4.650	2.050	4.050	1.450	2.600	870	1.050
12 X R 3	2.650	7.000	2.100	5.100	1.850	4.450	1.350	2.850	795	1.150
13 X R 3	2.450	6.450	1.950	4.700	1.700	4.100	1.200	2.650	735	1.050

Max cutting depth



ap	ae
0,1xR	0,3D

R	ap	ae
≤2	0,1xR	0,3D
>2	0,2mm	0,3D

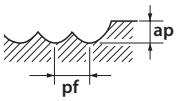
R	ap	ae
≤2	0,05xR	0,3D
>2	0,1mm	0,3D

1. Use a rigid and precise machine and holder.
2. These milling conditions are based on milling with circular interpolation at corners.For milling without circular interpolation much as right angle corners), reduce the speed to 50-70% and the cutting depth to 50-80% of the above conditions.
3. We suggest using air blow or MQL (mist).
4. Please adjust the speed, feed and cutting depth according to actual cutting conditions.
5. When WX(S)-CRE enters in Z axis, reduce the feed speed to 30-60% of the above conditions with machining incline angle ß < 2°
6. These milling conditions are for a tool extension length: less than 4 x D. For a longer tool extension, reduce the speed, feed rate, and the cutting depth in accordance with the respective coefficients, to prevent chattering.

FXS-EQD

Regular milling



Ø	C≤0,2% - GG S55C • SS400 ~750 N/mm2		~30 HRC SKD • SKS • SNCM		30~38 HRC NAK55 • HPMI • SKT		38~45 HRC SUS SUS304 • X210CR12 X40CRMOV51		45~55 HRC HRS		55~60 HRC	
	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
R 0,5	32.000	860	32.000	860	32.000	860	32.000	860	32.000	860	32.000	765
R 1	31.500	2.250	24.000	1.350	24.000	1.350	24.000	1.350	24.000	1.350	22.000	1.200
R 2	17.500	2.500	15.500	1.800	14.000	1.550	13.500	1.450	12.500	1.350	11.000	1.150
R 3	11.500	2.150	10.500	1.850	9.500	1.700	9.000	1.600	8.450	1.500	7.400	1.300
R 4	8.750	1.800	7.950	1.400	7.150	1.250	6.850	1.200	6.350	1.100	5.550	995
R 5	7.000	1.500	6.350	1.100	5.700	1.000	5.500	980	5.050	905	4.450	800
R 6	6.650	1.170	5.950	1.050	4.750	840	4.550	800	4.200	745	3.800	680
Max cutting depth	ap = 0,05D pf = 0,10D								ap = 0,02D pf = 0,10D			

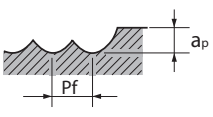
1. Use high precision machine set up to ensure maximum rigidity.
2. Set up speed & feed in accordance with cutting conditions and and a high rigidity machine set up.

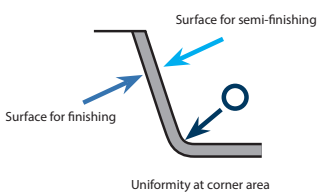
CUTTING CONDITIONS

CBN-FB2

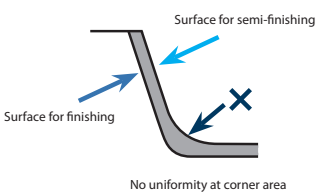
RE	LU	Hardened Steel															
		STAVAX - HPM38 ~55HRC				SKD11 - YXR3 - HAP10 ~62HRC				SKH51 - YXR7 - HAP40 ~66HRC				SKH57 - HAP72 ~70HRC			
	(mm)	S (min^{-1})	F (mm/min)	ap (mm)	Pf (mm)	S (min^{-1})	F (mm/min)	ap (mm)	Pf (mm)	S (min^{-1})	F (mm/min)	ap (mm)	Pf (mm)	S (min^{-1})	F (mm/min)	ap (mm)	Pf (mm)
R0,1	0,3	40.000	660	0,005	0,005	40.000	530	0,005	0,005	40.000	430	0,004	0,004	40.000	360	0,003	0,003
R0,1	0,5	40.000	500	0,005	0,005	40.000	400	0,005	0,005	40.000	330	0,004	0,004	40.000	280	0,003	0,003
R0,1	0,6	40.000	450	0,005	0,005	40.000	360	0,005	0,005	40.000	290	0,004	0,004	40.000	250	0,003	0,003
R0,1	1	40.000	300	0,005	0,005	40.000	240	0,005	0,005	40.000	200	0,004	0,004	40.000	170	0,003	0,003
R0,1	2	40.000	200	0,005	0,005	40.000	160	0,005	0,005	40.000	130	0,004	0,004	40.000	110	0,003	0,003
R0,15	0,3	40.000	900	0,005	0,005	40.000	720	0,005	0,005	40.000	590	0,004	0,004	40.000	500	0,003	0,003
R0,15	0,5	40.000	800	0,005	0,005	40.000	640	0,005	0,005	40.000	520	0,004	0,004	40.000	440	0,003	0,003
R0,15	0,75	40.000	680	0,005	0,005	40.000	540	0,005	0,005	40.000	440	0,004	0,004	40.000	370	0,003	0,003
R0,15	0,9	40.000	600	0,005	0,005	40.000	480	0,005	0,005	40.000	390	0,004	0,004	40.000	330	0,003	0,003
R0,15	1,5	40.000	300	0,005	0,005	40.000	240	0,005	0,005	40.000	200	0,004	0,004	40.000	170	0,003	0,003
R0,2	0,5	40.000	1.200	0,005	0,01	40.000	960	0,005	0,009	40.000	780	0,004	0,007	40.000	660	0,003	0,006
R0,2	0,75	40.000	1.100	0,005	0,01	40.000	880	0,005	0,009	40.000	720	0,004	0,007	40.000	610	0,003	0,006
R0,2	1	40.000	1.000	0,005	0,01	40.000	800	0,005	0,009	40.000	650	0,004	0,007	40.000	550	0,003	0,006
R0,2	1,2	40.000	920	0,005	0,01	40.000	740	0,005	0,009	40.000	600	0,004	0,007	40.000	510	0,003	0,006
R0,2	2	40.000	600	0,005	0,01	40.000	480	0,005	0,009	40.000	390	0,004	0,007	40.000	330	0,003	0,006
R0,2	3	40.000	250	0,005	0,005	40.000	200	0,005	0,005	40.000	160	0,004	0,004	40.000	140	0,003	0,003
R0,25	1	40.000	1.200	0,01	0,01	40.000	960	0,009	0,009	40.000	780	0,007	0,007	40.000	660	0,006	0,006
R0,25	1,5	40.000	1.100	0,01	0,01	40.000	880	0,009	0,009	40.000	720	0,007	0,007	40.000	610	0,006	0,006
R0,25	2,5	40.000	800	0,01	0,01	40.000	640	0,009	0,009	40.000	520	0,007	0,007	40.000	440	0,006	0,006
R0,25	3,5	38.000	400	0,01	0,01	38.000	320	0,009	0,009	38.000	260	0,007	0,007	38.000	220	0,006	0,006
R0,3	1,2	40.000	1.800	0,01	0,02	40.000	1.440	0,009	0,018	40.000	1.170	0,007	0,014	40.000	990	0,006	0,011
R0,3	1,5	40.000	1.700	0,01	0,02	40.000	1.360	0,009	0,018	40.000	1.110	0,007	0,014	40.000	940	0,006	0,011
R0,3	1,8	40.000	1.600	0,01	0,02	40.000	1.280	0,009	0,018	40.000	1.040	0,007	0,014	40.000	880	0,006	0,011
R0,3	2	40.000	1.500	0,01	0,02	40.000	1.200	0,009	0,018	40.000	980	0,007	0,014	40.000	830	0,006	0,011
R0,3	3	40.000	1.100	0,01	0,02	40.000	880	0,009	0,018	40.000	720	0,007	0,014	40.000	610	0,006	0,011
R0,3	4	35.000	600	0,01	0,015	35.000	480	0,009	0,014	35.000	390	0,007	0,011	35.000	330	0,006	0,008
R0,3	4,5	32.000	400	0,01	0,01	32.000	320	0,009	0,009	32.000	260	0,007	0,007	32.000	220	0,006	0,006
R0,3	5	29.000	300	0,008	0,008	29.000	240	0,007	0,007	29.000	200	0,006	0,006	29.000	170	0,004	0,004
R0,3	6	24.000	200	0,005	0,005	24.000	160	0,005	0,005	24.000	130	0,004	0,004	24.000	110	0,003	0,003
R0,4	1,5	40.000	1.900	0,01	0,02	40.000	1.520	0,009	0,018	40.000	1.240	0,007	0,014	40.000	1.050	0,006	0,011
R0,4	1,6	40.000	1.800	0,01	0,02	40.000	1.440	0,009	0,018	40.000	1.170	0,007	0,014	40.000	990	0,006	0,011
R0,4	2	40.000	1.500	0,01	0,02	40.000	1.200	0,009	0,018	40.000	980	0,007	0,014	40.000	830	0,006	0,011
R0,4	2,4	40.000	1.300	0,01	0,02	40.000	1.040	0,009	0,018	40.000	850	0,007	0,014	40.000	720	0,006	0,011
R0,4	4	40.000	1.000	0,01	0,015	40.000	800	0,009	0,014	40.000	650	0,007	0,011	40.000	550	0,006	0,008
R0,4	6	30.000	650	0,005	0,01	30.000	520	0,005	0,009	30.000	420	0,004	0,007	30.000	360	0,003	0,006
R0,5	2	40.000	2.500	0,02	0,04	40.000	2.000	0,018	0,036	40.000	1.630	0,014	0,028	40.000	1.380	0,011	0,022
R0,5	2,5	40.000	2.200	0,02	0,04	40.000	1.760	0,018	0,036	40.000	1.430	0,014	0,028	40.000	1.210	0,011	0,022
R0,5	3	40.000	2.000	0,02	0,035	40.000	1.600	0,018	0,032	40.000	1.300	0,014	0,025	40.000	1.100	0,011	0,019
R0,5	4	40.000	1.700	0,02	0,03	40.000	1.360	0,018	0,027	40.000	1.110	0,014	0,021	40.000	940	0,011	0,017
R0,5	6	30.000	1.100	0,015	0,02	30.000	880	0,014	0,018	30.000	720	0,011	0,014	30.000	610	0,008	0,011
R0,5	8	22.000	750	0,015	0,015	22.000	600	0,014	0,014	22.000	490	0,011	0,011	22.000	410	0,008	0,008
R0,5	10	16.000	540	0,01	0,01	16.000	430	0,009	0,009	16.000	350	0,007	0,007	16.000	300	0,006	0,006
R0,6	2,4	40.000	2.500	0,02	0,04	40.000	2.000	0,018	0,036	40.000	1.630	0,014	0,028	40.000	1.380	0,011	0,022
R0,6	3	40.000	2.500	0,02	0,04	40.000	2.000	0,018	0,036	40.000	1.630	0,014	0,028	40.000	1.380	0,011	0,022
R0,6	6	30.000	1.310	0,02	0,02	30.000	1.050	0,018	0,018	30.000	850	0,014	0,014	30.000	720	0,011	0,011
R0,75	3	40.000	3.000	0,03	0,05	40.000	2.400	0,027	0,045	40.000	1.950	0,021	0,035	40.000	1.650	0,017	0,028
R0,75	3,8	40.000	2.800	0,03	0,05	40.000	2.240	0,027	0,045	40.000	1.820	0,021	0,035	40.000	1.540	0,017	0,028
R0,75	7,5	30.000	1.600	0,02	0,03	30.000	1.280	0,018	0,027	30.000	1.040	0,014	0,021	30.000	880	0,011	0,017
R0,75	10	23.000	1.040	0,015	0,02	23.000	830	0,014	0,018	23.000	680	0,011	0,014	23.000	570	0,008	0,011
R0,75	15	12.000	480	0,01	0,02	12.000	380	0,009	0,018	12.000	310	0,007	0,014	12.000	260	0,006	0,011
R1	4	30.000	2.400	0,05	0,1	30.000	1.920	0,045	0,09	30.000	1.560	0,035	0,07	30.000	1.320	0,028	0,055
R1	5	29.000	2.030	0,05	0,08	29.000	1.620	0,045	0,072	29.000	1.320	0,035	0,056	29.000	1.120	0,028	0,044
R1	6	28.000	1.680	0,04	0,05	28.000	1.340	0,036	0,045	28.000	1.090	0,028	0,035	28.000	920	0,022	0,028
R1	8	25.000	1.350	0,03	0,05	25.000	1.080	0,027	0,045	25.000	880	0,021	0,035	25.000	740	0,017	0,028
R1	10	22.000	1.100	0,03	0,03	22.000	880	0,027	0,027	22.000	720	0,021	0,021	22.000	610	0,017	0,017
R1	14	16.000	720	0,02	0,02	16.000	580	0,018	0,018	16.000	470	0,014	0,014	16.000	400	0,011	0,011
R1	20	8.000	360	0,02	0,02	8.000	290	0,018	0,018	8.000	230	0,014	0,014	8.000	200	0,011	0,011
R1,5	6	20.000	2.000	0,1	0,15	20.000	1.600	0,09	0,135	20.000	1.300	0,07	0,105	20.000	1.100	0,055	0,083
R1,5	9	20.000	1.600	0,08	0,1	20.000	1.280	0,072	0,09	20.000	1.040	0,056	0,07	20.000	880	0,044	0,055

1. Use a rigid and precise machine and holder.
2. Using air blow or MQL (oil mist coolant) is recommended.
3. Please use the tool while minimizing runout accuracy.
4. The above cutting conditions are for contouring operation with low-load and stable condition. Refer to the table above to set the milling conditions in accordance with the actual situation.
5. Please adjust conditions based on machining accuracy, machining shape and machining path.
6. When RPM are insufficient, please reduce the RPM and feed rates at same ratio as listed above.
7. Uneven finishing allowance may negatively impact tool life and machining accuracy. Therefore, please ensure the allowance is as uniform as possible during pre-machining.





Uniformity at corner area



No uniformity at corner area

CUTTING CONDITIONS

DG-EBD

Roughing



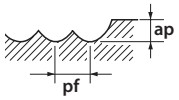
R	mm	Graphite					
		S (min-1)		F (mm/min)		ap (mm)	pf (mm)
		short	long	short	long		
R 2	16~40	20.000	11.000	3.150	1.800	0,40	1,20
R 3	24~36	20.000	9.600	4.500	2.100	0,60	1,80
R 4	32~56	16.000	7.200	3.900	1.800	0,80	2,40
R 5	40~60	12.500	5.700	3.000	1.350	1,00	3,00
R 6	48~84	10.500	4.800	2.550	1.100	1,20	3,60

Finishing



R	mm	Graphite					
		S (min-1)		F (mm/min)		ap (mm)	pf (mm)
		short	long	short	long		
R 2	16~40	20.000	11.000	2.100	1.200	0,12	0,12
R 3	24~36	20.000	9.600	3.000	1.400	0,18	0,18
R 4	32~56	16.000	7.200	2.600	1.200	0,22	0,22
R 5	40~60	12.500	5.700	2.000	900	0,26	0,26
R 6	48~84	10.500	4.800	1.700	750	0,30	0,30

Max cutting depth



Set the diagonal plunge angle to be approximately 0,5° and 1°

1. Adjust the speed, the feed rate, and the depth of cut to suit your operating conditions, such as the milling shape, machine rigidity, tool holder rigidity, and work holding force.
2. If you are unable to raise the speed and feed rate higher than those indicated in the table above, lower the speed and feed rate using the same ratio.
3. If the workpiece gets chipped or if the operation requires a higher level of milling precision, lower the feed rate as necessary.
4. Depending on the shape, if the workpiece chatters, lower the speed and feed rate using the same ratio.
5. To mill graphite, use a dedicated milling machine. To prevent inhalation of dust, use a dust collector and a dust mask when working around graphite.
6. During milling, keep the runout at the tip of the end mill to be less than 0.01 mm.
7. To achieve efficient finishing, the feed rate may be adjusted as high as triple the rate.
8. For high-efficiency machining, lower the feed rate as far down as 30% for high-load operations such as slotting. This can minimize the amount of cutting remnants resulting from the flexing of the tool.
9. If gouging occurs while milling a flat area, raise the speed.
10. If a cut involves the shaping of a corner, use the corner radius process of the program, or adjust the speed so that it would not cause chattering, and reduce the speed at the corner at the same time (by approximately 60%).

DG-LN-EBD

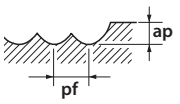
Roughing

R x l1	Graphite					
	S (min-1)		F (mm/min)		ap (mm)	pf (mm)
	short	long	short	long		
R0,2x4	40.000	20.000	960	480	0,040	0,120
R0,2x8	30.000	18.000	430	250	0,030	0,080
R0,3x6	40.000	20.000	960	480	0,060	0,180
R0,3x10	33.000	20.000	635	385	0,050	0,150
R0,4x15	19.000	14.000	370	280	0,050	0,150
R0,5x6	40.000	20.000	1.150	575	0,100	0,300
R0,5x16	23.000	18.000	530	410	0,080	0,240
R0,5x20	18.000	12.000	310	205	0,070	0,200
R0,5x30	8.000	5.000	145	85	0,040	0,130
R0,75x6	40.000	20.000	1.800	900	0,150	0,450
R0,75x10	38.000	20.000	1.600	865	0,150	0,450
R0,75x16	30.000	20.000	1.300	865	0,150	0,450
R1x16	28.000	20.000	1.800	1.350	0,200	0,600
R1x30	16.000	11.500	840	615	0,180	0,520
R1,5x20	20.000	15.500	2.050	1.550	0,300	0,900
R1,5x40	12.500	9.200	1.000	740	0,220	0,650
R2x20	20.000	14.000	2.950	2.050	0,400	1,200

Finishing

R x l1	Graphite					
	S (min-1)		F (mm/min)		ap (mm)	pf (mm)
	short	long	short	long		
R0,2x4	40.000	20.000	800	400	0,012	0,012
R0,2x8	30.000	18.000	360	210	0,012	0,012
R0,3x6	40.000	20.000	800	400	0,018	0,018
R0,3x10	33.000	20.000	530	320	0,018	0,018
R0,4x15	19.000	14.000	280	230	0,021	0,021
R0,5x6	40.000	20.000	950	480	0,030	0,030
R0,5x16	23.000	18.000	440	340	0,030	0,030
R0,5x20	18.000	12.000	260	170	0,030	0,030
R0,5x30	8.000	5.000	120	70	0,020	0,020
R0,75x6	40.000	20.000	1.500	750	0,045	0,045
R0,75x10	38.000	20.000	1.350	720	0,045	0,045
R0,75x16	30.000	20.000	1.100	720	0,045	0,045
R1x16	28.000	20.000	1.300	950	0,060	0,060
R1x30	16.000	11.500	600	440	0,060	0,060
R1,5x20	20.000	15.500	1.450	1.100	0,090	0,090
R1,5x40	12.500	9.200	720	530	0,090	0,090
R2x20	20.000	14.000	2.100	1.450	0,120	0,120

Max cutting depth



Set the diagonal plunge angle to be approximately 0,3° and 0,5°

1. Adjust the speed, the feed rate, and the depth of cut to suit your operating conditions, such as the milling shape, machine rigidity, tool holder rigidity, and work holding force.
2. If you are unable to raise the speed and feed rate higher than those indicated in the table above, lower the speed and feed rate using the same ratio.
3. If the workpiece gets chipped or if the operation requires a higher level of milling precision, lower the feed rate as necessary.
4. Depending on the shape, if the workpiece chatters, lower the speed and feed rate using the same ratio.
5. To mill graphite, use a dedicated milling machine. To prevent inhalation of dust, use a dust collector and a dust mask when working around graphite.
6. During milling, keep the runout at the tip of the end mill to be less than 0.01 mm.
7. To achieve efficient finishing, the feed rate may be adjusted as high as triple the rate.
8. For high-efficiency machining, lower the feed rate as far down as 30% for high-load operations such as slotting. This can minimize the amount of cutting remnants resulting from the flexing of the tool.
9. If gouging occurs while milling a flat area, raise the speed.
10. If a cut involves the shaping of a corner, use the corner radius process of the program, or adjust the speed so that it would not cause chattering, and reduce the speed at the corner at the same time (by approximately 60%).

CUTTING CONDITIONS

DG-CPR

Roughing



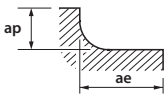
R	Graphite					
	S (min-1)		F (mm/min)		ap (mm)	pf (mm)
	short	long	short	long		
0,5 x R0,1 x 0° x 4	20.000	16.000	720	575	0,05	0,24
0,5 x R0,1 x 0° x 6	20.000	16.000	720	575	0,05	0,24
1 x R0,1 x 0° x 10	16.000	12.000	1.150	865	0,1	0,48
2 x R0,2 x 0° x 10	16.000	12.000	2.050	1.500	0,3	1,28
2 x R0,2 x 0° x 20	11.000	8.000	1.400	1.000	0,18	1,2
4 x R0,3 x 0° x 40	12.000	8.000	3.450	2.300	0,35	2,8
4 x R0,5 x 0° x 25	12.000	8.000	2.950	1.870	0,4	3
4 x R0,5 x 0° x 40	12.000	8.000	3.450	2.300	0,35	3
4 x R1 x 0° x 40	12.000	8.000	3.450	2.300	0,35	3
6 x R0,3 x 0° x 30	12.000	8.000	3.450	2.300	1,5	4,8
6 x R0,5 x 0° x 30	12.000	7.000	4.300	2.500	1,5	4
6 x R1 x 0° x 30	12.000	7.000	4.300	2.500	1,5	3,2
8 x R0,3 x 0° x 100	5.000	3.500	2.000	800	2	4,2
8 x R0,5 x 0° x 32	10.000	7.000	3.800	2.650	2	5,6
8 x R0,5 x 0° x 100	5.000	3.500	2.000	800	2	3,6
8 x R1 x 0° x 100	5.000	3.500	2.000	800	2	3
10 x R0,5 x 0° x 40	8.000	4.000	3.050	1.500	2,5	7,2
10 x R1 x 0° x 40	8.000	4.000	3.050	1.500	2,5	6,4
12 x R1 x 0° x 48	6.000	3.000	2.300	1.150	3	8

Finishing



R	Graphite					
	S (min-1)		F (mm/min)		ap (mm)	pf (mm)
	short	long	short	long		
0,5 x R0,1 x 0° x 4	20.000	16.000	600	480	0,05	0,12
0,5 x R0,1 x 0° x 6	20.000	16.000	600	480	0,05	0,12
1 x R0,1 x 0° x 10	16.000	12.000	960	720	0,08	0,24
2 x R0,2 x 0° x 10	16.000	12.000	1.450	1.100	0,08	0,64
2 x R0,2 x 0° x 20	11.000	8.000	990	720	0,08	0,64
4 x R0,3 x 0° x 40	12.000	8.000	2.450	1.650	0,08	1,4
4 x R0,5 x 0° x 25	12.000	8.000	2.180	1.180	0,32	1,5
4 x R0,5 x 0° x 40	12.000	8.000	2.410	1.650	0,08	1,7
4 x R1 x 0° x 40	12.000	8.000	2.410	1.650	0,08	2
6 x R0,3 x 0° x 30	12.000	8.000	2.410	1.650	0,15	2,4
6 x R0,5 x 0° x 30	12.000	7.000	3.050	1.800	0,2	2
6 x R1 x 0° x 30	12.000	7.000	3.050	1.800	0,4	1,6
8 x R0,3 x 0° x 100	5.000	3.500	1.500	500	0,1	2
8 x R0,5 x 0° x 32	10.000	7.000	2.700	1.900	0,2	2,8
8 x R0,5 x 0° x 100	5.000	3.500	1.500	500	0,1	1,4
8 x R1 x 0° x 100	5.000	3.500	1.500	500	0,2	1
10 x R0,5 x 0° x 40	8.000	4.000	2.200	1.100	0,2	4,4
10 x R1 x 0° x 40	8.000	4.000	2.200	1.100	0,4	3,2
12 x R1 x 0° x 48	6.000	3.000	1.650	815	0,4	4

Max cutting depth



Set the diagonal plunge angle to be approximately 0,5° and 1°

1. Adjust the speed, the feed rate, and the depth of cut to suit your operating conditions, such as the milling shape, machine rigidity, tool holder rigidity, and work holding force.
2. If you are unable to raise the speed and feed rate higher than those indicated in the table above, lower the speed and feed rate using the same ratio.
3. If the workpiece gets chipped or if the operation requires a higher level of milling precision, lower the feed rate as necessary.
4. Depending on the shape, if the workpiece chatters, lower the speed and feed rate using the same ratio.
5. To mill graphite, use a dedicated milling machine. To prevent inhalation of dust, use a dust collector and a dust mask when working around graphite.
6. During milling, keep the runout at the tip of the end mill to be less than 0.01 mm.
7. To achieve efficient finishing, the feed rate may be adjusted as high as triple the rate.
8. For high-efficiency machining, lower the feed rate as far down as 30% for high-load operations such as slotting. This can minimize the amount of cutting remnants resulting from the flexing of the tool.
9. If gouging occurs while milling a flat area, raise the speed.
10. If a cut involves the shaping of a corner, use the corner radius process of the program, or adjust the speed so that it would not cause chattering, and reduce the speed at the corner at the same time (by approximately 60%).

CUTTING CONDITIONS

Milling | Endmills | Cutting conditions

DIA-BNC

Trimming & plunging operation

	Side Milling ap: <1,5D / ae: <1D		Slotting ap: 1D	
Vc	120 (m/min)	240 (m/min)	90 (m/min)	180 (m/min)
Ø	F (mm/min)	F (mm/min)	F (mm/min)	F (mm/min)
6	770	1.600	380	750
8	900	1.800	450	900
10	1.000	2.000	510	1.000
12	1.300	2.600	630	1.300

DIA-HBC

	Side Milling ap: <1,5D / ae: <1D		Slotting ap: 1D	
Vc	120 (m/min)	240 (m/min)	90 (m/min)	180 (m/min)
Ø	F (mm/min)	F (mm/min)	F (mm/min)	F (mm/min)
6	770	1.600	380	750
8	900	1.800	450	900
10	1.000	2.000	510	1.000
12	1.300	2.600	630	1.300

Note: This table's parameters are based on common material thickness of approximately 0,250" under excellent workholding conditions and less than 20% x D depth of cut (side milling). Please adjust your parameters properly for your application or call OSG for assistanceConventional milling is recommended for better surface finishes. Higher feed rates are possible but quality of part and surface should be considered.

Feed reduction by thickness of part: Recommended feed adjustments based on thickness of part. (Above table is based on approxmately 1xD thickness.)

≤0,5D	x 150%
0,5D-1D	x 120%
1D-2D	x 80%
3D-4D	x 50%

DIA-MFC

	S (min^{-1})	Feed rate	
		(mm/rev)	IPR
Vc		100~180 (m/min)	
6	5.300 ~ 9.500	0,16 ~ 0,24	0,006 ~ 0,009
8	4.000 ~ 7.000	0,3 ~ 1	0,012 ~ 0,039
10	3.200 ~ 5.700	0,48 ~ 1,2	0,019 ~ 0,047

≤0,25D	x 80%
0,25D-0,5D	x 150%
0,5D-1D	x 120%
1D-2D	x 80%
2D-3D	x 50%

DIA-REC

	S (min^{-1})	Feed rate	
		(mm/rev)	IPR
Vc		100~180 (m/min)	
6	5.300 ~ 9.500	0,1 ~ 0,12	0,004 ~ 0,005
8	4.000 ~ 7.200	0,16 ~ 0,25	0,006 ~ 0,01
10	3.200 ~ 5.700	0,24 ~ 0,3	0,009 ~ 0,012

≤0,25D	x 80%
0,25D-0,5D	x 150%
0,5D-1D	x 120%
1D-2D	x 80%
2D-3D	x 50%

HBC60

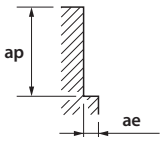
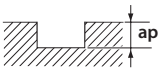
	S (min^{-1})	Feed rate	
		(mm/rev)	IPR
Vc		300~600 (m/min)	
6	20.000 ~ 30.000	0,02 ~ 0,06	0,001 ~ 0,002
8	15.000 ~ 24.000	0,02 ~ 0,06	0,001 ~ 0,002
10	12.000 ~ 19.000	0,02 ~ 0,07	0,001 ~ 0,003
12	10.000 ~ 16.000	0,02 ~ 0,1	0,001 ~ 0,004

≤0,25D	x 80%
0,25D-0,5D	x 150%
0,5D-1D	x 120%
1D-2D	x 80%
2D-3D	x 50%

CUTTING CONDITIONS

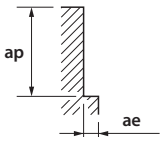
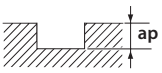
UVX-TI-4FL / SAFE-λOCK®

Titanium alloy (Ti-6Al-4V)

	Side milling		Slotting	
Vc	60 ~ 80 m/min		30 ~ 50 m/min	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
12	1.900	680	1.350	270
16	1.400	500	990	200
20	1.100	480	800	190
25	900	400	640	150
Max cutting depth		ap ≤ 1,8 Dc; ae 0,2 Dc		ap ≤ 1 Dc

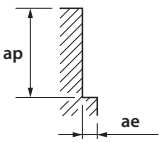
UVX-TI-5FL / UVX-TI-5FL-HB / SAFE-λOCK®

Titanium alloy (Ti-6Al-4V)

	Side milling		Slotting	
Vc	60 ~ 80 m/min		30 ~ 50 m/min	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
12	1.900	855	1.350	340
16	1.400	630	990	250
20	1.100	600	800	240
25	900	500	640	192
Max cutting depth		ap ≤ 1,8 Dc; ae 0,2 Dc		ap ≤ 1 Dc

UVXL-TI-5FL / SAFE-λOCK®

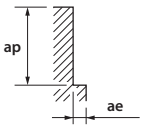
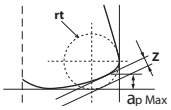
Titanium alloy (Ti-6Al-4V)

	Side milling	
Vc	60 ~ 80 m/min	
Ø	S (min^{-1})	F (mm/min)
12	2.100	1.050
16	1.600	920
20	1.270	760
25	1.020	587
Max cutting depth		ap ≤ 3,75 Dc; ae 0,1 Dc

CUTTING CONDITIONS

HFC-TI

Titanium Alloy (Ti-6Al-4V)

	Contour milling				
Vc	50 ~ 100 m/min				
Ø	S (min^{-1})	F (mm/min)	Ramping Angle E	rt	Z
16	1.490	4.500	2°	0,86	0,46
20	1.190	3.600	2°	1,01	0,58
25	850	4.860	2°	1,2	0,74
Max cutting depth		ap: ≤ 0,035 Dc ae: 0,39 Dc			

CM-RMS

Side milling • 4 flute type

	Heat resistant alloys Inconel 718			
Ø	Cutting Speed (m/min)	Feed per tooth (mm/t)	ap (mm)	ae (mm)
6	400-800	0,02-0,04	≤4,5 (0,75D)	≤0,6 (0,1D)
8	400-800	0,02-0,04	≤6,0 (0,75D)	≤0,8 (0,1D)
10	400-800	0,02-0,07	≤7,5 (0,75D)	≤1,0 (0,1D)
12	400-800	0,02-0,07	≤9,0 (0,75D)	≤1,2 (0,1D)

Slotting • 4 flute type

	Heat resistant alloys Inconel 718		
Ø	Cutting Speed (m/min)	Feed per tooth (mm/t)	ap
6	400-800	0,02-0,04	≤1,2 (0,2D)
8	400-800	0,02-0,04	≤1,6 (0,2D)
10	400-800	0,02-0,07	≤2,0 (0,2D)
12	400-800	0,02-0,07	≤2,4 (0,2D)

Side milling • 6 flute type

	Heat resistant alloys Inconel 718			
Ø	Cutting Speed (m/min)	Feed per tooth (mm/t)	ap (mm)	ae (mm)
6	400-800	0,02-0,04	≤4,5 (0,75D)	≤0,6 (0,1D)
8	400-800	0,02-0,04	≤6,0 (0,75D)	≤0,8 (0,1D)
10	400-800	0,02-0,07	≤7,5 (0,75D)	≤1,0 (0,1D)
12	400-800	0,02-0,07	≤9,5 (0,75D)	≤1,2 (0,1D)

CM-CRE

Side milling End cutting edge type*

	Heat resistant alloys Inconel 718			
Ø	Cutting Speed (m/min)	Feed per tooth (mm/t)	ap (mm)	ae (mm)
16	400-800	0,03-0,05	1	≤9,6 (0,6D)
20	400-800	0,04-0,06	1	≤12,0 (0,6D)
25	400-800	0,05-0,08	1	≤15,0 (0,6D)

*Specify a draft (at least 3°) in the milling program to avoid neck interferences .

AE-TS-N Applies to square/sharp corner edge/radius type

Slot Milling



	Aluminum Alloy Expanding Material • Magnesium Alloy A5052 • A7075 • AZ91• AZ80A		Aluminum Alloy Casting AC4C • ADC		Copper Alloy C1100	
Vc (m/min)	300		300		150	
DC X LU	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
1 x 3	32.000	1.200	32.000	1.200	16.000	540
1,5 x 4,5	32.000	1.350	32.000	1.350	16.000	610
2 x 6	32.000	1.540	32.000	1.540	16.000	660
2,5 x 7,5	32.000	1.630	32.000	1.630	16.000	810
3 x 9	32.000	1.720	32.000	1.720	16.000	960
4 x 12	24.000	1.780	24.000	1.780	12.000	1.030
5 x 15	19.200	1.840	19.200	1.840	9.600	1.090
6 x 18	16.000	1.900	16.000	1.900	8.000	1.160
8 x 24	12.000	2.030	12.000	2.030	6.000	1.300
10 x 30	9.600	2.150	9.600	2.150	4.800	1.430
12 x 36	8.000	2.270	8.000	2.270	4.000	1.560
16 x 48	6.000	2.380	6.000	2.380	3.000	1.630
20 x 60	4.800	2.490	4.800	2.490	2.400	1.700
25 x 75	3.850	2.600	3.850	2.600	1.900	1.780
Depth of cut	ap 1D				ap 0,5D	

The table above is for when using water-soluble coolant.



	Thermoplastic Resin						Thermosetting Resin Bakelite	
	PP • UPE • PTFE		POM • PVC • MC Nylon • ABS Resin		Acrylic			
Vc (m/min)	90		70		90		90	
DC X LU	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
1 x 3	25.500	1.910	19.100	1.150	25.500	1.150	25.500	1.150
1,5 x 4,5	17.000	1.530	12.700	950	17.000	770	17.000	770
2 x 6	12.700	1.330	9.500	860	12.700	760	12.700	760
2,5 x 7,5	10.200	1.220	7.600	800	10.200	610	10.200	610
3 x 9	8.500	1.150	6.400	770	8.500	510	8.500	510
4 x 12	6.400	1.090	4.800	750	6.400	480	6.400	480
5 x 15	5.100	1.070	3.800	740	5.100	460	5.100	460
6 x 18	4.200	1.010	3.200	740	4.200	440	4.200	440
8 x 24	3.200	960	2.600	740	3.200	390	3.200	390
10 x 30	2.900	870	2.200	630	2.900	390	2.900	390
12 x 36	2.400	790	2.000	630	2.400	360	2.400	360
16 x 48	2.000	720	1.600	550	2.000	360	2.000	360
20 x 60	1.600	620	1.300	490	1.600	340	1.600	340
25 x 75	1.300	590	1.000	440	1.300	310	1.300	310
Depth of cut			DC ≤12 12<DC		ap 1D 0,5D			

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used. In resin processing, the feed rate can be increased if the shape of the workpiece and method of fixation are rigid.
3. Reduce speed and feed as well as depth of cut when high precision is required.
4. Adjust the speed and feed accordingly when the overhang length is longer than specified
5. When the chips wind around the end mill, reduce the speed and feed.
6. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.
7. When processing resin, please remove cutting chips to prevent them from getting caught or entangled.
8. For higher quality processing of resin, the use of a water-soluble cutting fluid is recommended (excluding nylon and Bakelite).

The table above is for when using air-blow.

CUTTING CONDITIONS

AE-TS-N Applies to square/sharp corner edge/radius type

Side Milling

	Aluminum Alloy Expanding Material • Magnesium Alloy A5052 • A7075 • AZ91• AZ80A		Aluminum Alloy Casting AC4C • ADC		Copper Alloy C1100	
Vc (m/min)	300		300		150	
DC X LU	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
1 x 3	32.000	1.300	32.000	1.300	16.000	600
1,5 x 4,5	32.000	1.430	32.000	1.430	16.000	660
2 x 6	32.000	1.730	32.000	1.730	16.000	720
2,5 x 7,5	32.000	1.920	32.000	1.920	16.000	900
3 x 9	32.000	2.150	32.000	2.150	16.000	1.200
4 x 12	24.000	2.230	24.000	2.230	12.000	1.290
5 x 15	19.200	2.300	19.200	2.300	9.600	1.360
6 x 18	16.000	2.380	16.000	2.380	8.000	1.450
8 x 24	12.000	2.540	12.000	2.540	6.000	1.620
10 x 30	9.600	2.690	9.600	2.690	4.800	1.780
12 x 36	8.000	2.840	8.000	2.840	4.000	1.950
16 x 48	6.000	2.980	6.000	2.980	3.000	2.040
20 x 60	4.800	3.100	4.800	3.100	2.400	2.130
25 x 75	3.850	3.200	3.850	3.200	1.900	2.200
Depth of cut			ap: 1,5D	ae: 0,2D		

The table above is for when using water-soluble coolant.

	Thermoplastic Resin PP • UPE • PTFE		Thermoplastic Resin POM • PVC • MC Nylon • ABS Resin		Thermoplastic Resin Acrylic		Thermosetting Resin Bakelite	
Vc (m/min)	110		90		110		110	
DC X LU	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
1 x 3	31.800	2.390	25.500	1.530	31.800	1.430	31.800	1.430
1,5 x 4,5	21.200	1.910	17.000	1.280	21.200	950	21.200	950
2 x 6	15.900	1.670	12.700	1.140	15.900	950	15.900	950
2,5 x 7,5	12.700	1.520	10.200	1.070	12.700	760	12.700	760
3 x 9	10.600	1.430	8.500	1.020	10.600	640	10.600	640
4 x 12	8.000	1.370	6.400	1.000	8.000	600	8.000	600
5 x 15	6.400	1.340	5.100	990	6.400	580	6.400	580
6 x 18	5.300	1.270	4.200	950	5.300	560	5.300	560
8 x 24	4.000	1.200	3.400	870	4.000	480	4.000	480
10 x 30	3.500	1.050	2.900	830	3.500	470	3.500	470
12 x 36	2.900	960	2.500	790	2.900	440	2.900	440
16 x 48	2.400	860	2.000	690	2.400	430	2.400	430
20 x 60	1.900	740	1.600	600	1.900	400	1.900	400
25 x 75	1.500	680	1.300	570	1.500	360	1.500	360
Depth of cut				ap: 1,5D		ae: 0,5D		

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used. In resin processing, the feed rate can be increased if the shape of the workpiece and method of fixation are rigid.
3. Reduce speed and feed as well as depth of cut when high precision is required.
4. Adjust the speed and feed accordingly when the overhang length is longer than specified
5. When the chips wind around the end mill, reduce the speed and feed.
6. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.
7. When processing resin, please remove cutting chips to prevent them from getting caught or entangled.
8. For higher quality processing of resin, the use of a water-soluble cutting fluid is recommended (excluding nylon and Bakelite).

The table above is for when using air-blow.

CUTTING CONDITIONS

AE-TS-N Applies to square/sharp corner edge/radius type

Plunging

	Aluminum Alloy Expanding Material • Magnesium Alloy A5052 • A7075 • AZ91• AZ80A		Aluminum Alloy Casting AC4C • ADC		Copper Alloy C1100	
Vc (m/min)	80		80		60	
DC X LU	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
1 x 3	16.000	350	16.000	350	10.000	100
1,5 x 4,5	16.000	350	16.000	350	9.000	100
2 x 6	12.750	350	12.750	350	8.500	100
2,5 x 7,5	10.000	350	10.000	350	6.400	100
3 x 9	8.500	400	8.500	400	6.400	120
4 x 12	6.400	400	6.400	400	4.800	120
5 x 15	5.100	400	5.100	400	3.800	120
6 x 18	4.200	450	4.200	450	3.100	130
8 x 24	3.200	500	3.200	500	2.400	150
10 x 30	2.550	500	2.550	500	1.900	150
12 x 36	2.100	500	2.100	500	1.600	150
16 x 48	1.600	550	1.600	550	1.200	170
20 x 60	1.300	550	1.300	550	960	170
25 x 75	1.020	550	1.020	550	770	170
Depth of cut	ap 1D				ap 0,5D	

The table above is for when using water-soluble coolant.

	Thermoplastic Resin						Thermosetting Resin	
	PP • UPE • PTFE		POM • PVC • MC Nylon • ABS Resin		Acrylic		Bakelite	
Vc (m/min)	90		70		90		90	
DC X LU	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
1 x 3	25.500	480	19.100	290	25.500	290	25.500	290
1,5 x 4,5	17.000	380	12.700	240	17.000	190	17.000	190
2 x 6	12.700	330	9.500	210	12.700	190	12.700	190
2,5 x 7,5	10.200	310	7.600	200	10.200	150	10.200	150
3 x 9	8.500	290	6.400	190	8.500	130	8.500	130
4 x 12	6.400	270	4.800	190	6.400	120	6.400	120
5 x 15	5.100	270	3.800	190	5.100	110	5.100	110
6 x 18	4.200	250	3.200	190	4.200	110	4.200	110
8 x 24	3.200	250	2.600	190	3.200	110	3.200	110
10 x 30	2.900	250	2.200	180	2.900	110	2.900	110
12 x 36	2.400	250	2.000	180	2.400	110	2.400	110
16 x 48	2.000	240	1.600	180	2.000	110	2.000	110
20 x 60	1.600	210	1.300	160	1.600	110	1.600	110
25 x 75	1.300	200	1.000	150	1.300	100	1.300	100
Depth of cut	ap 1D							

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used. In resin processing, the feed rate can be increased if the shape of the workpiece and method of fixation are rigid.
3. Reduce speed and feed as well as depth of cut when high precision is required.
4. Adjust the speed and feed accordingly when the overhang length is longer than specified (refer to p.24).
5. When the chips wind around the end mill, reduce the speed and feed.
6. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.
7. When processing resin, please remove cutting chips to prevent them from getting caught or entangled.
8. For higher quality processing of resin, the use of a water-soluble cutting fluid is recommended (excluding nylon and Bakelite).
9. Please step feed when processing resin by plunging.

The table above is for when using air-blow.

Cutting Condition Guide for Changes in Overhang Length

DC = Ø6, Ø8

	Work Material	Aluminum Alloy Expanding Material • Magnesium Alloy A5052 • A7075 • AZ91• AZ80A		Aluminum Alloy Casting AC4C • ADC		Copper Alloy C1100	
	L/D	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
Slot milling	5	70%		70%		70%	
	6	40%		40%		40%	
Side milling	5	70%		70%		70%	
	6	50%		50%		50%	
Plunging	5	80%		80%		80%	
	6	60%		60%		60%	

CUTTING CONDITIONS

AE-TL-N Applies to square/sharp corner edge/chipbreaker type

3XD Cutting length

Slot Milling

	Aluminum Alloy Expanding Material • Magnesium Alloy A5052 • A7075 • AZ91• AZ80A		Aluminum Alloy Casting AC4C • ADC		Copper Alloy C1100	
Vc (m/min)	240		240		120	
DC x APMX	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
3 x 9	25.600	1.380	25.600	1.380	12.800	770
4 x 12	19.200	1.420	19.200	1.420	9.600	820
5 x 15	15.360	1.470	15.360	1.470	7.680	870
6 x 18	12.800	1.520	12.800	1.520	6.400	930
8 x 24	9.600	1.620	9.600	1.620	4.800	1.040
10 x 30	7.680	1.720	7.680	1.720	3.840	1.140
12 x 36	6.400	1.820	6.400	1.820	3.200	1.250
16 x 48	4.800	1.920	4.800	1.920	2.400	1.320
20 x 60	3.800	2.020	3.800	2.020	1.900	1.390
25 x 75	3.060	2.120	3.060	2.120	1.530	1.460
Depth of cut	ap 1D				ap 0,5D	

The table above is for when using water-soluble coolant.

	Thermoplastic Resin						Thermosetting Resin Bakelite	
	PP • UPE • PTFE		POM • PVC • MC Nylon • ABS Resin		Acrylic			
Vc (m/min)	90		70		90		90	
DC X APMX	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
3 x 9	8.500	1.150	6.400	770	8.500	510	8.500	510
4 x 12	6.400	1.090	4.800	750	6.400	480	6.400	480
5 x 15	5.100	1.070	3.800	740	5.100	460	5.100	460
6 x 18	4.200	1.010	3.200	740	4.200	440	4.200	440
8 x 24	3.200	960	2.600	740	3.200	390	3.200	390
10 x 30	2.900	870	2.200	630	2.900	390	2.900	390
12 x 36	2.400	790	2.000	630	2.400	360	2.400	360
16 x 48	2.000	720	1.600	550	2.000	360	2.000	360
20 x 60	1.600	620	1.300	490	1.600	340	1.600	340
25 x 75	1.300	590	1.000	440	1.300	310	1.300	310
Depth of cut				DC ≤12 12<DC	ap 1D 0,5D			

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used. In resin processing, the feed rate can be increased if the shape of the workpiece and method of fixation are rigid.
3. Reduce speed and feed as well as depth of cut when high precision is required.
4. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.
5. When processing resin, please remove cutting chips to prevent them from getting caught or entangled.
6. For higher quality processing of resin, the use of a water-soluble cutting fluid is recommended (excluding nylon and Bakelite).

The table above is for when using air-blow.

AE-TL-N Applies to square/sharp corner edge/chipbreaker type

3XD Cutting length

Side Milling



	Aluminum Alloy Expanding Material • Magnesium Alloy A5052 • A7075 • AZ91• AZ80A		Aluminum Alloy Casting AC4C • ADC		Copper Alloy C1100	
Vc (m/min)	240		240		120	
DC x APMX	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
3 x 9	25.600	1.720	25.600	1.720	12.800	960
4 x 12	19.200	1.780	19.200	1.780	9.600	1.020
5 x 15	15.360	1.840	15.360	1.840	7.680	1.080
6 x 18	12.800	1.900	12.800	1.900	6.400	1.160
8 x 24	9.600	2.030	9.600	2.030	4.800	1.300
10 x 30	7.680	2.150	7.680	2.150	3.840	1.420
12 x 36	6.400	2.270	6.400	2.270	3.200	1.550
16 x 48	4.800	2.390	4.800	2.390	2.400	1.630
20 x 60	3.800	2.510	3.800	2.510	1.900	1.710
25 x 75	3.060	2.640	3.060	2.640	1.530	1.800
Depth of cut	ap: 3D	ae: 0,1D				

The table above is for when using water-soluble coolant.



	Thermoplastic Resin PP • UPE • PTFE		Thermoplastic Resin POM • PVC • MC Nylon • ABS Resin		Thermoplastic Resin Acrylic		Thermosetting Resin Bakelite	
Vc (m/min)	110		90		110		110	
DC X APMX	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
3 x 9	10.600	1.430	8.500	1.020	10.600	640	10.600	640
4 x 12	8.000	1.370	6.400	1.000	8.000	600	8.000	600
5 x 15	6.400	1.340	5.100	990	6.400	580	6.400	580
6 x 18	5.300	1.270	4.200	950	5.300	560	5.300	560
8 x 24	4.000	1.200	3.400	870	4.000	480	4.000	480
10 x 30	3.500	1.050	2.900	830	3.500	470	3.500	470
12 x 36	2.900	960	2.500	790	2.900	440	2.900	440
16 x 48	2.400	860	2.000	690	2.400	430	2.400	430
20 x 60	1.900	740	1.600	600	1.900	400	1.900	400
25 x 75	1.500	680	1.300	570	1.500	360	1.500	360
Depth of cut	ap: 3D		ae: 0,2D					

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used. In resin processing, the feed rate can be increased if the shape of the workpiece and method of fixation are rigid.
3. Reduce speed and feed as well as depth of cut when high precision is required.
4. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.
5. When processing resin, please remove cutting chips to prevent them from getting caught or entangled.
6. For higher quality processing of resin, the use of a water-soluble cutting fluid is recommended (excluding nylon and Bakelite).

The table above is for when using air-blow.

AE-TL-N Applies to square/sharp corner edge/chipbreaker type

3XD Cutting length
Plunging

	Aluminum Alloy Expanding Material • Magnesium Alloy A5052 • A7075 • AZ91• AZ80A		Aluminum Alloy Casting AC4C • ADC		Copper Alloy C1100	
Vc (m/min)	70		70		50	
DC x APMX	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
3 x 9	7.500	350	7.500	350	5.300	100
4 x 12	5.600	350	5.600	350	3.980	100
5 x 15	4.460	350	4.460	350	3.180	100
6 x 18	3.680	400	3.680	400	2.650	110
8 x 24	2.800	450	2.800	450	1.990	120
10 x 30	2.230	450	2.230	450	1.590	120
12 x 36	1.840	450	1.840	450	1.330	120
16 x 48	1.400	500	1.400	500	1.000	130
20 x 60	1.100	500	1.100	500	800	130
25 x 75	890	500	890	500	640	130
Depth of cut	ap 1D				ap 0,5D	

The table above is for when using water-soluble coolant.



	Thermoplastic Resin						Thermosetting Resin Bakelite	
	PP • UPE • PTFE		POM • PVC • MC Nylon • ABS Resin		Acrylic			
Vc (m/min)	90		70		90		90	
DC X APMX	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
3 x 9	8.500	290	6.400	190	8.500	130	8.500	130
4 x 12	6.400	270	4.800	190	6.400	120	6.400	120
5 x 15	5.100	270	3.800	190	5.100	110	5.100	110
6 x 18	4.200	250	3.200	190	4.200	110	4.200	110
8 x 24	3.200	250	2.600	190	3.200	110	3.200	110
10 x 30	2.900	250	2.200	180	2.900	110	2.900	110
12 x 36	2.400	250	2.000	180	2.400	110	2.400	110
16 x 48	2.000	240	1.600	180	2.000	110	2.000	110
20 x 60	1.600	210	1.300	160	1.600	110	1.600	110
25 x 75	1.300	200	1.000	150	1.300	100	1.300	100
Depth of cut	ap 1D							

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used. In resin processing, the feed rate can be increased if the shape of the workpiece and method of fixation are rigid.
3. Reduce speed and feed as well as depth of cut when high precision is required.
4. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.
5. When processing resin, please remove cutting chips to prevent them from getting caught or entangled.
6. For higher quality processing of resin, the use of a water-soluble cutting fluid is recommended (excluding nylon and Bakelite).
7. Please step feed when processing resin by plunging.

The table above is for when using air-blow.

AE-TL-N Applies to square/sharp corner edge/chipbreaker type

5XD Cutting length

Side Milling

	Aluminum Alloy Expanding Material • Magnesium Alloy A5052 • A7075 • AZ91• AZ80A		Aluminum Alloy Casting AC4C • ADC		Copper Alloy C1100	
Vc (m/min)	100		100		50	
DC x APMX	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
3 x 15	10.600	640	10.600	640	5.300	200
4 x 20	8.000	690	8.000	690	4.000	210
5 x 25	6.400	730	6.400	730	3.200	230
6 x 30	5.300	780	5.300	780	2.600	240
8 x 40	4.000	870	4.000	870	2.000	260
10 x 50	3.200	960	3.200	960	1.600	290
12 x 60	2.700	1.050	2.700	1.050	1.300	320
16 x 60	2.000	1.140	2.000	1.140	1.000	350
20 x 80	1.600	1.230	1.600	1.230	800	380
25 x 125	1.300	1.320	1.300	1.320	640	400
Depth of cut	ap: 5D, ae: 0,1D					

The table above is for when using water-soluble coolant.

	Thermoplastic Resin PP • UPE • PTFE		Thermoplastic Resin POM • PVC • MC Nylon • ABS Resin		Thermoplastic Resin Acrylic		Thermosetting Resin Bakelite	
Vc (m/min)	85		70		85		85	
DC X APMX	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
3 x 15	8.500	1.150	6.800	820	8.500	510	8.500	510
4 x 20	6.400	960	5.100	770	6.400	480	6.400	480
5 x 25	5.100	900	4.100	740	5.100	460	5.100	460
6 x 30	4.200	880	3.400	710	4.200	440	4.200	440
8 x 40	3.200	770	2.700	650	3.200	380	3.200	380
10 x 50	2.800	740	2.300	620	2.550	380	2.550	380
12 x 60	2.300	660	2.000	600	2.300	350	2.300	350
16 x 60	1.900	570	1.600	480	1.900	340	1.900	340
20 x 80	1.500	450	1.300	390	1.500	270	1.500	270
25 x 125	1.200	360	1.000	300	1.200	220	1.200	220
Depth of cut	ap: 5D, ae: 0,1D							

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used. In resin processing, the feed rate can be increased if the shape of the workpiece and method of fixation are rigid.
3. Reduce speed and feed as well as depth of cut when high precision is required.
4. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.
5. When processing resin, please remove cutting chips to prevent them from getting caught or entangled.
6. For higher quality processing of resin, the use of a water-soluble cutting fluid is recommended (excluding nylon and Bakelite).

The table above is for when using air-blow.

CUTTING CONDITIONS

AE-VTS-N Applies to square/sharp corner edge/radius type

Slot Milling

	Aluminum Alloy Expanding Material • Magnesium Alloy A5052 • A7075 • AZ91• AZ80A		Aluminum Alloy Casting AC4C • ADC		Copper Alloy C1100	
Vc (m/min)	400		400		200	
DC X LU	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
1 x 3	32.000	1.430	32.000	1.430	16.000	660
1,5 x 4,5	32.000	1.630	32.000	1.630	16.000	720
2 x 6	32.000	1.920	32.000	1.920	16.000	800
2,5 x 7,5	32.000	2.880	32.000	2.880	16.000	1.080
3 x 9	32.000	3.820	32.000	3.820	16.000	1.430
4 x 12	24.000	3.960	24.000	3.960	12.000	1.530
5 x 15	19.200	4.090	19.200	4.090	9.600	1.640
6 x 18	18.500	4.230	18.500	4.230	9.300	1.740
8 x 24	16.000	4.510	16.000	4.510	8.000	1.940
10 x 30	13.000	4.780	13.000	4.780	6.400	2.150
12 x 36	11.000	5.050	11.000	5.050	5.300	2.360
Depth of cut	ap 1D				ap 0,5D	

1. The above milling condition is a guideline for the overhang length is 4×D.
2. Use a rigid and precise machine and holder.
3. The indicated speeds and feeds are for milling with water-soluble coolant.
4. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
5. Reduce speed and feed as well as depth of cut when high precision is required.
6. Adjust the speed and feed accordingly when the overhang length is longer than specified (refer to p.18).
7. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.

The table above is for when using water-soluble coolant.

	Thermoplastic Resin						Thermosetting Resin Bakelite	
	PP • UPE • PTFE		POM • PVC • MC Nylon • ABS Resin		Acrylic			
Vc (m/min)	95		75		95		95	
DC X LU	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
1 x 3	28.600	2.150	22.300	1.340	28.600	1.290	28.600	1.290
1,5 x 4,5	19.100	1.720	14.900	1.120	19.100	860	19.100	860
2 x 6	14.300	1.500	11.100	1.000	14.300	860	14.300	860
2,5 x 7,5	11.500	1.380	8.900	930	11.500	690	11.500	690
3 x 9	9.500	1.280	7.400	890	9.500	570	9.500	570
4 x 12	7.200	1.230	5.600	870	7.200	540	7.200	540
5 x 15	5.700	1.200	4.500	880	5.700	510	5.700	510
6 x 18	4.800	1.150	3.700	830	4.800	500	4.800	500
8 x 24	3.600	1.080	3.000	830	3.600	430	3.600	430
10 x 30	3.200	960	2.500	710	3.200	430	3.200	430
12 x 36	2.700	890	2.100	660	2.700	410	2.700	410
Depth of cut	ap 1D							

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used. In resin processing, the feed rate can be increased if the shape of the workpiece and method of fixation are rigid.
3. Reduce speed and feed as well as depth of cut when high precision is required.
4. Adjust the speed and feed accordingly when the overhang length is longer than specified (refer to p.38).
5. When the chips wind around the end mill, reduce the speed and feed.
6. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.
7. When processing resin, please remove cutting chips to prevent them from getting caught or entangled.
8. For higher quality processing of resin, the use of a water-soluble cutting fluid is recommended (excluding nylon and Bakelite).

The table above is for when using air-blow.

AE-VTS-N Applies to square/sharp corner edge/radius type

Side Milling



	Aluminum Alloy Expanding Material • Magnesium Alloy A5052 • A7075 • AZ91• AZ80A		Aluminum Alloy Casting AC4C • ADC		Copper Alloy C1100	
Vc (m/min)	400		400		200	
DC X LU	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
1 x 3	32.000	1.430	32.000	1.430	16.000	720
1,5 x 4,5	32.000	1.630	32.000	1.630	16.000	800
2 x 6	32.000	1.920	32.000	1.920	16.000	1.080
2,5 x 7,5	32.000	2.880	32.000	2.880	16.000	1.200
3 x 9	32.000	3.820	32.000	3.820	16.000	1.600
4 x 12	24.000	3.960	24.000	3.960	12.000	1.700
5 x 15	19.200	4.090	19.200	4.090	9.600	1.830
6 x 18	18.500	4.230	18.500	4.230	9.300	1.950
8 x 24	16.000	4.510	16.000	4.510	8.000	2.180
10 x 30	13.000	4.780	13.000	4.780	6.400	2.400
12 x 36	11.000	5.050	11.000	5.050	5.300	2.650
Depth of cut	ap: 1,5D, ae: 0,2D				ap: 1,5D, ae: 0,1D	

The table above is for when using water-soluble coolant.

	Thermoplastic Resin						Thermosetting Resin Bakelite	
	PP • UPE • PTFE		POM • PVC • MC Nylon • ABS Resin		Acrylic			
Vc (m/min)	105		85		105		105	
DC X LU	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
1 x 3	31.800	2.390	25.500	1.530	31.800	1.430	31.800	1.430
1,5 x 4,5	21.200	1.910	17.000	1.280	21.200	950	21.200	950
2 x 6	15.900	1.670	12.700	1.140	15.900	950	15.900	950
2,5 x 7,5	12.700	1.520	10.200	1.070	12.700	760	12.700	760
3 x 9	10.600	1.430	8.500	1.020	10.600	640	10.600	640
4 x 12	8.000	1.370	6.400	1.000	8.000	600	8.000	600
5 x 15	6.400	1.340	5.100	990	6.400	580	6.400	580
6 x 18	5.300	1.270	4.200	950	5.300	560	5.300	560
8 x 24	4.000	1.200	3.400	870	4.000	480	4.000	480
10 x 30	3.500	1.050	2.900	830	3.500	470	3.500	470
12 x 36	2.900	960	2.500	790	2.900	440	2.900	440
Depth of cut	ap: 1,5D, ae: 0,5D							

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used. In resin processing, the feed rate can be increased if the shape of the workpiece and method of fixation are rigid.
3. Reduce speed and feed as well as depth of cut when high precision is required.
4. Adjust the speed and feed accordingly when the overhang length is longer than specified (refer to p.38).
5. When the chips wind around the end mill, reduce the speed and feed.
6. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.
7. When processing resin, please remove cutting chips to prevent them from getting caught or entangled.
8. For higher quality processing of resin, the use of a water-soluble cutting fluid is recommended (excluding nylon and Bakelite).

The table above is for when using air-blow.

CUTTING CONDITIONS

AE-VTS-N Applies to square/sharp corner edge/radius type

Plunging

	Aluminum Alloy Expanding Material • Magnesium Alloy A5052 • A7075 • AZ91• AZ80A		Aluminum Alloy Casting AC4C • ADC		Copper Alloy C1100	
Vc (m/min)	150		150		75	
DC X LU	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
1 x 3	20.000	400	20.000	400	10.000	120
1,5 x 4,5	20.000	400	20.000	400	10.000	120
2 x 6	20.000	400	20.000	400	10.000	120
2,5 x 7,5	20.000	400	20.000	400	10.000	120
3 x 9	15.900	500	15.900	500	8.000	150
4 x 12	12.000	500	12.000	500	6.000	150
5 x 15	9.600	500	9.600	500	4.800	150
6 x 18	8.000	600	8.000	600	4.000	180
8 x 24	6.000	700	6.000	700	3.000	210
10 x 30	4.800	700	4.800	700	2.400	210
12 x 36	4.000	700	4.000	700	2.000	210
Depth of cut	ap 1D				ap 0,5D	

The table above is for when using water-soluble coolant.

	Thermoplastic Resin						Thermosetting Resin Bakelite	
	PP • UPE • PTFE		POM • PVC • MC Nylon • ABS Resin		Acrylic			
Vc (m/min)	95		70		90		90	
DC X LU	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
1 x 3	28.600	540	22.300	330	28.600	320	28.600	320
1,5 x 4,5	19.100	430	14.900	280	19.100	210	19.100	210
2 x 6	14.300	380	11.100	250	14.300	210	14.300	210
2,5 x 7,5	11.500	350	8.900	230	11.500	170	11.500	170
3 x 9	9.500	320	7.400	220	9.500	140	9.500	140
4 x 12	7.200	310	5.600	220	7.200	140	7.200	140
5 x 15	5.700	300	4.500	220	5.700	130	5.700	130
6 x 18	4.800	290	3.700	210	4.800	130	4.800	130
8 x 24	3.600	280	2.800	210	3.600	110	3.600	110
10 x 30	3.200	280	2.200	180	2.900	110	2.900	110
12 x 36	2.700	280	1.850	180	2.400	110	2.400	110
Depth of cut	ap 1D							

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used. In resin processing, the feed rate can be increased if the shape of the workpiece and method of fixation are rigid.
3. Reduce speed and feed as well as depth of cut when high precision is required.
4. Adjust the speed and feed accordingly when the overhang length is longer than specified (refer to p.38).
5. When the chips wind around the end mill, reduce the speed and feed.
6. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.
7. When processing resin, please remove cutting chips to prevent them from getting caught or entangled.
8. For higher quality processing of resin, the use of a water-soluble cutting fluid is recommended (excluding nylon and Bakelite).
9. Please step feed when processing resin by plunging.

The table above is for when using air-blow.

Cutting Condition Guide for Changes in Overhang Length

DC = Ø6, Ø8

	Work Material	Aluminum Alloy Expanding Material • Magnesium Alloy A5052 • A7075 • AZ91• AZ80A		Aluminum Alloy Casting AC4C • ADC		Copper Alloy C1100	
	L/D	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
Slot milling	5	70%		70%		70%	
	6	70%	20%	70%	20%	70%	20%
Side milling	5	70%		70%		70%	
	6	50%		50%		50%	
Plunging	5	80%		80%		80%	
	6	60%		60%		60%	

AE-VTFE-N Applies to square/radius type

Slot Milling



	Aluminum Alloy Expanding Material • Magnesium Alloy A5052 • A7075 • AZ91• AZ80A		Aluminum Alloy Casting AC4C • ADC		Copper Alloy C1100	
Vc (m/min)	200		200		100	
DC	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
6	8.490	1.530	8.490	1.530	4.250	640
8	6.370	1.150	6.370	1.150	3.180	480
10	6.370	1.910	6.370	1.910	3.180	760
12	5.310	1.910	5.310	1.910	2.650	640
14	4.550	1.640	4.550	1.640	2.270	540
18	3.540	1.270	3.540	1.270	1.770	420
22	2.900	1.040	2.900	1.040	1.450	350
Depth of cut						

	ap
DC≤Ø10	0,1D
10<DC	0,2D

The table above is for when using water-soluble coolant.

	Thermoplastic Resin						Thermosetting Resin	
	PP • UPE • PTFE		POM • PVC • MC Nylon • ABS Resin		Acrylic		Bakelite	
Vc (m/min)	100		80		100		100	
DC X LU	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
6	4.800	1.150	3.700	830	4.800	500	4.800	500
8	3.600	1.080	3.000	830	3.600	430	3.600	430
10	3.200	960	2.500	710	3.200	430	3.200	430
12	2.700	890	2.100	660	2.700	410	2.700	410
14	2.300	760	2.000	630	2.300	350	2.300	350
18	1.900	680	1.600	550	1.900	340	1.900	340
22	1.600	620	1.300	490	1.600	340	1.600	340
Depth of cut								

ap
0,5D

1. The above milling condition is a guideline for the overhang length is 5×D.
2. Use a rigid and precise machine and holder.
3. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used. In resin processing, the feed rate can be increased if the shape of the workpiece and method of fixation are rigid.
4. Reduce speed and feed as well as depth of cut when high precision is required.
5. Adjust the speed and feed accordingly when the overhang length is longer than specified (refer to p.46).
6. When the chips wind around the end mill, reduce the speed and feed.
7. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.
8. When processing resin, please remove cutting chips to prevent them from getting caught or entangled.
9. For higher quality processing of resin, the use of a water-soluble cutting fluid is recommended (excluding nylon and Bakelite).

The table above is for when using air-blow.

CUTTING CONDITIONS

AE-VTFE-N Applies to square/radius type

Side Milling

	Aluminum Alloy Expanding Material • Magnesium Alloy A5052 • A7075 • AZ91• AZ80A		Aluminum Alloy Casting AC4C • ADC		Copper Alloy C1100	
Vc (m/min)	300		300		150	
DC	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
6	15.920	2.870	15.920	2.870	7.960	1.190
8	11.940	2.150	11.940	2.150	5.970	1.070
10	9.550	2.870	9.550	2.870	4.780	1.000
12	7.960	2.870	7.960	2.870	3.980	960
14	6.820	2.460	6.820	2.460	3.410	820
18	5.310	1.910	5.310	1.910	2.650	640
22	4.340	1.560	4.340	1.560	2.170	520
Depth of cut	ap: 2D, ae: 0,1D					

The table above is for when using water-soluble coolant.

	Thermoplastic Resin PP • UPE • PTFE		Thermoplastic Resin POM • PVC • MC Nylon • ABS Resin		Thermoplastic Resin Acrylic		Thermosetting Resin Bakelite	
Vc (m/min)	110		90		110		110	
DC X LU	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
6	5.300	1.270	4.200	950	5.300	560	5.300	560
8	4.000	1.200	3.400	870	4.000	480	4.000	480
10	3.500	1.050	2.900	830	3.500	470	3.500	470
12	2.900	960	2.500	790	2.900	440	2.900	440
14	2.500	830	2.300	720	2.500	380	2.500	380
18	2.100	760	1.800	620	2.100	380	2.100	380
22	1.700	660	1.400	530	1.700	360	1.700	360
Depth of cut	ap: 0,5D							

The table above is for when using air-blow.

Cutting Condition Guide for Changes in Overhang Length

Work Material		Aluminum Alloy Expanding Material • Magnesium Alloy A5052 • A7075 • AZ91• AZ80A				Aluminum Alloy Casting AC4C • ADC				Copper Alloy C1100			
	L/D	S (min^{-1})	F (mm/min)	Depth of Cut ap	Depth of Cut ae	S (min^{-1})	F (mm/min)	Depth of Cut ap	Depth of Cut ae	S (min^{-1})	F (mm/min)	Depth of Cut ap	Depth of Cut ae
Slot milling	6	50%	50%	0,015D	-	50%	50%	0,015D	-	50%	50%	0,015D	-
	7	30%	20%	0,01D	-	30%	20%	0,01D	-	30%	20%	0,01D	-
Side milling	6	65%	60%	2D	0,05D	65%	60%	2D	0,05D	90%	90%	2D	0,05D
	7	55%	50%	2D	0,03D	55%	50%	2D	0,03D	70%	70%	2D	0,03D
	8	45%	45%	2D	0,025D	45%	45%	2D	0,025D	65%	65%	2D	0,01D

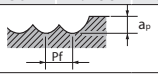
CUTTING CONDITIONS

Milling | Endmills | Cutting conditions

AE-LNBD-N

Work Material		Wrought aluminium alloy A7075				Aluminium alloy casting • Die casting <Si 13%				Copper C1020 - C1100				Copper Tungsten W70% - Cu30%			
RE	LU (mm)	S (min^{-1})	F (mm/min)	Depth of cut (mm)		S (min^{-1})	F (mm/min)	Depth of cut (mm)		S (min^{-1})	F (mm/min)	Depth of cut (mm)		S (min^{-1})	F (mm/min)	Depth of cut (mm)	
				ap	pf			ap	pf			ap	pf			ap	pf
R0,05	0,3	50.000	293	0,005	0,01	43.800	257	0,005	0,01	38.400	225	0,005	0,01	32.000	120	0,005	0,008
R0,05	0,5	50.000	234	0,005	0,01	43.800	205	0,005	0,01	38.400	180	0,005	0,01	32.000	96	0,005	0,008
R0,075	0,3	50.000	335	0,008	0,02	43.800	293	0,008	0,02	38.400	257	0,008	0,02	32.000	137	0,008	0,015
R0,075	0,5	50.000	293	0,008	0,02	43.800	257	0,008	0,02	38.400	225	0,008	0,02	32.000	120	0,008	0,021
R0,075	1	50.000	234	0,005	0,01	43.800	205	0,005	0,01	38.400	180	0,005	0,01	32.000	96	0,005	0,011
R0,1	0,3	50.000	586	0,020	0,04	43.800	513	0,02	0,04	38.400	450	0,02	0,04	32.000	240	0,02	0,03
R0,1	0,5	50.000	586	0,020	0,04	43.800	513	0,02	0,04	38.400	450	0,02	0,04	32.000	240	0,02	0,03
R0,1	1	50.000	293	0,020	0,04	43.800	257	0,02	0,04	38.400	225	0,02	0,04	32.000	120	0,02	0,03
R0,1	1,5	50.000	293	0,020	0,04	43.800	257	0,02	0,04	38.400	225	0,02	0,04	32.000	120	0,02	0,03
R0,15	0,6	50.000	1.172	0,020	0,06	43.800	1.027	0,02	0,06	38.400	900	0,02	0,06	32.000	480	0,02	0,045
R0,15	1	50.000	879	0,020	0,06	43.800	770	0,02	0,06	38.400	675	0,02	0,06	32.000	360	0,02	0,045
R0,15	1,5	50.000	879	0,020	0,06	43.800	770	0,02	0,06	38.400	675	0,02	0,06	32.000	360	0,02	0,045
R0,15	2	50.000	879	0,020	0,06	43.800	770	0,02	0,06	38.400	675	0,02	0,06	32.000	360	0,02	0,045
R0,2	1	50.000	1.172	0,025	0,1	43.800	1.027	0,025	0,1	38.400	900	0,025	0,1	32.000	480	0,025	0,075
R0,2	2	41.300	860	0,025	0,1	37.000	771	0,025	0,1	32.400	675	0,025	0,1	27.000	360	0,025	0,075
R0,2	3	41.300	860	0,025	0,1	37.000	771	0,025	0,1	32.400	675	0,025	0,1	27.000	360	0,025	0,075
R0,2	4	41.300	860	0,01	0,06	37.000	771	0,01	0,06	32.400	675	0,01	0,06	27.000	360	0,01	0,045
R0,25	1	50.000	1.465	0,04	0,1	43.800	1.283	0,04	0,1	38.400	1.125	0,04	0,1	32.000	600	0,04	0,075
R0,25	2	50.000	1.172	0,04	0,1	43.800	1.027	0,04	0,1	38.400	900	0,04	0,1	32.000	480	0,04	0,075
R0,25	3	41.300	860	0,04	0,1	37.000	771	0,04	0,1	32.400	675	0,04	0,1	27.000	360	0,04	0,075
R0,25	4	41.300	860	0,04	0,1	37.000	771	0,04	0,1	32.400	675	0,04	0,1	27.000	360	0,04	0,075
R0,25	5	32.100	573	0,04	0,1	28.700	513	0,04	0,1	25.200	450	0,04	0,1	21.000	240	0,04	0,075
R0,3	1	50.000	2.930	0,09	0,12	43.800	2.566	0,09	0,12	38.400	2.250	0,09	0,12	32.000	1.440	0,08	0,12
R0,3	2	50.000	2.198	0,09	0,12	43.800	1.925	0,09	0,12	38.400	1.688	0,09	0,12	32.000	1.080	0,08	0,12
R0,3	3	46.000	1.199	0,09	0,12	41.000	1.068	0,09	0,12	36.000	938	0,09	0,12	30.000	600	0,08	0,12
R0,3	4	45.900	1.196	0,09	0,12	41.000	1.068	0,09	0,12	36.000	938	0,09	0,12	30.000	600	0,08	0,12
R0,3	5	45.900	1.196	0,09	0,12	41.000	1.068	0,09	0,12	36.000	938	0,09	0,12	30.000	600	0,08	0,12
R0,3	6	38.300	719	0,09	0,12	34.000	638	0,09	0,12	30.000	563	0,09	0,12	25.000	360	0,08	0,12
R0,4	2	41.300	2.152	0,12	0,16	37.000	1.928	0,12	0,16	32.400	1.688	0,12	0,16	27.000	1.080	0,11	0,16
R0,4	3	41.300	2.152	0,12	0,16	37.000	1.928	0,12	0,16	32.400	1.688	0,12	0,16	27.000	1.080	0,11	0,16
R0,4	4	41.300	2.152	0,12	0,16	37.000	1.928	0,12	0,16	32.400	1.688	0,12	0,16	27.000	1.080	0,11	0,16
R0,4	6	36.700	1.195	0,12	0,12	32.800	1.068	0,12	0,12	28.800	938	0,12	0,12	24.000	600	0,11	0,12
R0,4	8	33.700	719	0,12	0,12	30.100	642	0,12	0,12	26.400	563	0,12	0,12	22.000	360	0,11	0,12
R0,5	2	42.800	2.388	0,15	0,2	38.300	2.137	0,15	0,2	33.600	1.875	0,15	0,2	28.000	1.200	0,14	0,2
R0,5	3	42.800	2.388	0,15	0,2	38.300	2.137	0,15	0,2	33.600	1.875	0,15	0,2	28.000	1.200	0,14	0,2
R0,5	4	42.800	2.388	0,15	0,2	38.300	2.137	0,15	0,2	33.600	1.875	0,15	0,2	28.000	1.200	0,14	0,2
R0,5	5	32.100	1.433	0,15	0,2	28.700	1.281	0,15	0,2	25.200	1.125	0,15	0,2	21.000	720	0,14	0,2
R0,5	6	32.100	1.433	0,15	0,2	28.700	1.281	0,15	0,2	25.200	1.125	0,15	0,2	21.000	720	0,14	0,2
R0,5	8	32.100	1.433	0,15	0,15	28.700	1.281	0,15	0,15	25.200	1.125	0,15	0,15	21.000	720	0,14	0,15
R0,5	10	27.500	955	0,12	0,12	24.600	854	0,12	0,12	21.600	750	0,12	0,12	18.000	480	0,11	0,12
R0,5	12	27.500	955	0,12	0,12	24.600	854	0,12	0,12	21.600	750	0,12	0,12	18.000	480	0,11	0,12
R0,75	4	30.600	2.869	0,24	0,3	27.400	2.569	0,24	0,3	24.000	2.250	0,24	0,3	20.000	1.440	0,22	0,3
R0,75	6	27.500	2.387	0,24	0,3	24.600	2.135	0,24	0,3	21.600	1.875	0,24	0,3	18.000	1.200	0,22	0,3
R0,75	12	26.000	1.434	0,24	0,24	23.300	1.285	0,24	0,24	20.400	1.125	0,24	0,24	17.000	720	0,22	0,24
R0,75	18	19.900	957	0,18	0,18	17.800	856	0,18	0,18	15.600	750	0,18	0,18	13.000	480	0,16	0,18
R1	4	25.200	3.341	0,3	0,56	22.600	2.996	0,3	0,56	19.800	2.625	0,3	0,56	16.500	1.680	0,27	0,56
R1	6	25.200	3.341	0,3	0,56	22.600	2.996	0,3	0,56	19.800	2.625	0,3	0,56	16.500	1.680	0,27	0,56
R1	8	25.200	3.341	0,3	0,56	22.600	2.996	0,3	0,56	19.800	2.625	0,3	0,56	16.500	1.680	0,27	0,56
R1	10	21.400	2.388	0,3	0,56	19.200	2.143	0,3	0,56	16.800	1.875	0,3	0,56	14.000	1.200	0,27	0,56
R1	12	21.400	2.388	0,3	0,56	19.200	2.143	0,3	0,56	16.800	1.875	0,3	0,56	14.000	1.200	0,27	0,56
R1	14	21.400	2.388	0,3	0,56	19.200	2.143	0,3	0,56	16.800	1.875	0,3	0,56	14.000	1.200	0,27	0,56
R1	16	21.400	2.388	0,3	0,42	19.200	2.143	0,3	0,42	16.800	1.875	0,3	0,42	14.000	1.200	0,27	0,42
R1	20	16.800	1.194	0,3	0,42	15.000	1.066	0,3	0,42	13.200	938	0,3	0,42	11.000	600	0,27	0,42
R1	25	16.800	1.194	0,3	0,42	15.000	1.066	0,3	0,42	13.200	938	0,3	0,42	11.000	600	0,27	0,42
R1,5	10	18.400	2.875	0,4	0,84	16.400	2.563	0,4	0,84	14.400	2.250	0,4	0,84	12.000	1.440	0,36	0,84
R1,5	12	15.300	2.869	0,4	0,84	13.700	2.569	0,4	0,84	12.000	2.250	0,4	0,84	10.000	1.440	0,36	0,84
R1,5	14	15.300	2.869	0,4	0,84	13.700	2.569	0,4	0,84	12.000	2.250	0,4	0,84	10.000	1.440	0,36	0,84
R1,5	16	15.300	1.434	0,4	0,84	13.700	1.284	0,4	0,84	12.000	1.125	0,4	0,84	10.000	720	0,36	0,84
R1,5	20	15.300	1.434	0,4	0,84	13.700	1.284	0,4	0,84	12.000	1.125	0,4	0,84	10.000	720	0,36	0,84
R1,5	25	15.300	1.434	0,4	0,84	13.700	1.284	0,4	0,84	12.000	1.125	0,4	0,84	10.000	720	0,36	0,84
R1,5	30	13.800	1.199	0,4	0,84	12.300	1.068	0,4	0,84	10.800	938	0,4	0,84	9.000	600	0,36	0,84
R2	10	13.800	3.833	1,0	1,28	12.300	3.417	1	1,28	10.800	3.000	1,0	1,3	9.000	1.920	0,9	1,3
R2	15	13.800	2.875	1,0	1,28	12.300	2.563	1	1,28	10.800	2.250	1,0	1,3	9.000	1.440	0,9	1,3
R2	20	10.700	1.911	1,0	1,28	9.600	1.714	1	1,28	8.400	1.500	1,0	1,3	7.000	960	0,9	1,3
R2	25	10.700	1.911	1,0	1,28	9.600	1.714	1	1,28	8.400	1.500	1,0	1,3	7.000	960	0,9	1,3
R2	30	10.700	1.911	0,8	1,28	9.600	1.714	0,8	1,28	8.400	1.500	0,8	1,3	7.000	960	0,7	1,3
R2	40	7.700	1.204	0,7	1,28	6.800	1.063	0,7	1,28	6.000	938	0,7	1,3	5.000	600	0,6	1,3
R3	10	13.800	4.313	1,2	1,8	12.300	3.844	1,2	1,8	10.800	3.375	1,2	1,8	9.000	2.160	1,1	1,8
R3	15	13.800	4.313	1,2	1,8	12.300	3.844	1,2	1,8	10.800	3.375	1,2	1,8	9.000	2.160	1,1	1,8
R3	20	10.700	2.388	1,2	1,8	9.600	2.143	1,2	1,8	8.400	1.875	1,2	1,8	7.000	1.200	1,1	1,8
R3	30	9.200	2.396	1,2	1,8	8.200	2.135	1,2	1,8	7.200	1.875	1,2	1,8	6.000	1.200	1,1	1,8
R3	50	7.700	1.444	0,8	1,8	6.800	1.275	0,8	1,8	6.000	1.125	0,8	1,8	5.000	720	0,7	1,8

Depth of cut



1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Use a water soluble fluid.
4. Use a non-water-soluble cutting fluid if the machined surface and accuracy are of critical importance. Adjust the depth of cut and feed rate as necessary.
5. Always use a cutting fluid recommended by the cutting fluid manufacturer as the workpiece may discolor.

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire. Be sure to use all proper fire-prevention measures.

CUTTING CONDITIONS

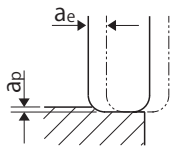
AE-CPR-N

Work Material			Copper C1020 - C1100				Copper Tungsten W70% - Cu30%				Wrought aluminium alloy A7075				Aluminium alloy casting • Die casting <SI 13%			
DC	RE	LU (mm)	S (min-1)	F (mm/min)	Depth of cut (mm)		S (min-1)	F (mm/min)	Depth of cut (mm)		S (min-1)	F (mm/min)	Depth of cut (mm)		S (min-1)	F (mm/min)	Depth of cut (mm)	
					ap	ae			ap	ae			ap	ae			ap	ae
0,2	R0,05	0,4	40.000	400	0,03	0,06	40.000	360	0,024	0,06	40.000	400	0,03	0,06	40.000	400	0,03	0,06
0,2	R0,05	0,6	40.000	360	0,024	0,06	40.000	320	0,019	0,06	40.000	360	0,024	0,06	40.000	360	0,024	0,06
0,2	R0,05	1	40.000	280	0,019	0,06	40.000	250	0,015	0,06	40.000	280	0,019	0,06	40.000	280	0,019	0,06
0,2	R0,05	1,5	40.000	180	0,015	0,06	40.000	160	0,012	0,06	40.000	180	0,015	0,06	40.000	180	0,015	0,06
0,3	R0,05	0,6	40.000	480	0,03	0,12	40.000	430	0,024	0,12	40.000	480	0,03	0,12	40.000	480	0,03	0,12
0,3	R0,05	1	40.000	430	0,023	0,12	40.000	380	0,018	0,12	40.000	430	0,023	0,12	40.000	430	0,023	0,12
0,3	R0,05	1,5	40.000	360	0,019	0,12	40.000	320	0,015	0,12	40.000	360	0,019	0,12	40.000	360	0,019	0,12
0,3	R0,05	2	40.000	290	0,016	0,12	40.000	260	0,013	0,12	40.000	290	0,016	0,12	40.000	290	0,016	0,12
0,4	R0,02	0,8	40.000	640	0,01	0,22	40.000	580	0,008	0,22	40.000	640	0,01	0,22	40.000	640	0,01	0,22
0,4	R0,02	2	40.000	520	0,006	0,22	35.000	410	0,005	0,22	40.000	520	0,006	0,22	40.000	520	0,006	0,22
0,4	R0,05	0,8	40.000	640	0,03	0,18	40.000	580	0,024	0,18	40.000	640	0,03	0,18	40.000	640	0,03	0,18
0,4	R0,05	1,2	40.000	600	0,024	0,18	40.000	540	0,019	0,18	40.000	600	0,024	0,18	40.000	600	0,024	0,18
0,4	R0,05	2	40.000	520	0,019	0,18	35.000	410	0,015	0,18	40.000	520	0,019	0,18	40.000	520	0,019	0,18
0,4	R0,05	3	30.000	370	0,015	0,18	25.000	300	0,012	0,18	39.000	480	0,015	0,18	34.500	430	0,015	0,18
0,4	R0,05	4	25.000	240	0,013	0,18	20.000	190	0,01	0,18	32.500	310	0,013	0,18	28.750	280	0,013	0,18
0,4	R0,1	0,8	40.000	640	0,06	0,12	40.000	580	0,048	0,12	40.000	640	0,06	0,12	40.000	640	0,06	0,12
0,4	R0,1	1,2	40.000	600	0,049	0,12	40.000	540	0,039	0,12	40.000	600	0,049	0,12	40.000	600	0,049	0,12
0,4	R0,1	2	40.000	520	0,038	0,12	35.000	410	0,03	0,12	40.000	520	0,038	0,12	40.000	520	0,038	0,12
0,4	R0,1	3	30.000	370	0,031	0,12	25.000	300	0,025	0,12	39.000	480	0,031	0,12	34.500	430	0,031	0,12
0,4	R0,1	4	25.000	240	0,027	0,12	20.000	190	0,022	0,12	32.500	310	0,027	0,12	28.750	280	0,027	0,12
0,5	R0,05	1	40.000	880	0,03	0,24	40.000	790	0,024	0,24	40.000	880	0,03	0,24	40.000	880	0,03	0,24
0,5	R0,05	2	40.000	770	0,023	0,24	35.000	690	0,018	0,24	40.000	770	0,023	0,24	40.000	770	0,023	0,24
0,5	R0,05	3	35.000	650	0,019	0,24	30.000	510	0,015	0,24	40.000	740	0,019	0,24	40.000	740	0,019	0,24
0,5	R0,05	4	30.000	540	0,017	0,24	25.000	420	0,014	0,24	39.000	700	0,017	0,24	34.500	620	0,017	0,24
0,5	R0,05	5	25.000	370	0,016	0,24	20.000	300	0,013	0,24	32.500	480	0,016	0,24	28.750	430	0,016	0,24
0,5	R0,1	1	40.000	880	0,06	0,18	40.000	790	0,048	0,18	40.000	880	0,06	0,18	40.000	880	0,06	0,18
0,5	R0,1	2	40.000	770	0,045	0,18	35.000	690	0,036	0,18	40.000	770	0,045	0,18	40.000	770	0,045	0,18
0,5	R0,1	3	35.000	650	0,039	0,18	30.000	510	0,031	0,18	40.000	740	0,039	0,18	40.000	740	0,039	0,18
0,5	R0,1	4	30.000	540	0,034	0,18	25.000	420	0,027	0,18	39.000	700	0,034	0,18	34.500	620	0,034	0,18
0,5	R0,1	5	25.000	370	0,032	0,18	20.000	300	0,026	0,18	32.500	480	0,032	0,18	28.750	430	0,032	0,18
0,6	R0,05	1,2	40.000	1.120	0,03	0,3	35.000	880	0,024	0,3	40.000	1120	0,03	0,3	40.000	1120	0,03	0,3
0,6	R0,05	2	37.000	1.030	0,024	0,3	35.000	810	0,019	0,3	40.000	1110	0,024	0,3	40.000	1110	0,024	0,3
0,6	R0,05	4	29.000	710	0,019	0,3	26.000	580	0,015	0,3	37.700	920	0,019	0,3	33.350	820	0,019	0,3
0,6	R0,05	6	22.000	440	0,016	0,3	20.000	280	0,013	0,3	28.600	570	0,016	0,3	25.300	510	0,016	0,3
0,6	R0,1	1,2	40.000	1.120	0,06	0,24	35.000	880	0,048	0,24	40.000	1120	0,06	0,24	40.000	1120	0,06	0,24
0,6	R0,1	2	37.000	1.030	0,049	0,24	35.000	810	0,039	0,24	40.000	1110	0,049	0,24	40.000	1110	0,049	0,24
0,6	R0,1	3	33.000	800	0,042	0,24	30.000	660	0,034	0,24	40.000	970	0,042	0,24	37.950	920	0,042	0,24
0,6	R0,1	4	29.000	710	0,037	0,24	26.000	580	0,03	0,24	37.700	920	0,037	0,24	33.350	820	0,037	0,24
0,6	R0,1	6	22.000	440	0,032	0,24	20.000	280	0,026	0,24	28.600	570	0,032	0,24	25.300	510	0,032	0,24
0,6	R0,2	1,2	40.000	1.120	0,12	0,12	35.000	880	0,096	0,12	40.000	1120	0,12	0,12	40.000	1120	0,12	0,12
0,6	R0,2	4	29.000	710	0,074	0,12	26.000	580	0,059	0,12	37.700	920	0,074	0,12	33.350	820	0,074	0,12
0,8	R0,05	1,6	36.000	1.580	0,03	0,42	32.000	1.270	0,024	0,42	40.000	1760	0,03	0,42	40.000	1760	0,03	0,42
0,8	R0,05	4	30.000	1.390	0,021	0,42	27.000	1.010	0,017	0,42	39.000	1810	0,021	0,42	34.500	1600	0,021	0,42
0,8	R0,05	6	25.000	1.000	0,018	0,42	23.000	800	0,014	0,42	32.500	1300	0,018	0,42	28.750	1150	0,018	0,42
0,8	R0,05	8	20.000	750	0,016	0,42	18.000	620	0,013	0,42	26.000	980	0,016	0,42	23.000	860	0,016	0,42
0,8	R0,1	1,6	36.000	1.580	0,06	0,36	32.000	1.270	0,048	0,36	40.000	1760	0,06	0,36	40.000	1760	0,06	0,36
0,8	R0,1	4	30.000	1.240	0,042	0,36	27.000	1.010	0,034	0,36	39.000	1610	0,042	0,36	34.500	1430	0,042	0,36
0,8	R0,1	6	25.000	1.000	0,035	0,36	23.000	800	0,028	0,36	32.500	1300	0,035	0,36	28.750	1150	0,035	0,36
0,8	R0,1	8	20.000	750	0,032	0,36	18.000	620	0,026	0,36	26.000	980	0,032	0,36	23.000	860	0,032	0,36
1	R0,02	2	32.000	2.880	0,01	0,6	29.000	2.350	0,008	0,6	40.000	3600	0,01	0,6	36.800	3310	0,01	0,6
1	R0,02	3	30.000	2.690	0,009	0,6	27.000	2.180	0,007	0,6	39.000	3500	0,009	0,6	34.500	3090	0,009	0,6
1	R0,1	2	32.000	2.880	0,06	0,5	29.000	2.350	0,05	0,5	40.000	3600	0,06	0,5	36.800	3310	0,06	0,5
1	R0,1	3	30.000	2.690	0,053	0,5	27.000	2.180	0,042	0,5	39.000	3500	0,053	0,5	34.500	3090	0,053	0,5
1	R0,1	4	28.000	2.500	0,049	0,5	25.000	1.940	0,039	0,5	36.400	3250	0,049	0,5	32.200	2880	0,049	0,5
1	R0,1	5	27.000	2.240	0,046	0,5	24.000	1.800	0,037	0,5	35.100	2910	0,046	0,5	31.050	2580	0,046	0,5
1	R0,1	6	25.000	2.070	0,043	0,5	23.000	1.650	0,034	0,5	32.500	2690	0,043	0,5	28.750	2380	0,043	0,5
1	R0,1	8	21.000	1.740	0,04	0,5	19.000	1.440	0,032	0,5	27.300	2260	0,04	0,5	24.150	2000	0,04	0,5
1	R0,1	10	18.000	1.390	0,037	0,5	16.000	1.130	0,03	0,5	23.400	1810	0,037	0,5	20.700	1600	0,037	0,5
1	R0,2	2	32.000	2.880	0,12	0,4	29.000	2.350	0,1	0,4	40.000	3600	0,12	0,4	36.800	3310	0,12	0,4
1	R0,2	3	30.000	2.690	0,11	0,4	27.000	2.180	0,08	0,4	39.000	3500	0,106	0,4	34.500	3090	0,106	0,4
1	R0,2	4	28.000	2.500	0,1	0,4	25.000	1.940	0,08	0,4	36.400	3250	0,097	0,4	32.200	2880	0,097	0,4
1	R0,2	5	27.000	2.240	0,09	0,4	24.000	1.800	0,07	0,4	35.100	2910	0,091	0,4	31.050	2580	0,091	0,4
1	R0,2	6	25.000	2.070	0,09	0,4	23.000	1.650	0,07	0,4	32.500	2690	0,086	0,4	28.750	2380	0,086	0,4
1	R0,2	8	21.000	1.740	0,08	0,4	19.000	1.440	0,06	0,4	27.300	2260	0,079	0,4	24.150	2000	0,079	0,4
1	R0,2	10	18.000	1.390	0,07	0,4	16.000	1.130	0,06	0,4	23.400	1810	0,074	0,4	20.700	1600	0,074	0,4
1	R0,3	2	32.000	2.880	0,2	0,3	29.000	2.350	0,16	0,3	40.000	3600	0,2	0,3	36.800	3310	0,2	0,3
1	R0,3	3	30.000	2.690	0,18	0,3	27.000	2.180	0,14	0,3	39.000	3500	0,177	0,3	34.500	3090	0,177	0,3
1,5	R0,3	3	22.000	2.970	0,12	0,6	20.000	2.410	0,1	0,6	28.600	3860	0,12	0,6	25.300	3420	0,12	0,6
1,5	R0,5	3	22.000	2.970	0,3	0,3	20.000	2.410	0,24	0,3	28.600	3860	0,3	0,3	25.300	3420	0,3	0,3
1,5	R0,5	10	16.000	2.030	0,21	0,3	14.000	1.650	0,17	0,3	20.800	2640	0,209	0,3	18.400	2330	0,209	0,3
1,5	R0,5	12	15.000	1.810	0,2	0,3	14.000	1.470	0,16	0,3	19.500	2350	0,198	0,3	17.250	2080	0,198	0,3
1,5	R0,5	20	8.000	1.060	0,17	0,3	7.000	860	0,14	0,3	10.400	1380	0,17	0,3	9.200	1220	0,17	0,3
2	R0,1	4	17.500	3.150	0,06	1,1	16.000	2.560	0,048	1,1	22.750	4100	0,06	1,1	20.125	3620	0,06	1,1
2	R0,1	6	16.500	2.930	0,054	1,1	15.000	2.370	0,043	1,1	21.450	3810	0,054	1,1	18.975	3370	0,054	1,1
2	R0,1	8	15.500	2.630	0,05	1,1	14.000	2.130	0,04	1,1	20.150	3420	0,05	1,1	17.825	3020	0,05	1,1
2	R0,1	10	14.500	2.420	0,048	1,1	13.000	1.970	0,038	1,1	18.850	3150	0,048	1,1	16.675	2780	0,048	1,1
2	R0,1	15	12.000	1.910	0,043	1,1	11.000	1.550	0,034	1,1	15.600	2480	0,043	1,1	13.800	2200	0,043	1,1
2	R0,1	16	11.500	1.790	0,042	1,1	10.500	1.460	0,034	1,1	14.950	2330	0,042	1,1	13.225	2060	0,042	1,1
2	R0,1	20	9.500	1.460	0,04	1,1	8.500	1.190	0,032	1,1	12.350	1900	0,04	1,1	10.925	1680	0,04	1,1
2	R0,2	4	17.500	3.150	0,12	1	16.000	2.560	0,1	1	22.750	4100	0,12	1	20.125	3620	0,12	1
2	R0,2	10	14.500	2.420	0,1	1	13.000	1.970	0,08	1	18.850	3150	0,095	1	16.675	2780	0,095	1

AE-CPR-N

Work Material			Copper C1020 - C1100				Copper Tungsten W70% - Cu30%				Wrought aluminium alloy A7075				Aluminium alloy casting • Die casting <Si 13%			
DC	RE	LU (mm)	S (min^{-1})	F (mm/min)	Depth of cut (mm)		S (min^{-1})	F (mm/min)	Depth of cut (mm)		S (min^{-1})	F (mm/min)	Depth of cut (mm)		S (min^{-1})	F (mm/min)	Depth of cut (mm)	
					ap	ae			ap	ae			ap	ae			ap	ae
2	R0,2	16	11.500	1.790	0,09	1	10.500	1.460	0,07	1	14.950	2330	0,085	1	13.225	2060	0,085	1
2	R0,2	20	9.500	1.460	0,08	1	8.500	1.190	0,06	1	12.350	1900	0,08	1	10.925	1680	0,08	1
2	R0,3	4	17.500	3.150	0,2	0,9	16.000	2.560	0,16	0,9	22.750	4100	0,2	0,9	20.125	3620	0,2	0,9
2	R0,3	6	16.500	2.930	0,18	0,9	15.000	2.370	0,14	0,9	21.450	3810	0,181	0,9	18.975	3370	0,181	0,9
2	R0,3	8	15.500	2.630	0,17	0,9	14.000	2.130	0,13	0,9	20.150	3420	0,168	0,9	17.825	3020	0,168	0,9
2	R0,3	10	14.500	2.420	0,16	0,9	13.000	1.970	0,13	0,9	18.850	3150	0,159	0,9	16.675	2780	0,159	0,9
2	R0,3	15	12.000	1.910	0,14	0,9	11.000	1.550	0,12	0,9	15.600	2480	0,144	0,9	13.800	2200	0,144	0,9
2	R0,3	16	11.500	1.790	0,14	0,9	10.500	1.460	0,11	0,9	14.950	2330	0,141	0,9	13.225	2060	0,141	0,9
2	R0,3	20	9.500	1.460	0,13	0,9	8.500	1.190	0,11	0,9	12.350	1900	0,134	0,9	10.925	1680	0,134	0,9
2,5	R0,5	5	15.000	3.600	0,3	0,9	13.500	2.920	0,24	0,9	19.500	4680	0,3	0,9	17.250	4140	0,3	0,9
2,5	R0,5	20	11.500	2.040	0,21	0,9	10.500	1.660	0,17	0,9	14.950	2650	0,212	0,9	13.225	2350	0,212	0,9
3	R0,2	6	12.500	3.750	0,12	1,6	11.500	3.050	0,1	1,6	16.250	4880	0,12	1,6	14.375	4310	0,12	1,6
3	R0,2	12	11.500	3.190	0,1	1,6	10.500	2.600	0,08	1,6	14.950	4150	0,104	1,6	13.225	3670	0,104	1,6
3	R0,2	18	10.500	2.680	0,1	1,6	9.500	2.180	0,08	1,6	13.650	3480	0,096	1,6	12.075	3080	0,096	1,6
3	R0,2	21	10.000	2.440	0,09	1,6	9.000	1.970	0,07	1,6	13.000	3170	0,093	1,6	11.500	2810	0,093	1,6
3	R0,2	24	9.500	2.210	0,09	1,6	8.500	1.800	0,07	1,6	12.350	2870	0,091	1,6	10.925	2540	0,091	1,6
3	R0,3	6	12.500	3.750	0,2	1,5	11.500	3.050	0,16	1,5	16.250	4880	0,2	1,5	14.375	4310	0,2	1,5
3	R0,3	8	12.000	3.510	0,19	1,5	11.000	2.840	0,15	1,5	15.600	4560	0,189	1,5	13.800	4040	0,189	1,5
3	R0,3	12	11.500	3.190	0,17	1,5	10.500	2.600	0,14	1,5	14.950	4150	0,174	1,5	13.225	3670	0,174	1,5
3	R0,3	20	10.500	2.600	0,16	1,5	9.500	2.120	0,13	1,5	13.650	3380	0,157	1,5	12.075	2990	0,157	1,5
3	R0,5	6	12.500	3.750	0,3	1,2	11.500	3.050	0,24	1,2	16.250	4880	0,3	1,2	14.375	4310	0,3	1,2
3	R0,5	12	11.500	3.190	0,26	1,2	10.500	2.600	0,21	1,2	14.950	4150	0,261	1,2	13.225	3670	0,261	1,2
3	R0,5	15	11.000	2.930	0,25	1,2	10.000	2.370	0,2	1,2	14.300	3810	0,25	1,2	12.650	3370	0,25	1,2
3	R0,5	18	10.500	2.680	0,24	1,2	9.500	2.180	0,19	1,2	13.650	3480	0,241	1,2	12.075	3080	0,241	1,2
3	R0,5	21	10.000	2.440	0,23	1,2	9.000	1.970	0,19	1,2	13.000	3170	0,234	1,2	11.500	2810	0,234	1,2
3	R0,5	25	9.500	2.170	0,23	1,2	8.500	1.770	0,18	1,2	12.350	2820	0,226	1,2	10.925	2500	0,226	1,2
3	R0,5	30	8.500	1.790	0,22	1,2	8.000	1.460	0,17	1,2	11.050	2330	0,217	1,2	9.775	2060	0,217	1,2
4	R0,2	8	9.500	3.710	0,12	2,2	8.600	3.020	0,1	2,2	12.350	4820	0,12	2,2	10.925	4270	0,12	2,2
4	R0,2	16	8.800	3.220	0,1	2,2	7.900	2.600	0,08	2,2	11.440	4190	0,104	2,2	10.120	3700	0,104	2,2
4	R0,2	20	8.500	3.000	0,1	2,2	7.700	2.450	0,08	2,2	11.050	3900	0,1	2,2	9.775	3450	0,1	2,2
4	R0,2	24	8.100	2.760	0,1	2,2	7.300	2.240	0,08	2,2	10.530	3590	0,096	2,2	9.315	3170	0,096	2,2
4	R0,2	28	7.700	2.530	0,09	2,2	6.900	2.040	0,07	2,2	10.010	3290	0,093	2,2	8.855	2910	0,093	2,2
4	R0,2	32	7.400	2.350	0,09	2,2	6.700	1.910	0,07	2,2	9.620	3060	0,091	2,2	8.510	2700	0,091	2,2
4	R0,3	8	9.500	3.710	0,2	2,1	8.600	3.020	0,16	2,1	12.350	4820	0,2	2,1	10.925	4270	0,2	2,1
4	R0,3	20	8.400	2.970	0,17	2,1	7.600	2.420	0,13	2,1	10.920	3860	0,167	2,1	9.660	3420	0,167	2,1
4	R0,5	8	9.500	3.710	0,3	1,8	8.600	3.020	0,24	1,8	12.350	4820	0,3	1,8	10.925	4270	0,3	1,8
4	R0,5	12	9.100	3.440	0,28	1,8	8.200	2.790	0,22	1,8	11.830	4470	0,277	1,8	10.465	3960	0,277	1,8
4	R0,5	16	8.800	3.220	0,26	1,8	7.900	2.600	0,21	1,8	11.440	4190	0,261	1,8	10.120	3700	0,261	1,8
4	R0,5	20	8.400	2.970	0,25	1,8	7.600	2.420	0,2	1,8	10.920	3860	0,25	1,8	9.660	3420	0,25	1,8
4	R0,5	24	8.100	2.760	0,24	1,8	7.300	2.240	0,19	1,8	10.530	3590	0,241	1,8	9.315	3170	0,241	1,8
4	R0,5	25	8.000	2.710	0,24	1,8	7.200	2.190	0,19	1,8	10.400	3520	0,239	1,8	9.200	3120	0,239	1,8
4	R0,5	28	7.700	2.530	0,23	1,8	6.900	2.040	0,19	1,8	10.010	3290	0,234	1,8	8.855	2910	0,234	1,8
4	R0,5	32	7.400	2.350	0,23	1,8	6.700	1.910	0,18	1,8	9.620	3060	0,227	1,8	8.510	2700	0,227	1,8
4	R1	8	9.500	3.710	0,6	1,2	8.600	3.020	0,48	1,2	12.350	4820	0,6	1,2	10.925	4270	0,6	1,2
4	R1	16	8.800	3.220	0,52	1,2	7.900	2.600	0,42	1,2	11.440	4190	0,522	1,2	10.120	3700	0,522	1,2
4	R1	24	8.100	2.760	0,48	1,2	7.300	2.240	0,39	1,2	10.530	3590	0,482	1,2	9.315	3170	0,482	1,2
4	R1	28	7.700	2.530	0,47	1,2	6.900	2.040	0,37	1,2	10.010	3290	0,467	1,2	8.855	2910	0,467	1,2
4	R1	32	7.400	2.350	0,46	1,2	6.700	1.910	0,36	1,2	9.620	3060	0,455	1,2	8.510	2700	0,455	1,2
6	R0,1	12	6.500	3.900	0,06	3,5	5.900	3.190	0,05	3,5	8.450	5070	0,06	3,5	7.475	4490	0,06	3,5
6	R0,1	24	6.000	3.380	0,05	3,5	5.400	2.730	0,04	3,5	7.800	4390	0,052	3,5	6.900	3890	0,052	3,5
6	R0,2	12	6.500	3.900	0,12	3,4	5.900	3.190	0,1	3,4	8.450	5070	0,12	3,4	7.475	4490	0,12	3,4
6	R0,2	24	6.000	3.380	0,1	3,4	5.400	2.730	0,08	3,4	7.800	4390	0,104	3,4	6.900	3890	0,104	3,4
6	R0,2	32	5.700	3.060	0,1	3,4	5.100	2.470	0,08	3,4	7.410	3980	0,099	3,4	6.555	3520	0,099	3,4
6	R0,2	48	5.000	2.440	0,09	3,4	4.500	1.980	0,07	3,4	6.500	3170	0,091	3,4	5.750	2810	0,091	3,4
6	R0,5	12	6.500	3.900	0,3	3	5.900	3.190	0,24	3	8.450	5070	0,3	3	7.475	4490	0,3	3
6	R0,5	24	6.000	3.380	0,26	3	5.400	2.730	0,21	3	7.800	4390	0,261	3	6.900	3890	0,261	3
6	R0,5	30	5.800	3.150	0,25	3	5.200	2.550	0,2	3	7.540	4100	0,25	3	6.670	3620	0,25	3
6	R0,5	32	5.700	3.060	0,25	3	5.100	2.470	0,2	3	7.410	3980	0,247	3	6.555	3520	0,247	3
6	R0,5	48	5.000	2.440	0,23	3	4.500	1.980	0,18	3	6.500	3170	0,227	3	5.750	2810	0,227	3
6	R1	12	6.500	3.900	0,6	2,4	5.900	3.190	0,48	2,4	8.450	5070	0,6	2,4	7.475	4490	0,6	2,4
6	R1	24	6.000	3.380	0,52	2,4	5.400	2.730	0,42	2,4	7.800	4390	0,522	2,4	6.900	3890	0,522	2,4
6	R1	32	5.700	3.060	0,49	2,4	5.100	2.470	0,39	2,4	7.410	3980	0,493	2,4	6.555	3520	0,493	2,4
6	R1	48	5.000	2.440	0,46	2,4	4.500	1.980	0,36	2,4	6.500	3170	0,455	2,4	5.750	2810	0,455	2,4

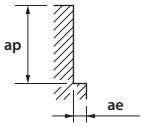
Depth of cut



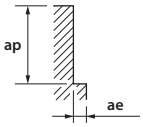
1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used.
3. Use a water soluble fluid.
4. Use a non-water-soluble cutting fluid if the machined surface and accuracy are of critical importance. Adjust the depth of cut and feed rate as necessary.
5. Always use a cutting fluid recommended by the cutting fluid manufacturer as the workpiece may discolor.

CUTTING CONDITIONS

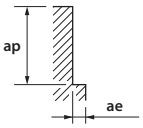
DLC-AIR-EDS

	Aluminium alloy	
Vc	1000 ~ 3000 m/min	
Ø	S (min-1)	F (mm/min)
12	33.000	≤ 9.100
16	33.000	≤ 12.000
20	33.000	≤ 15.000
25	33.000	≤ 15.000
Max cutting depth		ap: ≤ 0,6 Dc; ae: 1,0 Dc

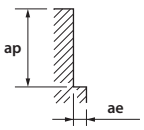
AERO-LN-EDS

	Aluminium alloy	
Ø	S (min-1)	F (mm/min)
16	≤ 33.000	≤ 12.000
20	≤ 33.000	≤ 15.000
25	≤ 33.000	≤ 15.000
Max cutting depth		ap: ≤ 0,4 D; ae: 0,6 D

AERO-ETS

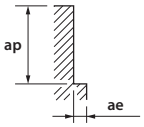
	Aluminium alloy	
Ø	S (min-1)	F (mm/min)
12	≤ 33.000	≤ 15.000
16	≤ 33.000	≤ 20.000
20	≤ 33.000	≤ 25.700
25	≤ 33.000	≤ 32.600
Max cutting depth		ap: ≤ 0,4 Dc; ae: 1 Dc

AERO-LN-ETS

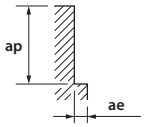
	Aluminium alloy	
Ø	S (min-1)	F (mm/min)
16	≤ 33.000	≤ 20.000
20	≤ 33.000	≤ 25.700
25	≤ 33.000	≤ 32.600
Max cutting depth		ap: ≤ 0,2 D; ae: 1 D

CUTTING CONDITIONS

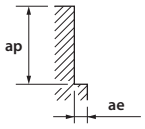
AERO-O-ETS

	Aluminium alloy	
Vc	1000 ~ 3000 m/min	
Ø	S (min^{-1})	F (mm/min)
12	≤ 33.000	≤ 25.700
25	≤ 33.000	≤ 32.600
Max cutting depth		ap: ≤ 0,4 Dc; ae: 1 Dc

AERO-ETL

	Aluminium alloy			
Ø	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)
12	≤ 14.000	≤ 4.000	≤ 45	≤ 0,15
16	≤ 14.000	≤ 5.000	≤ 45	≤ 0,2
20	≤ 14.000	≤ 6.000	≤ 45	≤ 0,3
Max cutting depth				

AERO-EXTL

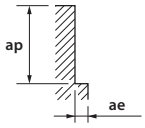
	Aluminium alloy			
Ø	S (min^{-1})	F (mm/min)	ap (mm)	ae (mm)
20	≤ 14.000	≤ 6.000	≤ 95	≤ 0,2
Max cutting depth				

CUTTING CONDITIONS

Milling | Endmills | Cutting conditions

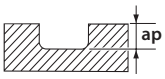
UP-PHS

Side milling

	C≤0,2% - GG SS400 • S55C • FC250 ~750 N/mm2		~30 HRC SCM • SKT • SKS • SKD		30~38 HRC SKT • SKD • NAK55 • HPM1		38~45 HRC-SUS SUS304 • SKD		45~55 HRC Tiall	
Vc	100 (m/min)		78 (m/min)		66 (m/min)		62 (m/min)		60 (m/min)	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
3	10.600	1.170	8.300	900	7.000	650	6.600	670	6.350	580
4	7.950	1.200	6.200	980	5.250	650	4.950	700	4.750	620
5	6.350	1.260	4.950	1.000	4.200	700	3.950	750	3.800	640
6	5.300	1.500	4.150	1.100	3.500	840	3.300	800	3.200	650
8	4.000	1.500	3.100	1.100	2.650	790	2.450	770	2.400	660
10	3.200	1.320	2.500	1.000	2.100	720	1.950	700	1.900	630
12	2.650	1.320	2.050	1.000	1.750	680	1.650	650	1.600	570
Max cutting depth			ap / ae 1,5D / 0,2D				ap / ae 1,5D / 0,1D		ap / ae 1D / 0,05D	

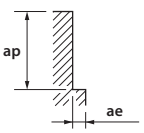
1. Use a rigid and precise machine and holder.
2. Adjust speed and feed when cutting depth is large or when machining with low rigidity tooling.
3. Use a suitable cutting fluid with high smoke retardant properties.
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.

Slotting

	C≤0,2% - GG SS400 • S55C • FC250 ~750 N/mm2		~30 HRC SCM • SKT • SKS • SKD		30~38 HRC SKT • SKD • NAK55 • HPM1		38~45 HRC-SUS SUS304 • SKD		45~55 HRC Tiall	
Vc	72 (m/min)		54 (m/min)		41 (m/min)		47 (m/min)		42 (m/min)	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
3	7.600	570	5.700	480	4.400	315	4.950	360	4.450	380
4	5.700	570	4.300	480	3.300	315	3.750	400	3.350	430
5	4.600	650	3.400	500	2.600	330	2.950	430	2.650	460
6	3.800	650	2.900	500	2.200	350	2.500	450	2.250	480
8	2.900	660	2.200	520	1.650	380	1.850	465	1.650	480
10	2.300	610	1.700	480	1.300	330	1.500	430	1.350	450
12	1.900	610	1.400	430	1.100	315	1.200	400	1.100	420
Max cutting depth	 ap = 1D								ap = 0,2D	

NEO-PHS / NEO-CR-PHS

Side milling

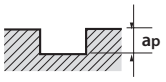
	C≤0,2% - GG S55C · SS400 · FC250 ~750 N/mm²		SCM - SKD SKT · SKS · SCM ~30 N/mm²		30~38 HRC NAK55 · HPM1 · SKT · SKD 30~38 N/mm²		38~45 HRC - SUS SUS304 · SKD 38~45 N/mm²		45~55 HRC - HRS Titanium alloy 45~55 N/mm²		Heat resistant alloy steel Inconel	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
3	12,500	1,100	9,550	840	8,100	625	7,650	615	7,400	545	3,800	220
4	9,750	1,200	7,550	985	6,400	680	6,050	710	5,850	630	3,000	240
5	7,950	1,300	6,150	1,050	5,250	725	4,950	775	4,800	670	2,450	245
6	6,750	1,600	5,250	1,200	4,450	890	4,200	835	4,050	695	2,100	250
8	5,050	1,550	3,950	1,100	3,350	815	3,150	810	3,050	675	1,600	225
10	4,100	1,450	3,200	1,050	2,700	725	2,550	715	2,450	635	1,250	215
12	3,400	1,400	2,650	1,000	2,250	720	2,100	675	2,050	605	1,050	210
16	2,550	1,200	2,000	940	1,700	635	1,600	555	1,550	505	765	210
20	2,050	985	1,600	755	1,350	590	1,250	515	1,250	460	635	200
Max cutting depth			ap / ae ≤ 1,5 D / ≤ 0,2 D		ap / ae ≤ 1,5 D / ≤ 0,1 D		ap / ae ≤ 1,5 D / ≤ 0,05 D					

1. Use a rigid and precise machine and holder,
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used
3. Please use a suitable fluid with high smoke retardant properties
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing

CUTTING CONDITIONS

NEO-PHS / NEO-CR-PHS

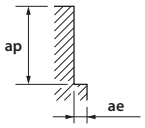
Slotting

	C≤0,2% - GG S55C · SS400 · FC250 ~750 N/mm²		SCM - SKD SKT · SKS · SCM ~30 N/mm²		30~38 HRC NAK55 · HPM1 · SKT · SKD 30~38 N/mm²		38~45 HRC - SUS SUS304 · SKD 38~45 N/mm²		45~55 HRC - HRS Titanium alloy 45~55 N/mm²		Heat resistant alloy steel Inconel	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
3	10,500	730	8,550	680	7,850	520	7,450	460	7,200	440	2,500	125
4	7,750	730	6,400	775	5,900	520	5,550	515	5,400	495	1,900	135
5	6,200	735	5,100	755	4,700	545	4,450	545	4,300	535	1,500	145
6	5,150	740	4,250	635	3,950	575	3,700	570	3,600	545	1,250	145
8	3,850	600	3,200	550	2,950	550	2,800	525	2,700	510	945	155
10	3,100	580	2,550	540	2,350	480	2,250	475	2,150	455	760	145
12	2,600	560	2,150	475	1,950	460	1,850	440	1,800	435	630	145
16	1,950	555	1,600	430	1,500	370	1,400	370	1,350	365	475	110
20	1,550	475	1,300	380	1,200	355	1,100	330	1,100	330	380	110
Max cutting depth			ap ≤ 1 D				ap ≤ 0,5 D			ap ≤ 0,2 D		

1. Use a rigid and precise machine and holder,
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used
3. Please use a suitable fluid with high smoke retardant properties
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing

NEO-EMS / NEO-CR-EMS

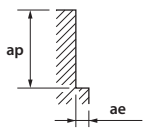
Side milling

	C≤0,2% - GG S55C · SS400 · FC250 ~750 N/mm²		SCM - SKD SKT · SKS · SCM ~30 N/mm²		30~38 HRC NAK55 · HPM1 · SKT · SKD 30~38 N/mm²		38~45 HRC - SUS SUS304 · SKD 38~45 N/mm²		45~55 HRC - HRS Titanium alloy 45~55 N/mm²		Heat resistant alloy steel Inconel	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
6	7,100	2,300	5,500	1,750	4,700	1,300	4,400	1,250	4,300	1,050	2,200	360
8	5,350	2,250	4,150	1,600	3,500	1,200	3,300	1,200	3,200	1,000	1,650	330
10	4,300	2,100	3,350	1,550	2,850	1,100	2,650	1,050	2,600	925	1,350	310
12	3,600	2,000	2,800	1,500	2,350	1,050	2,250	980	2,150	875	1,100	305
16	2,700	1,750	2,100	1,350	1,750	925	1,650	805	1,600	735	835	305
20	2,150	1,450	1,650	1,100	1,400	850	1,350	745	1,300	665	670	300
Max cutting depth			ap ≤ 1,5 D; ae ≤ 0,2 D				ap ≤ 1,5 D; ae ≤ 0,1 D			ap ≤ 1,5 D; ae ≤ 0,05 D		

1. Use a rigid and precise machine and holder
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used
3. Please use a suitable fluid with high smoke retardant properties
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing

NEO-EMS / NEO-CR-EMS

High speed side milling

	C≤0,2% - GG S55C · SS400 · FC250 ~750 N/mm²		SCM - SKD SKT · SKS · SCM ~30 N/mm²		30~38 HRC NAK55 · HPM1 · SKT · SKD 30~38 N/mm²		38~45 HRC - SUS SUS304 · SKD 38~45 N/mm²		45~55 HRC - HRS Titanium alloy 45~55 N/mm²		Heat resistant alloy steel Inconel	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
6	14,000	4,750	11,000	3,550	9,150	2,650	8,600	2,500	8,350	2,100	4,300	745
8	10,500	4,600	8,050	3,300	6,850	2,450	6,450	2,400	6,250	2,050	3,250	675
10	8,400	3,900	6,500	3,000	5,550	2,200	5,200	2,100	5,050	1,900	2,600	640
12	7,000	3,800	5,450	2,900	4,600	2,150	4,350	2,000	4,200	1,800	2,150	625
16	5,250	3,550	4,100	2,800	3,450	1,900	3,250	1,650	3,150	1,500	1,650	620
20	4,200	2,900	3,250	2,250	2,750	1,750	2,600	1,550	2,550	1,350	1,300	610
Max cutting depth			ap ≤ 1,5 D; ae ≤ 0,05 D ae max = 0,5mm				ap ≤ 1,5 D; ae ≤ 0,02 D			ap ≤ 1 D; ae ≤ 0,02 D ae max = 0,5mm		

1. Use a rigid and precise machine and holder
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used
3. Please use a suitable fluid with high smoke retardant properties
4. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing

CUTTING CONDITIONS

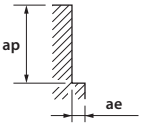
Milling | Endmills | Cutting conditions

FX-CR-MG-EMS

Side milling

Ø	Cast Iron		Mild Steel, Carbon Steel		Alloy Steel • Tool Steel		Hardened Steel • Prehardened Steel		Stainless Steel • Hardened Steel Z38CDV5		Hardened Steel Heat Resistant Alloy Steel		Hardened Steel	
	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
2	15,500	370	13,000	310	11,000	280	7,000	110	6,350	100	3,950	60	2,750	40
3	10,500	595	8,900	505	7,400	355	5,300	125	4,750	110	2,750	60	2,000	45
4	7,950	635	6,650	530	5,550	370	4,250	135	3,700	115	2,200	70	1,550	45
5	6,350	740	5,300	620	4,450	425	3,550	140	3,150	125	1,900	75	1,250	40
6	5,300	735	4,450	615	3,700	425	2,950	145	2,650	130	1,550	70	1,050	40
8	3,950	710	3,300	590	2,750	420	2,200	145	1,950	130	1,150	65	795	35
10	3,150	710	2,650	590	2,200	420	1,750	145	1,550	130	955	65	635	35
12	2,650	710	2,200	590	1,850	420	1,450	145	1,300	130	795	60	530	30
14	2,250	680	1,900	575	1,550	415	1,250	145	1,100	125	680	50	455	25
16	1,950	655	1,650	550	1,350	415	1,100	130	995	115	595	45	395	20
18	1,750	655	1,450	540	1,200	405	990	115	880	105	530	40	350	20
20	1,550	620	1,300	520	1,100	370	890	105	795	95	475	35	315	19
22	1,400	560	1,200	480	1,000	340	810	95	720	85	430	30	285	17
24	1,300	520	1,100	440	925	315	740	85	660	75	395	30	265	16
25	1,250	500	1,050	420	890	300	710	85	635	75	380	30	255	15
30	1,050	420	890	355	740	250	590	70	530	60	315	25	210	13

Max cutting depth



D	ap	ae
< 3	1,5D	0,05D
≥ 3	1,5D	0,1D

ap	ae
1D	0,02D

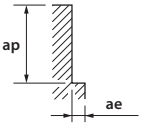
1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.
4. When FX-MG-EDSS and FX-MG-EDS are used, please reduce the feed rate to half of the above.

FX-CR-MG-EMS

High speed light milling

Ø	Mild steel • Carbon steel Cast iron		Alloy Steel • Tool Steel		Hardened steel • Prehardened steel (free-cutting)		Hardened Steel • Prehardened Steel (non-free cutting)		Hardened Steel	
	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
6	21,000	2,450	18,500	2,150	13,000	1,500	7,950	795	4,200	420
8	15,500	2,450	13,500	2,100	9,900	1,450	5,950	795	3,150	425
10	12,500	2,500	11,000	2,100	7,950	1,450	4,750	800	2,500	420
12	10,500	2,450	9,250	2,100	6,600	1,450	3,950	790	2,100	410
14	9,050	2,350	7,950	2,000	5,650	1,350	3,400	740	1,800	390
16	7,950	2,250	6,950	1,950	4,950	1,350	2,950	715	1,550	375
18	7,050	2,250	6,150	1,900	4,400	1,300	2,650	705	1,400	375
20	6,350	2,100	5,550	1,850	3,950	1,300	2,350	665	1,250	355
22	5,750	1,950	5,050	1,700	3,600	1,200	2,150	635	1,150	325
24	5,300	1,800	4,600	1,550	3,300	1,100	1,950	575	1,050	295
25	5,050	1,700	4,450	1,500	3,150	1,050	1,900	560	1,000	280
30	4,200	1,400	3,700	1,250	2,650	890	1,550	455	845	240

Max cutting depth



D	ap	ae
≤ 8	1,5D	0,01D
8 - 16	1,5D	0,02D
> 16	1,5D	0,05D

D	ap	ae
≤ 8	1D	0,01D
> 8	1D	0,02D

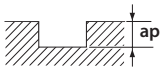
1. The indicated speeds and feeds are for high speed light milling with high speed / high precision machining centers.
2. Tools can cause sparks. Do not use flammable fluids.
3. We recommend using an air blow. When using cutting fluids, use a high-quality fluid with high smoke retardant properties.
4. In general, use FX End Mills for milling less hard materials. For harder materials, use FXS End Mills (FXS-EMS).

CUTTING CONDITIONS

Milling | Endmills | Cutting conditions

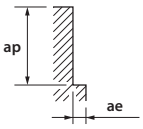
FXS-PKE

Slotting milling

	C≤0,2% S55C • SS400 • FC250 ~750 N/mm²		~30 HRC SKD • SKS • SNCM		30~38 HRC NAK55 • HPM1 • SKT		38~45 HRC SUS SUS304 • X210CR12 X40CRMOV51		45~55 HRC HRS		55~60 HRC	
Vc	80 m/min		60 m/min		50 m/min		40 m/min		30 m/min		20 m/min	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
3	8.900	665	6.650	595	5.900	350	3.800	90	3.150	55	2.000	30
4	6.650	695	5.000	675	4.450	400	2.850	100	2.350	70	1.550	35
5	5.300	715	4.000	660	3.550	360	2.250	105	1.900	70	1.250	35
6	4.450	740	3.300	550	2.950	345	1.900	110	1.600	90	1.050	35
8	3.300	660	2.500	500	2.200	360	1.400	115	1.200	95	795	35
10	2.650	630	2.000	475	1.750	325	1.100	115	955	95	635	35
12	2.200	590	1.650	440	1.450	300	955	110	800	95	530	35
16	1.650	640	1.250	480	1.100	335	720	120	600	95	400	40
20	1.350	535	1.000	400	875	280	570	120	480	80	320	40
Max cutting depth					ap: 0,5D				ap: 0,05D			

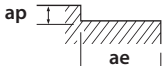
1. Conditions to be used if slant is = 3 x dia. If length is 5 x dia, than reduce feed and rotation by 30 to 40% and use 1/2 of depth of passes. If length is 6 x dia, than reduce feed and rotation by 40 to 60% and use 1/4 of depth of passes.
2. Reduce speed to avoid distortion from deep passes or low rigidity
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emission.

High speed side milling

	C≤0,2% S55C • SS400 • FC250 ~750 N/mm²		~30 HRC SKD • SKS • SNCM		30~38 HRC NAK55 • HPM1 • SKT		38~45 HRC SUS SUS304 • X210CR12 X40CRMOV51		45~55 HRC HRS		55~60 HRC	
Vc	200 m/min		200 m/min		200 m/min		150 m/min		150 m/min		100 m/min	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
6	10.600	2.650	10.600	2.200	10.600	1.350	8.000	1.000	8.000	800	5.300	530
8	8.000	2.650	8.000	2.200	8.000	1.350	6.000	1.000	6.000	800	4.000	530
10	6.400	2.100	6.400	1.700	6.400	1.050	4.800	800	4.800	640	3.200	420
12	5.300	2.100	5.300	1.700	5.300	1.050	4.000	800	4.000	640	2.650	420
16	4.000	2.150	4.000	1.700	4.000	1.100	3.000	805	3.000	665	2.000	420
20	3.200	2.100	3.200	1.700	3.200	1.100	2.400	805	2.400	665	1.600	420
Max cutting depth					ap: 1D; ae: 0,1D						ap: 1,D; ae: 0,02D	

1. Conditions to be used if slant is = 3 x dia. If length is 5 x dia, than reduce feed and rotation by 30 to 40% and use 1/2 of depth of passes. If length is 6 x dia, than reduce feed and rotation by 40 to 60% and use 1/4 of depth of passes.
2. Reduce speed to avoid distortion from deep passes or low rigidity
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emission.

High speed contouring

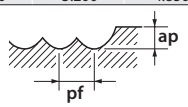
	C≤0,2% S55C • SS400 • FC250 ~750 N/mm²		~30 HRC SKD • SKS • SNCM		30~38 HRC NAK55 • HPM1 • SKT		38~45 HRC SUS SUS304 • X210CR12 X40CRMOV51		45~55 HRC HRS		55~60 HRC	
Vc	200 m/min		200 m/min		200 m/min		150 m/min		150 m/min		100 m/min	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
6	10.600	1.600	10.600	1.300	10.600	1.000	8.000	1.000	8.000	500	5.300	310
8	8.000	1.600	8.000	1.300	8.000	1.000	6.000	1.000	6.000	500	4.000	310
10	6.400	1.300	6.400	1.000	6.400	800	4.800	700	4.800	400	3.200	250
12	5.300	1.300	5.300	1.000	5.300	800	4.000	700	4.000	400	2.650	250
16	4.000	1.300	4.000	1.050	4.000	795	3.000	690	3.000	405	2.000	255
20	3.200	1.050	3.200	1.050	3.200	795	2.400	580	2.400	405	1.600	255
Max cutting depth					ap: 0,1D; ae: 0,3~0,5D				ap: 0,05D; ae: 0,2-0,3D		ap: 0,02D; ae: 0,2-0,3D	

1. Conditions to be used if slant is = 3 x dia. If length is 5 x dia, than reduce feed and rotation by 30 to 40% and use 1/2 of depth of passes. If length is 6 x dia, than reduce feed and rotation by 40 to 60% and use 1/4 of depth of passes.
2. Reduce speed to avoid distortion from deep passes or low rigidity
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emission.

CUTTING CONDITIONS

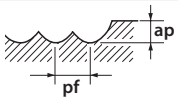
FXS-HS-EBM

High speed milling roughing

	SKD - GG S55C • SS400 ~750 N/mm²		30~38 HRC		38~45 HRC		45~55 HRC HRS		55~60 HRC		60~65 HRC		65~70 HRC	
mm	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
R 3	16.700	6.100	16.200	5.900	15.900	5.200	13.300	3.800	10.100	2.700	9.000	2.250	6.350	1.600
R 4	12.500	5.950	12.100	5.750	11.900	5.050	9.950	3.700	7.550	2.600	6.750	2.150	4.750	1.550
R 5	10.000	5.800	9.700	5.590	9.550	4.900	7.950	3.550	6.050	2.500	5.400	2.100	3.800	1.450
R 6	8.350	5.350	8.100	5.200	7.950	4.300	6.650	3.300	5.050	2.300	4.500	1.750	3.200	1.200
R 8	6.250	4.000	6.050	3.900	5.950	3.800	4.950	2.550	3.800	1.800	3.400	1.300	2.400	915
R 10	5.000	3.200	4.850	3.100	4.750	3.050	4.000	2.050	3.000	1.450	2.700	1.050	1.900	735
Max cutting depth			ap: 0,1D; pf: 0,2D **aeMAX = 1mm**				ap: 0,08D; pf: 0,2D **aeMAX = 0,8mm**		ap: 0,05D; pf: 0,1D **aeMAX = 0,5mm**				ap: 0,03D; pf: 0,1D **aeMAX = 0,3mm**	

1. Use high precision machine set up to ensure maximum rigidity.
2. Use a coolant that has a low co-efficient of smoke emission.

High speed milling finishing

	SKD - GG		30~38 HRC		38~45 HRC		45~55 HRC HRS		55~60 HRC		60~65 HRC		65~70 HRC	
	S55C • SS400 ~750 N/mm²													
mm	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
R 3	18.000	7.950	17.000	7.200	16.400	6.650	13.800	5.050	11.100	3.650	10.100	3.100	6.900	2.000
R 4	13.500	6.950	12.700	6.500	12.300	5.700	10.300	4.250	8.350	3.200	7.550	2.700	5.150	1.700
R 5	10.800	6.250	10.200	5.850	9.850	5.050	8.300	3.700	6.700	2.800	6.050	2.300	4.150	1.600
R 6	9.000	5.750	8.500	5.450	8.200	4.750	6.900	3.450	5.550	2.550	5.050	1.950	3.450	1.300
R 8	6.750	4.350	6.350	4.050	6.150	3.550	5.150	2.650	4.200	2.000	3.800	1.450	2.600	995
R 10	5.400	3.450	5.100	3.250	4.950	2.850	4.150	2.100	3.350	1.600	3.000	1.150	2.050	795
Max cutting depth			ap: 0,02D; pf: 0,05D											

1. Use high precision machine set up to ensure maximum rigidity.
2. Use a coolant that has a low co-efficient of smoke emission.

CA-RG-EDS

Side milling

	AL A7075		Cu C1100	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
1	32.000	220	23.500	220
2	32.000	420	11.500	215
3	21.000	700	7.950	250
4	15.500	725	5.950	280
5	12.500	760	4.750	295
6	10.500	830	3.950	310
8	7.950	890	2.950	350
10	6.350	995	2.350	365
12	5.300	1.050	1.950	390
14	4.500	1.050	1.700	395
16	3.950	1.050	1.450	390
18	3.500	1.050	1.300	390
20	3.150	1.050	1.150	385
Max cutting depth				

1. Use a high rigidity machine set up.
2. Use soluble oil.

Slotting

	AL A7075		Cu C1100	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
1	32.000	220	23.500	220
2	23.500	310	11.500	215
3	15.500	515	7.950	250
4	11.500	540	5.950	280
5	9.500	575	4.750	295
6	7.950	630	3.950	310
8	5.950	665	2.950	350
10	4.750	745	2.350	365
12	3.950	790	1.950	390
14	3.400	795	1.700	395
16	2.950	795	1.450	390
18	2.650	795	1.300	390
20	2.350	785	1.150	385
Max cutting depth				

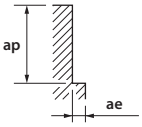
1. Use a high rigidity machine set up.
2. Use soluble oil.

CUTTING CONDITIONS

Milling | Endmills | Cutting conditions

CA-ETS

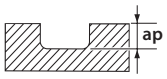
Side milling

	AL A7075		AC <Si 13%		CU C1100	
Vc	200 (m/min)		200 (m/min)		75 (m/min)	
Ø	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)
3	21.000	950	21.000	950	7.950	320
4	15.500	1.100	15.500	1.100	5.950	350
5	12.500	1.100	12.500	1.100	4.750	380
6	10.500	1.200	10.500	1.200	3.950	400
8	7.950	1.300	7.950	1.300	2.950	450
10	6.350	1.500	6.350	1.500	2.350	480
12	5.300	1.550	5.300	1.550	1.950	510
16	3.950	1.550	3.950	1.550	1.450	510
20	3.150	1.550	3.150	1.550	1.150	510
Max cutting depth	ap: 1,5D ae: 0,1D					

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

CA-ETS

Slotting

	AL A7075		AC <Si 13%		CU C1100	
Vc	200 (m/min)		200 (m/min)		75 (m/min)	
Ø	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)
3	21.000	670	21.000	670	7.950	325
4	15.500	700	15.500	700	5.950	365
5	12.500	745	12.500	745	4.750	385
6	10.500	820	10.500	820	3.950	405
8	7.950	865	7.950	865	2.950	455
10	6.350	970	6.350	970	2.350	475
12	5.300	1.050	5.300	1.050	1.950	510
16	3.950	1.050	3.950	1.050	1.450	510
20	3.150	1.050	3.150	1.050	1.150	500
Max cutting depth	ap: 0,5D					

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Use a suitable cutting fluid with high smoke retardant properties.

EPL-TI-7FL

Side Milling

7 flute variable lead carbide endmill

		Mild Steels - Carbon Steels - Cast Iron Ap = up to Max LOC, Ae= 0.15xD			Tool Steel - Alloy Steel <30 HRC Ap = up to Max LOC, Ae= 0.15xD			Stainless Steel Ap = up to Max LOC, Ae= 0.1xD			Titanium Ap = up to Max LOC, Ae= 0.1xD			Inconel Ap = up to Max LOC, Ae= 0.1xD		
Vc		120 m/min			120 m/min			120 m/min			100 m/min			50 m/min		
Ø	Z	S (min-1)	F (mm/min)	fz (mm)	S (min-1)	F (mm/min)	fz (mm)	S (min-1)	F (mm/min)	fz (mm)	S (min-1)	F (mm/min)	fz (mm)	S (min-1)	F (mm/min)	fz (mm)
10	7	3.820	2.675	0,100	3.820	2.675	0,100	3.180	1.560	0,070	3.180	1.560	0,070	1.590	780	0,070
12	7	3.180	2.450	0,110	3.180	2.450	0,110	2.650	1.575	0,085	2.650	1.575	0,085	1.330	700	0,075
16	7	2.390	2.010	0,120	2.390	2.010	0,120	1.990	1.395	0,100	1.990	1.395	0,100	990	555	0,080
20	7	1.910	1.740	0,130	1.910	1.740	0,130	1.590	1.335	0,120	1.590	1.335	0,120	800	505	0,090

CUTTING CONDITIONS

Milling | Endmills | Cutting conditions

EPL-HP-4FL

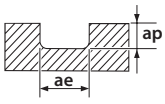
Slotting



		Steels St-52 • C45 • GG-25			Hardened steels ~35 HRC 42CrMo4			Hardened steels ~45 HRC 1.2379			Stainless steel 1.4301			Titanium Ti6Al4V		
Vc		120 m/min			120 m/min			70 m/min			60 m/min			50 m/min		
Ø	Z	S (min^{-1})	F (mm/min)	fz (mm)	S (min^{-1})	F (mm/min)	fz (mm)	S (min^{-1})	F (mm/min)	fz (mm)	S (min^{-1})	F (mm/min)	fz (mm)	S (min^{-1})	F (mm/min)	fz (mm)
3	4	12.739	1.325	0,026	12.739	1.325	0,026	7.431	773	0,026	6.369	535	0,018	5.308	382	0,018
4	4	9.549	1.146	0,030	9.549	1.146	0,030	5.570	668	0,030	4.775	382	0,020	3.979	318	0,020
5	4	7.639	1.146	0,038	7.639	1.146	0,038	4.456	668	0,038	3.820	382	0,025	3.183	318	0,025
6	4	6.366	1.146	0,045	6.366	1.146	0,045	3.714	668	0,045	3.183	382	0,030	2.653	318	0,030
8	4	4.775	1.146	0,060	4.775	1.146	0,060	2.785	668	0,060	2.387	382	0,040	1.989	318	0,040
10	4	3.820	1.146	0,075	3.820	1.146	0,075	2.228	668	0,075	1.910	382	0,050	1.592	318	0,050
12	4	3.183	1.146	0,090	3.183	1.146	0,090	1.857	668	0,090	1.592	382	0,060	1.326	318	0,060
14	4	2.728	1.146	0,105	2.728	1.146	0,105	1.592	668	0,105	1.364	382	0,070	1.137	318	0,070
16	4	2.387	1.146	0,120	2.387	1.146	0,120	1.393	668	0,120	1.194	382	0,080	995	318	0,080
20	4	1.910	1.146	0,150	1.910	1.146	0,150	1.114	668	0,150	955	382	0,100	796	318	0,100

ap x d

F(fz) correction



ae
1xd

ap	Fakt.
0,5	**1,0**
1,0	0,7
1,5	0,5
2,0	0,3

The above stated application data are as per **RED** marked parameters.

EPL-HP-4FL

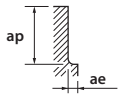
Side milling



		Steels St-52 • C45 • GG-25			Hardened steels ~35 HRC 42CrMo4			Hardened steels ~45 HRC 1.2379			Stainless steel 1.4301			Titanium Ti6Al4V		
Vc		140 m/min			140 m/min			80 m/min			70 m/min			60 m/min		
Ø	Z	S (min^{-1})	F (mm/min)	fz (mm)	S (min^{-1})	F (mm/min)	fz (mm)	S (min^{-1})	F (mm/min)	fz (mm)	S (min^{-1})	F (mm/min)	fz (mm)	S (min^{-1})	F (mm/min)	fz (mm)
3	4	14.862	3.567	0,060	14.862	3.567	0,060	8.493	2.038	0,060	7.431	1.019	0,030	6.369	764	0,030
4	4	11.141	3.565	0,080	11.141	3.565	0,080	6.366	2.037	0,080	5.570	891	0,040	4.775	764	0,040
5	4	8.913	3.565	0,100	8.913	3.565	0,100	5.093	2.037	0,100	4.456	891	0,050	3.820	764	0,050
6	4	7.427	3.565	0,120	7.427	3.565	0,120	4.244	2.037	0,120	3.714	891	0,060	3.183	764	0,060
8	4	5.570	3.565	0,160	5.570	3.565	0,160	3.183	2.037	0,160	2.785	891	0,080	2.387	764	0,080
10	4	4.456	3.565	0,200	4.456	3.565	0,200	2.546	2.037	0,200	2.228	891	0,100	1.910	764	0,100
12	4	3.714	3.565	0,240	3.714	3.565	0,240	2.122	2.037	0,240	1.857	891	0,120	1.592	764	0,120
14	4	3.183	3.565	0,280	3.183	3.565	0,280	1.819	2.037	0,280	1.592	891	0,140	1.364	764	0,140
16	4	2.785	3.565	0,320	2.785	3.565	0,320	1.592	2.037	0,320	1.393	891	0,160	1.194	764	0,160
20	4	2.228	3.565	0,400	2.228	3.565	0,400	1.273	2.037	0,400	1.114	891	0,200	955	764	0,200

ap x d

F(fz) correction



ae
0,2xd

ap	Fakt.
0,5	1,3
1,0	**1,2**
1,5	1,0
2,0	0,8

ae
0,5xd

ap	Fakt.
0,5	1,2
1,0	1,0
1,5	**0,7**
2,0	0,5

The above stated application data are as per **RED** marked parameters.

EPL-HP-5FL

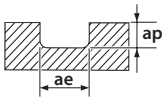
Slotting



		Steels St-52 • C45 • GG-25			Hardened steels ~35 HRC 42CrMo4			Hardened steels ~45 HRC 1.2379			Stainless steel 1.4301			Titanium Ti6Al4V		
Vc		120 m/min			120 m/min			70 m/min			60 m/min			50 m/min		
Ø	Z	S (min^{-1})	F (mm/min)	fz (mm)	S (min^{-1})	F (mm/min)	fz (mm)	S (min^{-1})	F (mm/min)	fz (mm)	S (min^{-1})	F (mm/min)	fz (mm)	S (min^{-1})	F (mm/min)	fz (mm)
6	5	6.369	1.433	0,045	6.369	1.433	0,045	3.715	836	0,045	3.185	650	0,035	2.654	464	0,035
8	5	4.775	1.432	0,060	4.775	1.432	0,060	2.785	836	0,060	2.387	477	0,040	1.989	398	0,040
10	5	3.820	1.432	0,075	3.820	1.432	0,075	2.228	836	0,075	1.910	477	0,050	1.592	398	0,050
12	5	3.183	1.432	0,090	3.183	1.432	0,090	1.857	836	0,090	1.592	477	0,060	1.326	398	0,060
16	5	2.387	1.432	0,120	2.387	1.432	0,120	1.393	836	0,120	1.194	477	0,080	995	398	0,080
20	5	1.910	1.432	0,150	1.910	1.432	0,150	1.114	836	0,150	955	477	0,100	796	398	0,100

ap x d

F(fz) correction



ae
1xd

ap	Fakt.
0,5	**1,0**
1,0	0,7
1,5	0,5
2,0	0,3

The above stated application data are as per **RED** marked parameters.



CUTTING CONDITIONS

Milling | Endmills | Cutting conditions

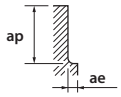
EPL-HP-5FL

Side milling

		Steels St-52 • C45 • GG-25			Hardened steels ~35 HRC 42CrMo4			Hardened steels ~45 HRC 1.2379			Stainless steel 1.4301			Titanium Ti6Al4V		
Vc		140 m/min			140 m/min			80 m/min			70 m/min			60 m/min		
Ø	Z	S (min^{-1})	F (mm/min)	fz (mm)	S (min^{-1})	F (mm/min)	fz (mm)	S (min^{-1})	F (mm/min)	fz (mm)	S (min^{-1})	F (mm/min)	fz (mm)	S (min^{-1})	F (mm/min)	fz (mm)
6	5	7.431	4.459	0,120	7.431	4.459	0,120	4,246	2.548	0,120	3.715	1.274	0,060	3.185	955	0,060
8	5	5.570	4.456	0,160	5.570	4.456	0,160	3.183	2.546	0,160	2.785	1.114	0,080	2.387	955	0,080
10	5	4.456	4.456	0,200	4.456	4.456	0,200	2.546	2.546	0,200	2.228	1.114	0,100	1.910	955	0,100
12	5	3.714	4.456	0,240	3.714	4.456	0,240	2.122	2.546	0,240	1.857	1.114	0,120	1.592	955	0,120
16	5	2.785	4.456	0,320	2.785	4.456	0,320	1.592	2.546	0,320	1.393	1.114	0,160	1.194	955	0,160
20	5	2.228	4.456	0,400	2.228	4.456	0,400	1.273	2.546	0,400	1.114	1.114	0,200	955	955	0,200

ap x d

F(fz) correction



ae
0,2xd

ap	Fakt.
0,5	1,3
1	1,2
1,5	**1,0**
2	0,8

ae
0,5xd

ap	Fakt.
0,5	1,2
1,0	**1,0**
1,5	0,7
2,0	0,5

The above stated application data are as per **RED** marked parameters.

EPL-HI-EMS/EPL-HI-WEMS

	Carbon Steel / Allowed Steel / Tool Steel											
	~ 20 HRC				20 - 35 HRC				35 - 45 HRC			
Ø	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)
4	180	14.320	1.720	0,03	160	12.730	1.370	0,03	140	11.140	1.080	0,02
5	180	11.460	1.380	0,03	160	10.190	1.220	0,03	140	8.920	1.070	0,03
6	180	9.550	1.240	0,03	160	8.490	990	0,03	140	7.430	780	0,03
8	180	7.160	1.110	0,04	160	6.370	890	0,03	140	5.570	700	0,03
10	180	5.730	1.110	0,05	160	5.090	890	0,04	140	4.460	700	0,04
12	180	4.770	1.110	0,06	160	4.240	890	0,05	140	3.710	700	0,05
16	180	3.580	1.020	0,07	160	3.180	820	0,06	140	2.790	640	0,06
20	180	2.860	960	0,08	141	2.250	770	0,09	140	2.230	610	0,07

	GG / GGG / GTW				INOX				Aluminium / Mg			
	Unalloyed				~ 20 HRC				Wrought alloy			
Ø	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)
4	145	11.540	1.300	0,03	45	3.580	310	0,02	180	14.320	1.720	0,03
5	145	9.240	1.110	0,03	45	2.870	230	0,02	180	11.460	1.380	0,03
6	145	7.690	1.100	0,04	45	2.390	230	0,02	180	9.550	1.240	0,03
8	145	5.770	1.000	0,04	45	1.790	200	0,03	180	7.160	1.110	0,04
10	145	4.620	1.000	0,05	45	1.430	200	0,03	180	5.730	1.110	0,05
12	145	3.850	1.000	0,06	45	1.190	200	0,04	180	4.770	1.110	0,06
16	145	2.880	900	0,08	45	900	190	0,05	180	3.580	1.020	0,07
20	147	2.340	800	0,09	45	720	180	0,06	180	2.860	960	0,08

EPL-HI-CR-EMS / EPL-HI-CR-WEMS

	Carbon Steel / Alloyed Steel / Tool Steel									GG-GGG-GTW			INOX			Aluminium / Mg		
	~20 HRC			20 - 35 HRC			35 - 45 HRC			Unalloyed			~20HRC			Wrought Alloy		
Vc	180 m/min			160 m/min			140 m/min			145 m/min			45 m/min			180 m/min		
Ø	S (min^{-1})	F (mm/min)	fz (mm)	S (min^{-1})	F (mm/min)	fz (mm)	S (min^{-1})	F (mm/min)	fz (mm)	S (min^{-1})	F (mm/min)	fz (mm)	S (min^{-1})	F (mm/min)	fz (mm)	S (min^{-1})	F (mm/min)	fz (mm)
4	14.320	1.720	0,03	12.730	1.370	0,03	11.140	1.080	0,02	11.540	1.300	0,03	3.580	310	0,02	14.320	1.720	0,03
5	11.460	1.380	0,03	10.190	1.220	0,03	8.920	1.070	0,03	9.240	1.110	0,03	2.870	230	0,02	11.460	1.380	0,03
6	9.550	1.240	0,03	8.490	990	0,03	7.430	780	0,03	7.690	1.100	0,04	2.390	230	0,02	9.550	1.240	0,03
8	7.160	1.110	0,04	6.370	890	0,03	5.570	700	0,03	5.770	1.000	0,04	1.790	200	0,03	7.160	1.110	0,04
10	5.730	1.110	0,05	5.090	890	0,04	4.460	700	0,04	4.620	1.000	0,05	1.430	200	0,03	5.730	1.110	0,05
12	4.770	1.110	0,06	4.240	890	0,05	3.710	700	0,05	3.850	1.000	0,06	1.190	200	0,04	4.770	1.110	0,06
16	3.580	1.020	0,07	3.180	820	0,06	2.790	640	0,06	2.880	900	0,08	900	190	0,05	3.580	1.020	0,07
20	2.860	960	0,08	2.250	770	0,09	2.230	610	0,07	2.340	800	0,09	720	180	0,06	2.860	960	0,08

CUTTING CONDITIONS

Milling | Endmills | Cutting conditions

EPL-WRESF

	GG			C < 0,2%			SCM - SKD			25 - 35 HRC			35 - 45 HRC		
Vc	80			70			45			35			27		
Ø	S (min-1)	F (mm/min)	fz (mm)	S (min-1)	F (mm/min)	fz (mm)	S (min-1)	F (mm/min)	fz (mm)	S (min-1)	F (mm/min)	fz (mm)	S (min-1)	F (mm/min)	fz (mm)
4	6.370	380	0,02	5.570	340	0,02	3.580	220	0,02	2.790	170	0,02	2.150	130	0,02
5	5.100	460	0,03	4.460	270	0,02	2.870	170	0,02	2.230	160	0,02	1.720	100	0,02
6	4.250	430	0,03	3.720	370	0,02	2.390	240	0,03	1.860	190	0,03	1.430	90	0,02
8	3.190	510	0,04	2.790	510	0,05	1.790	290	0,04	1.390	220	0,04	1.080	90	0,02
10	2.550	610	0,06	2.230	610	0,07	1.430	340	0,06	1.120	270	0,06	860	100	0,03
12	2.120	680	0,08	1.860	680	0,09	1.190	380	0,08	930	300	0,08	720	120	0,04
16	1.590	700	0,11	1.390	700	0,13	900	390	0,11	700	310	0,11	540	130	0,06
20	1.270	710	0,14	1.120	710	0,16	720	400	0,14	560	290	0,13	430	140	0,08
25	1.020	650	0,16	890	650	0,18	570	370	0,16	450	290	0,16	340	140	0,10

ap	ae
1D	0,5D

	GG			C < 0,2%			SCM - SKD			25 - 35 HRC			35 - 45 HRC		
Vc	65			40			35			30			20		
Ø	S (min-1)	F (mm/min)	fz (mm)	S (min-1)	F (mm/min)	fz (mm)	S (min-1)	F (mm/min)	fz (mm)	S (min-1)	F (mm/min)	fz (mm)	S (min-1)	F (mm/min)	fz (mm)
4	5.180	310	0,02	3.180	190	0,02	2.790	170	0,02	2.390	140	0,02	1.590	70	0,01
5	4.140	250	0,02	2.550	150	0,02	2.230	130	0,02	1.910	110	0,02	1.270	50	0,01
6	3.450	350	0,03	2.129	210	0,02	1.860	190	0,03	1.590	160	0,03	1.060	50	0,01
8	2.590	410	0,04	1.590	250	0,04	1.390	220	0,04	1.190	190	0,04	800	70	0,02
10	2.070	500	0,06	1.270	310	0,06	1.120	270	0,06	960	230	0,06	640	60	0,02
12	1.730	550	0,08	1.060	340	0,08	930	300	0,08	800	240	0,08	530	90	0,04
16	1.290	570	0,11	800	350	0,11	700	310	0,11	600	260	0,11	400	100	0,06
20	1.040	580	0,14	640	360	0,14	560	310	0,14	480	250	0,13	320	100	0,08
25	830	530	0,16	510	330	0,16	450	290	0,16	380	250	0,16	260	100	0,10

ap	ae
1D	1D

EPL-ETS

Side milling

	C≤0,2% - GG E24 • XC48 • GG25 750 N/mm²			SCM - SK 350NCD16 • 40CMD8 ~30 HRC			SUS 316 • 304 800 N/mm²			30~38 HRC Z38CDV5 • Z40CDV5 30~38 HRC			45~55 HRC Z38CDV5 45~55 HRC			55~60 HRC Z160CDV12 55~60 HRC		
Vc	100 (m/min)			80 (m/min)			60 (m/min)			60 (m/min)			60 (m/min)			30 (m/min)		
Ø	S (min-1)	F (mm/min)	fz (mm)	S (min-1)	F (mm/min)	fz (mm)	S (min-1)	F (mm/min)	fz (mm)	S (min-1)	F (mm/min)	fz (mm)	S (min-1)	F (mm/min)	fz (mm)	S (min-1)	F (mm/min)	fz (mm)
3	10.610	859	0,027	8.488	458	0,018	6.366	267	0,014	6.366	344	0,018	6.366	210	0,011	3.183	105	0,011
4	7.958	907	0,038	6.366	477	0,025	4.775	272	0,019	4.775	358	0,025	4.775	229	0,016	2.387	107	0,015
5	6.366	955	0,050	5.093	519	0,034	3.820	298	0,026	3.820	390	0,034	3.820	241	0,021	1.910	115	0,020
6	5.305	987	0,062	4.244	547	0,043	3.183	306	0,032	3.183	411	0,043	3.183	248	0,026	1.592	119	0,025
8	3.979	883	0,074	3.183	535	0,056	2.387	272	0,038	2.387	401	0,056	2.387	222	0,031	1.194	107	0,030
10	3.183	793	0,083	2.546	519	0,068	1.910	241	0,042	1.910	390	0,068	1.910	195	0,034	955	95	0,033
12	2.653	796	0,100	2.122	497	0,078	1.592	239	0,050	1.592	372	0,078	1.592	196	0,041	796	95	0,040
16	1.989	657	0,110	1.592	525	0,110	1.194	286	0,080	1.194	394	0,110	1.194	190	0,053	597	90	0,050

Slotting

	C≤0,2% - GG E24 • XC48 • GG25 750 N/mm²			SCM - SK 350NCD16 • 40CMD8 ~30 HRC			SUS 316 • 304 800 N/mm²			30~38 HRC Z38CDV5 • Z40CDV5 30~38 HRC			45~55 HRC Z38CDV5 45~55 HRC			55~60 HRC Z160CDV12 55~60 HRC		
Vc	80 (m/min)			65 (m/min)			50 (m/min)			55 (m/min)			45 (m/min)			20 (m/min)		
Ø	S (min-1)	F (mm/min)	fz (mm)	S (min-1)	F (mm/min)	fz (mm)	S (min-1)	F (mm/min)	fz (mm)	S (min-1)	F (mm/min)	fz (mm)	S (min-1)	F (mm/min)	fz (mm)	S (min-1)	F (mm/min)	fz (mm)
3	8.488	688	0,027	6.897	372	0,018	5.305	223	0,014	5.836	245	0,014	4.775	158	0,011	2.122	70	0,011
4	6.366	726	0,038	5.173	388	0,025	3.979	227	0,019	4.377	249	0,019	3.581	172	0,016	1.592	72	0,015
5	5.093	764	0,05	4.138	422	0,034	3.183	248	0,026	3.501	273	0,026	2.865	180	0,021	1.273	76	0,02
6	4.244	789	0,062	3.448	445	0,043	2.653	255	0,032	2.918	280	0,032	2.387	186	0,026	1.061	80	0,025
8	3.183	707	0,074	2.586	434	0,056	1.989	233	0,039	2.188	256	0,039	1.790	167	0,031	796	72	0,03
10	2.546	672	0,088	2.069	422	0,068	1.592	224	0,047	1.751	247	0,047	1.432	146	0,034	637	63	0,033
12	2.122	637	0,1	1.724	403	0,078	1.326	215	0,054	1.459	236	0,054	1.194	147	0,041	531	64	0,04
16	1.592	573	0,12	1.293	388	0,1	995	239	0,08	1.094	263	0,08	895	142	0,053	398	60	0,05

EPL-SB-EBD

High speed milling roughing



	25 - 30 HRC				30~38 HRC				38~45 HRC				45~55 HRC			
Ø	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)
1	120	38.220	1.530	0,02	120	38.220	1.530	0,02	110	35.030	1.400	0,02	100	31.850	1.270	0,02
2	210	33.440	2.010	0,03	210	33.440	2.010	0,03	174	27.660	1.720	0,03	160	25.480	1.530	0,03
3	290	30.790	2.960	0,05	280	29.720	2.850	0,05	250	26.540	2.550	0,05	220	23.360	2.240	0,05
4	340	27.070	3.900	0,07	330	26.270	3.780	0,07	260	20.700	2.980	0,07	230	18.310	2.640	0,07
5	380	24.200	4.360	0,09	380	24.200	4.360	0,09	300	19.110	3.440	0,09	250	15.920	2.870	0,09
6	350	18.580	4.010	0,11	400	21.230	4.590	0,11	380	20.170	4.360	0,11	380	20.170	4.360	0,11
8	350	13.930	4.240	0,15	360	14.330	4.360	0,15	350	13.930	4.240	0,15	270	10.750	3.270	0,15
10	350	11.150	4.010	0,18	300	9.550	3.440	0,18	280	8.920	3.210	0,18	250	7.960	2.870	0,18
12	350	9.290	3.570	0,19	300	7.962	3.060	0,19	280	7.430	2.850	0,19	250	6.640	2.550	0,19
16	350	6.970	3.120	0,22	300	5.970	2.680	0,22	280	5.570	2.500	0,22	250	4.980	2.230	0,22
20	350	5.570	3.120	0,28	300	4.780	2.680	0,28	280	4.460	2.500	0,28	250	3.980	2.230	0,28
	ap = 0,05 - 0,07 D ae = 0,25 D				ap = 0,05 - 0,07 D ae = 0,25 D				ap = 0,04 - 0,05 D ae = 0,22 D				ap = 0,03 - 0,04 D ae = 0,20 D			

High speed milling finishing



	25 - 30 HRC				30~38 HRC				38~45 HRC				45~55 HRC			
Ø	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)
1	130	41.400	1.660	0,02	120	38.220	1.530	0,02	110	35.030	1.400	0,02	100	31.850	1.270	0,02
2	220	35.030	2.100	0,03	210	33.440	2.010	0,03	174	27.660	1.720	0,03	160	25.480	1.530	0,03
3	330	31.850	3.060	0,05	280	29.720	2.850	0,05	250	26.540	2.550	0,05	220	23.360	2.240	0,05
4	350	27.870	4.010	0,07	330	26.270	3.780	0,07	260	20.700	2.980	0,07	230	18.310	2.640	0,07
5	390	24.840	4.470	0,09	380	24.200	4.360	0,09	300	19.110	3.440	0,09	250	15.920	2.870	0,09
6	360	19.110	4.130	0,11	400	21.230	4.590	0,11	380	20.170	4.360	0,11	380	20.170	4.360	0,11
8	360	14.330	4.360	0,15	360	14.330	4.360	0,15	350	13.930	4.240	0,15	270	10.750	3.270	0,15
10	360	11.470	4.130	0,18	300	9.550	3.440	0,18	280	8.920	3.210	0,18	250	7.960	2.870	0,18
12	360	9.550	3.670	0,19	300	7.962	3.060	0,19	280	7.430	2.850	0,19	250	6.640	2.550	0,19
16	360	7.170	3.210	0,22	300	5.970	2.680	0,22	280	5.570	2.500	0,22	250	4.980	2.230	0,22
20	360	5.730	3.210	0,28	300	4.780	2.680	0,28	280	4.460	2.500	0,28	250	3.980	2.230	0,28
	ap = 0,02 - 0,07 D ae = 0,03 - 0,10 D				ap = 0,02 - 0,07 D ae = 0,03 - 0,10 D				ap = 0,02 - 0,06 D ae = 0,02 - 0,08 D				ap = 0,02 - 0,04 D ae = 0,02 - 0,08 D			

Conventional roughing



	25 - 30 HRC				30~38 HRC				38~45 HRC				45~55 HRC			
Ø	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)
1	60	19.110	760	0,02	60	19.110	760	0,02	55	17.520	700	0,02	50	15.920	640	0,02
2	105	16.720	1.000	0,03	105	16.720	1.000	0,03	90	14.330	860	0,03	80	12.740	760	0,03
3	145	15.390	1.480	0,05	140	14.860	1.430	0,05	125	13.270	1.270	0,05	110	11.680	1.120	0,05
4	170	13.540	1.950	0,07	165	13.140	1.890	0,07	130	10.350	1.490	0,07	115	9.160	1.320	0,07
5	190	12.100	2.180	0,09	190	12.100	2.180	0,09	150	9.550	1.720	0,09	125	7.960	1.430	0,09
6	175	9.290	2.010	0,11	200	10.610	2.290	0,11	190	10.090	2.180	0,11	190	10.090	2.180	0,11
8	175	6.970	2.120	0,15	180	7.170	2.180	0,15	175	6.970	2.120	0,15	135	5.370	1.630	0,15
10	175	5.570	2.010	0,18	150	4.780	1.720	0,18	140	4.460	1.610	0,18	125	3.980	1.430	0,18
12	175	4.640	1.780	0,19	150	3.980	1.530	0,19	140	3.720	1.430	0,19	125	3.320	1.270	0,19
16	175	3.480	1.560	0,22	150	2.990	1.340	0,22	140	2.790	1.250	0,22	125	2.490	1.120	0,22
20	175	2.790	1.560	0,28	150	2.390	1.340	0,28	140	2.230	1.250	0,28	125	1.990	1.120	0,28
	ap = 0,05 - 0,07 D ae = 0,02 - 0,10 D				ap = 0,05 - 0,07 D ae = 0,02 - 0,10 D				ap = 0,04 - 0,06 D ae = 0,02 - 0,08 D				ap = 0,02 - 0,04 D ae = 0,02 - 0,08 D			

Conventional finishing



	25 - 30 HRC				30~38 HRC				38~45 HRC				45~55 HRC			
Ø	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)
1	65	20.700	830	0,02	65	20.700	830	0,02	60	19.110	760	0,02	55	17.520	700	0,02
2	110	17.520	1.050	0,03	110	17.520	1.050	0,03	95	15.130	910	0,03	85	13.540	810	0,03
3	150	15.920	1.530	0,05	145	15.390	1.480	0,05	130	13.800	1.330	0,05	115	12.210	1.170	0,05
4	175	13.930	2.010	0,07	170	13.540	1.950	0,07	135	10.750	1.550	0,07	120	9.550	1.380	0,07
5	195	12.420	2.240	0,09	195	12.420	2.240	0,09	155	9.870	1.780	0,09	130	8.280	1.490	0,09
6	180	9.550	2.060	0,11	205	10.880	2.350	0,11	195	10.350	2.240	0,11	195	10.350	2.240	0,11
8	180	7.170	2.180	0,15	185	7.360	2.240	0,15	179	7.120	2.180	0,15	140	5.570	1.690	0,15
10	180	5.730	2.060	0,18	155	4.940	1.780	0,18	145	4.620	1.660	0,18	130	4.140	1.490	0,18
12	180	4.780	1.830	0,19	155	4.110	1.580	0,19	145	3.850	1.480	0,19	130	3.450	1.330	0,19
16	180	3.580	1.610	0,22	155	3.090	1.380	0,22	145	2.890	1.290	0,22	130	2.590	1.160	0,22
20	180	2.870	1.610	0,28	155	2.470	1.380	0,28	145	2.310	1.290	0,28	130	2.070	1.160	0,28
	ap = 0,02 - 0,07 D ae = 0,02 - 0,10 D				ap = 0,02 - 0,07 D ae = 0,03 - 0,10 D				ap = 0,02 - 0,06 D ae = 0,02 - 0,08 D				ap = 0,02 - 0,04 D ae = 0,02 - 0,08 D			

EPL-SB-LN-EBD

High speed milling roughing



	25 - 30 HRC				30~38 HRC				38~45 HRC				45~55 HRC			
Ø	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)
1	120	30.580	1.220	0,02	120	30.580	1.220	0,02	110	28.020	1.120	0,02	100	25.480	1.020	0,02
2	210	26.750	1.610	0,03	210	26.750	1.610	0,03	174	22.130	1.380	0,03	160	20.380	1.220	0,03
3	290	24.630	2.370	0,05	280	23.780	2.280	0,05	250	21.230	2.040	0,05	220	18.690	1.790	0,05
4	340	21.660	3.120	0,07	330	21.020	3.020	0,07	260	16.560	2.380	0,07	230	14.650	2.110	0,07
5	380	19.360	3.490	0,09	380	19.360	3.490	0,09	300	15.290	2.750	0,09	250	12.740	2.300	0,09
6	350	14.860	3.210	0,11	400	16.980	3.670	0,11	380	16.140	3.490	0,11	380	16.140	3.490	0,11
8	350	11.140	3.390	0,15	360	11.460	3.490	0,15	350	11.140	3.390	0,15	270	8.600	2.620	0,15
10	350	8.920	3.210	0,18	300	7.640	2.750	0,18	280	7.140	2.570	0,18	250	6.370	2.300	0,18
12	350	7.430	2.860	0,19	300	6.370	2.450	0,19	280	5.940	2.280	0,19	250	5.310	2.040	0,19
16	350	5.580	2.500	0,22	300	4.780	2.140	0,22	280	4.460	2.000	0,22	250	3.980	1.780	0,22
20	350	4.460	2.500	0,28	300	3.820	2.140	0,28	280	3.570	2.000	0,28	250	3.180	1.780	0,28
	ap = 0,05 - 0,07 D ae = 0,25 D				ap = 0,05 - 0,07 D ae = 0,25 D				ap = 0,04 - 0,06 D ae = 0,22 D				ap = 0,02 - 0,04 D ae = 0,20 D			

High speed milling finishing



	25 - 30 HRC				30~38 HRC				38~45 HRC				45~55 HRC			
Ø	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)
1	130	33.120	1.330	0,02	120	30.580	1.220	0,02	110	28.020	1.120	0,02	100	25.480	1.020	0,02
2	220	28.020	1.680	0,03	210	26.750	1.610	0,03	174	22.130	1.380	0,03	160	20.380	1.220	0,03
3	300	25.480	2.450	0,05	280	23.780	2.280	0,05	250	21.230	2.040	0,05	220	18.690	1.790	0,05
4	350	22.300	3.210	0,07	330	21.020	3.020	0,07	260	16.560	2.380	0,07	230	14.650	2.110	0,07
5	390	19.870	3.580	0,09	380	19.360	3.490	0,09	300	15.290	2.750	0,09	250	12.740	2.300	0,09
6	360	15.290	3.300	0,11	400	16.980	3.670	0,11	380	16.140	3.490	0,11	380	16.140	3.490	0,11
8	360	11.460	3.490	0,15	360	11.460	3.490	0,15	350	11.140	3.390	0,15	270	8.600	2.620	0,15
10	360	9.180	3.300	0,18	300	7.640	2.750	0,18	280	7.140	2.570	0,18	250	6.370	2.300	0,18
12	360	7.640	2.940	0,19	300	6.370	2.450	0,19	280	5.940	2.280	0,19	250	5.310	2.040	0,19
16	360	5.740	2.570	0,22	300	4.780	2.140	0,22	280	4.460	2.000	0,22	250	3.980	1.780	0,22
20	360	4.580	2.570	0,28	300	3.820	2.140	0,28	280	3.570	2.000	0,28	250	3.180	1.780	0,28
	ap = 0,02 - 0,07 D ae = 0,03 - 0,10 D				ap = 0,02 - 0,07 D ae = 0,03 - 0,10 D				ap = 0,02 - 0,06 D ae = 0,02 - 0,08 D				ap = 0,02 - 0,04 D ae = 0,02 - 0,08 D			

Conventional roughing



	25 - 30 HRC				30~38 HRC				38~45 HRC				45~55 HRC			
Ø	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)
1	60	15.290	610	0,02	60	15.290	610	0,02	55	14.020	560	0,02	50	12.740	510	0,02
2	105	13.380	800	0,03	105	13.380	800	0,03	90	11.460	690	0,03	80	10.190	610	0,03
3	145	12.310	1.180	0,05	140	11.890	1.140	0,05	125	10.620	1.020	0,05	110	9.340	900	0,05
4	170	10.830	1.560	0,07	165	10.510	1.510	0,07	130	8.280	1.190	0,07	115	7.330	1.060	0,07
5	190	9.680	1.740	0,09	190	9.680	1.740	0,09	150	7.640	1.380	0,09	125	6.370	1.140	0,09
6	175	7.430	1.610	0,11	200	8.490	1.830	0,11	190	8.070	1.740	0,11	190	8.070	1.740	0,11
8	175	5.580	1.700	0,15	180	5.740	1.740	0,15	175	5.580	1.700	0,15	135	4.300	1.300	0,15
10	175	4.460	1.610	0,18	150	3.820	1.380	0,18	140	3.570	1.290	0,18	125	3.180	1.140	0,18
12	175	3.710	1.420	0,19	150	3.180	1.220	0,19	140	2.980	1.140	0,19	125	2.660	1.020	0,19
16	175	2.780	1.250	0,22	150	2.390	1.070	0,22	140	2.230	1.000	0,22	125	1.990	900	0,22
20	175	2.230	1.250	0,28	150	1.910	1.070	0,28	140	1.780	1.000	0,28	125	1.590	900	0,28
	ap = 0,05 - 0,07 D ae = 0,02 - 0,10 D				ap = 0,05 - 0,07 D ae = 0,02 - 0,10 D				ap = 0,04 - 0,06 D ae = 0,02 - 0,08 D				ap = 0,02 - 0,04 D ae = 0,02 - 0,08 D			

Conventional finishing



	25 - 30 HRC				30~38 HRC				38~45 HRC				45~55 HRC			
Ø	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)
1	65	16.560	660	0,02	65	16.560	660	0,02	60	15.290	610	0,02	55	14.020	560	0,02
2	110	14.020	840	0,03	110	14.020	840	0,03	95	12.100	730	0,03	85	10.830	650	0,03
3	150	12.740	1.220	0,05	145	12.310	1.180	0,05	130	11.040	1.060	0,05	115	9.770	940	0,05
4	175	11.140	1.610	0,07	170	10.830	1.560	0,07	135	8.600	1.240	0,07	120	7.640	1.100	0,07
5	195	9.940	1.790	0,09	195	9.940	1.790	0,09	155	7.900	1.420	0,09	130	6.620	1.190	0,09
6	180	7.640	1.650	0,11	205	8.700	1.880	0,11	195	8.280	1.790	0,11	195	8.280	1.790	0,11
8	180	5.740	1.740	0,15	185	5.890	1.790	0,15	179	5.700	1.740	0,15	140	4.460	1.350	0,15
10	180	4.580	1.650	0,18	155	3.950	1.420	0,18	145	3.700	1.330	0,18	130	3.310	1.190	0,18
12	180	3.820	1.460	0,19	155	3.290	1.260	0,19	145	3.080	1.180	0,19	130	2.760	1.060	0,19
16	180	2.860	1.290	0,22	155	2.470	1.100	0,22	145	2.310	1.030	0,22	130	2.070	930	0,22
20	180	2.300	1.290	0,28	155	1.980	1.100	0,28	145	1.850	1.030	0,28	130	1.660	930	0,28
	ap = 0,02 - 0,07 D ae = 0,03 - 0,10 D				ap = 0,02 - 0,07 D ae = 0,03 - 0,10 D				ap = 0,02 - 0,06 D ae = 0,02 - 0,08 D				ap = 0,02 - 0,04 D ae = 0,02 - 0,08 D			

CUTTING CONDITIONS

EPL-SB-EBM

High speed milling roughing



	25 - 30 HRC				30~38 HRC				38~45 HRC				45~55 HRC			
Ø	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)
4	340	27.070	5.850	0,05	330	26.270	5.680	0,05	260	20.700	4.470	0,05	230	18.310	3.960	0,05
5	380	24.200	6.540	0,07	380	24.200	6.540	0,07	300	19.110	5.160	0,07	250	15.920	4.300	0,07
6	350	18.580	6.020	0,08	400	21.230	6.880	0,08	380	20.170	6.540	0,08	380	20.170	6.540	0,08
8	350	13.930	6.350	0,11	360	14.330	6.540	0,11	350	13.930	6.350	0,11	270	10.750	4.900	0,11
10	350	11.150	6.020	0,13	300	9.550	5.160	0,14	280	8.920	4.820	0,14	250	7.960	4.300	0,14
12	350	9.290	5.350	0,14	300	7.962	4.590	0,14	280	7.430	4.280	0,14	250	6.640	3.820	0,14
	ap = 0,05 - 0,07 D ae = 0,25 D				ap = 0,05 - 0,07 D ae = 0,25 D				ap = 0,04 - 0,06 D ae = 0,22 D				ap = 0,02 - 0,04 D ae = 0,20 D			

High speed milling finishing



	25 - 30 HRC				30~38 HRC				38~45 HRC				45~55 HRC			
Ø	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)
4	350	27.870	6.020	0,05	340	27.070	5.850	0,05	270	21.500	4.640	0,05	240	19.110	4.130	0,05
5	390	24.840	6.710	0,07	390	24.840	6.710	0,07	310	19.750	5.330	0,07	260	16.560	4.470	0,07
6	360	19.110	6.190	0,08	410	21.760	7.050	0,08	390	20.700	6.710	0,08	390	20.700	6.710	0,08
8	360	14.330	6.540	0,11	370	14.730	6.720	0,11	360	14.330	6.540	0,11	280	11.150	5.080	0,11
10	360	11.470	6.190	0,13	310	9.870	5.330	0,14	290	9.240	4.990	0,14	260	8.280	4.470	0,14
12	360	9.550	5.500	0,14	310	8.230	4.740	0,14	290	7.700	4.430	0,14	260	6.900	3.980	0,14
	ap = 0,02 - 0,10 D ae = 0,02 - 0,10 D				ap = 0,02 - 0,10 D ae = 0,02 - 0,10 D				ap = 0,02 - 0,10 D ae = 0,02 - 0,08 D				ap = 0,02 - 0,10 D ae = 0,02 - 0,08 D			

Conventional roughing



	25 - 30 HRC				30~38 HRC				38~45 HRC				45~55 HRC			
Ø	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)
4	170	13.540	2.920	0,05	165	13.140	2.840	0,05	130	10.350	2.240	0,05	115	9.160	1.980	0,05
5	190	12.100	3.270	0,07	190	12.100	3.270	0,07	150	9.550	2.580	0,07	125	7.960	2.150	0,07
6	175	9.290	3.010	0,08	200	10.620	3.440	0,08	190	10.090	3.270	0,08	190	10.090	3.270	0,08
8	175	6.970	3.180	0,11	180	7.170	3.270	0,11	175	6.970	3.180	0,11	135	5.370	2.450	0,11
10	175	5.570	3.010	0,14	150	4.780	2.580	0,13	140	4.460	2.410	0,14	125	3.980	2.150	0,14
12	175	4.640	2.680	0,14	150	3.980	2.290	0,14	140	3.720	2.140	0,14	125	3.320	1.910	0,14
	ap = 0,05 - 0,07 D ae = 0,02 - 0,10 D				ap = 0,05 - 0,07 D ae = 0,02 - 0,10 D				ap = 0,04 - 0,06 D ae = 0,02 - 0,08 D				ap = 0,02 - 0,04 D ae = 0,02 - 0,08 D			

Conventional finishing



	25 - 30 HRC				30~38 HRC				38~45 HRC				45~55 HRC			
Ø	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)	Vc	S (min^{-1})	F (mm/min)	fz (mm)
4	175	13.930	3.010	0,05	170	13.540	2.920	0,05	135	10.750	2.320	0,05	120	9.550	2.060	0,05
5	195	12.420	3.350	0,07	195	12.420	3.350	0,07	155	9.870	2.670	0,07	130	8.280	2.240	0,07
6	180	9.550	3.100	0,08	205	10.880	3.530	0,08	195	10.350	3.350	0,08	195	10.350	3.350	0,08
8	180	7.170	3.270	0,11	185	7.370	3.360	0,11	180	7.170	3.270	0,11	140	5.570	2.540	0,11
10	180	5.730	3.100	0,14	155	4.940	2.670	0,14	145	4.620	2.490	0,13	130	4.140	2.240	0,14
12	180	4.780	2.750	0,14	155	4.110	2.370	0,14	145	3.850	2.220	0,14	130	3.450	1.990	0,14
	ap = 0,02 - 0,07 D ae = 0,03 - 0,10 D				ap = 0,02 - 0,07 D ae = 0,02 - 0,10 D				ap = 0,02 - 0,06 D ae = 0,02 - 0,08 D				ap = 0,02 - 0,04 D ae = 0,02 - 0,08 D			

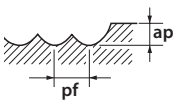
EPS-LN-EBD

High speed milling • (1/2)



		C≤0,2% - GG				~30 HRC				30~38 HRC			
Vc		120 (m/min)				110 (m/min)				100 (m/min)			
R	l1 (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)
0,15	0,6	50000	250	0,004	0,004	50000	250	0,004	0,004	50000	240	0,004	0,004
0,15	1	50000	230	0,004	0,004	50000	230	0,004	0,004	50000	220	0,004	0,004
0,15	1,5	50000	200	0,004	0,004	50000	200	0,004	0,004	50000	190	0,004	0,004
0,2	0,8	50000	360	0,005	0,005	50000	360	0,005	0,005	50000	340	0,005	0,005
0,2	1	50.000	360	0,005	0,005	50.000	360	0,005	0,005	50.000	340	0,005	0,005
0,2	1,25	47.000	320	0,005	0,005	47.000	320	0,005	0,005	47.000	300	0,005	0,005
0,2	1,5	45.000	300	0,005	0,005	45.000	300	0,005	0,005	45.000	280	0,005	0,005
0,2	2	38.000	230	0,005	0,005	38.000	230	0,005	0,005	38.000	210	0,005	0,005
0,25	1	50000	500	0,005	0,008	50000	500	0,005	0,008	50000	470	0,005	0,008
0,25	1,5	50000	500	0,005	0,008	50000	500	0,005	0,008	50000	470	0,005	0,008
0,25	2	50000	480	0,005	0,007	50000	480	0,005	0,007	50000	440	0,005	0,007
0,25	2,5	45000	460	0,005	0,006	45000	460	0,005	0,006	45000	420	0,005	0,006
0,25	3,5	45000	440	0,005	0,005	45000	440	0,005	0,005	45000	390	0,005	0,005
0,25	4	45000	400	0,005	0,005	45000	400	0,005	0,005	45000	360	0,005	0,005
0,25	6	40000	260	0,005	0,005	40000	260	0,005	0,005	40000	240	0,005	0,005
0,3	1,2	50.000	600	0,005	0,01	50.000	600	0,005	0,01	50.000	570	0,005	0,01
0,3	2	50.000	600	0,005	0,01	50.000	600	0,005	0,01	50.000	570	0,005	0,01
0,3	3	50.000	600	0,005	0,01	50.000	600	0,005	0,01	50.000	570	0,005	0,01
0,3	4	45.000	480	0,005	0,005	45.000	480	0,005	0,005	45.000	450	0,005	0,005
0,3	5	40.000	300	0,005	0,005	40.000	300	0,005	0,005	40.000	280	0,005	0,005
0,4	2	50.000	700	0,01	0,02	50.000	700	0,01	0,02	50.000	660	0,01	0,02
0,4	3	43.000	500	0,005	0,01	43.000	500	0,005	0,01	43.000	470	0,005	0,01
0,4	4	36.000	370	0,005	0,005	36.000	370	0,005	0,005	36.000	350	0,005	0,005
0,4	5	32.000	280	0,004	0,005	32.000	280	0,004	0,005	32.000	260	0,004	0,005
0,5	2	50.000	1.000	0,015	0,03	50.000	1.000	0,015	0,03	50.000	950	0,015	0,03
0,5	3	48.000	900	0,01	0,02	48.000	900	0,01	0,02	48.000	850	0,01	0,02
0,5	4	43.000	600	0,01	0,01	43.000	600	0,01	0,01	43.000	570	0,01	0,01
0,5	6	26.000	250	0,004	0,005	26.000	250	0,004	0,005	26.000	230	0,004	0,005
0,5	8	22.000	160	0,004	0,005	22.000	160	0,004	0,005	22.000	150	0,004	0,005
0,5	10	20.000	100	0,004	0,005	20.000	100	0,004	0,005	20.000	95	0,004	0,005
0,5	12	20000	90	0,004	0,005	20000	90	0,004	0,005	20000	80	0,004	0,005
0,75	3	45000	2400	0,04	0,08	45000	2400	0,04	0,08	45000	2200	0,04	0,08
0,75	4	42000	1900	0,04	0,08	42000	1900	0,04	0,08	42000	1700	0,04	0,08
0,75	6	28000	1400	0,04	0,08	28000	1400	0,04	0,08	28000	1150	0,04	0,08
0,75	8	24000	800	0,02	0,05	24000	800	0,02	0,05	24000	650	0,02	0,05
0,75	12	21000	680	0,008	0,01	21000	680	0,008	0,01	21000	540	0,008	0,01
1	4	40.000	3.000	0,05	0,1	40.000	3.000	0,05	0,1	40.000	2.850	0,05	0,1
1	6	30.000	2.000	0,05	0,1	30.000	2.000	0,05	0,1	30	1900	0,05	0,1
1	8	26.000	1.600	0,05	0,1	26.000	1.600	0,05	0,1	26.000	1.500	0,05	0,1
1	10	22.000	1.100	0,01	0,02	22.000	1.100	0,01	0,02	22.000	1.000	0,01	0,02
1	12	20.000	800	0,01	0,01	20.000	800	0,01	0,01	20.000	760	0,01	0,01
1	14	18.000	600	0,005	0,01	18.000	600	0,005	0,01	18.000	570	0,005	0,01
1	16	16.000	420	0,005	0,01	16.000	420	0,005	0,01	16.000	400	0,005	0,01
1,25	10	21000	1700	0,01	0,01	21000	1700	0,01	0,01	21000	1500	0,01	0,01
1,5	6	30.000	2.900	0,075	0,15	30.000	2.900	0,075	0,15	30.000	2.700	0,075	0,15
1,5	8	24.000	2.300	0,075	0,15	24.000	2.300	0,075	0,15	24.000	2.100	0,075	0,15
1,5	10	24.000	2.000	0,075	0,15	24.000	2.000	0,075	0,15	24.000	1.900	0,075	0,15
1,5	12	21.000	1.400	0,075	0,1	21.000	1.400	0,075	0,1	21.000	1.300	0,075	0,1
1,5	15	17000	1000	0,06	0,1	17000	1000	0,06	0,1	17000	940	0,06	0,1
1,5	16	16.000	800	0,05	0,1	16.000	800	0,05	0,1	16.000	760	0,05	0,1
1,5	20	13.000	360	0,02	0,05	13.000	360	0,02	0,05	13.000	340	0,02	0,05
2	8	25.000	2.600	0,1	0,2	25.000	2.600	0,1	0,2	25.000	2.400	0,1	0,2
2	10	20.000	2.400	0,1	0,2	20.000	2.400	0,1	0,2	20.000	2.200	0,1	0,2
2	12	16.000	2.000	0,1	0,2	16.000	2.000	0,1	0,2	16.000	1.900	0,1	0,2
2	16	14.000	1.700	0,1	0,1	14.000	1.700	0,1	0,1	14.000	1.600	0,1	0,1
2	20	12.000	1.200	0,05	0,1	12.000	1.200	0,05	0,1	12.000	1.100	0,05	0,1
3	12	20.000	3.000	0,15	0,3	20.000	3.000	0,15	0,3	20.000	2.800	0,15	0,3

Max cutting depth



Attention : sparks and/or flames can cause coolant fire. Be sure adequate fire prevention is available.
1. Speeds and feeds are designed to be used in conjunction with small passes on a high speed & precision machine set-up.
2. Do not use inflammable coolant. Using worn tools may generate sparks.
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emission.
* Modified parameters

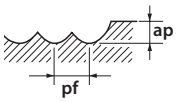


EPS-LN-EBD

High speed milling • (2/2)

		38 ~ 45 HRC				45 ~ 55 HRC				55 ~ 60 HRC			
Vc		120 (m/min)				110 (m/min)				100 (m/min)			
R	l1 (mm)	S (min^{-1})	F (mm/min)	ap (mm)	pf (mm)	S (min^{-1})	F (mm/min)	ap (mm)	pf (mm)	S (min^{-1})	F (mm/min)	ap (mm)	pf (mm)
0,15	0,6	50000	240	0,004	0,004	50000	230	0,004	0,004	50000	220	0,004	0,004
0,15	1	50000	220	0,004	0,004	50000	200	0,004	0,004	50000	180	0,004	0,004
0,15	1,5	50000	190	0,004	0,004	50000	170	0,004	0,004	50000	150	0,004	0,004
0,2	0,8	50000	340	0,005	0,005	50000	230	0,005	0,005	50000	180	0,005	0,005
0,2	1	50.000	340	0,005	0,005	50.000	230	0,005	0,005	50.000	180	0,004	0,005
0,2	1,25	47.000	300	0,005	0,005	47.000	210	0,005	0,005	43.000	150	0,004	0,005
0,2	1,5	45.000	280	0,005	0,005	45.000	190	0,005	0,005	41.000	130	0,004	0,005
0,2	2	38.000	210	0,005	0,005	37.000	140	0,005	0,005	33.000	100	0,004	0,005
0,25	1	50000	470	0,005	0,008	50000	450	0,005	0,008	50000	430	0,005	0,008
0,25	1,5	50000	470	0,005	0,008	50000	450	0,005	0,008	50000	430	0,005	0,008
0,25	2	50000	440	0,005	0,007	50000	420	0,005	0,007	50000	400	0,005	0,007
0,25	2,5	45000	420	0,005	0,006	45000	400	0,005	0,006	45000	380	0,005	0,006
0,25	3,5	45000	390	0,005	0,005	45000	370	0,005	0,005	45000	350	0,005	0,005
0,25	4	45000	360	0,005	0,005	45000	340	0,005	0,005	45000	320	0,005	0,005
0,25	6	40000	240	0,005	0,005	40000	220	0,005	0,005	40000	200	0,005	0,005
0,3	1,2	50.000	570	0,005	0,01	50.000	390	0,005	0,01	50.000	300	0,005	0,01
0,3	2	50.000	570	0,005	0,01	50.000	390	0,005	0,01	50.000	310	0,005	0,01
0,3	3	50.000	570	0,005	0,01	50.000	370	0,005	0,01	50.000	290	0,005	0,01
0,3	4	45.000	450	0,005	0,005	45.000	290	0,005	0,005	41.000	210	0,004	0,005
0,3	5	40.000	280	0,005	0,005	40.000	190	0,005	0,005	36.000	130	0,004	0,005
0,4	2	50.000	660	0,01	0,02	50.000	460	0,01	0,02	45.000	330	0,008	0,015
0,4	3	43.000	470	0,005	0,01	43.000	320	0,005	0,01	38.000	220	0,005	0,01
0,4	4	36.000	350	0,005	0,005	35.000	230	0,005	0,005	31.000	160	0,005	0,005
0,4	5	32.000	260	0,004	0,005	31.000	170	0,004	0,005	28.000	120	0,004	0,005
0,5	2	50.000	950	0,015	0,03	50.000	650	0,015	0,03	50.000	520	0,01	0,02
0,5	3	48.000	850	0,01	0,02	48.000	550	0,01	0,02	43.000	390	0,01	0,02
0,5	4	43.000	570	0,01	0,01	43.000	390	0,01	0,01	38.000	270	0,01	0,01
0,5	6	26.000	230	0,004	0,005	25.000	150	0,004	0,005	22.000	100	0,004	0,005
0,5	8	22.000	150	0,004	0,005	21.000	110	0,004	0,005	20.000	100	0,004	0,005
0,5	10	20.000	95	0,004	0,005	21.000	100	0,004	0,005	20.000	90	0,004	0,005
0,5	12	20000	80	0,004	0,005	20000	70	0,004	0,005	20000	60	0,004	0,005
0,75	3	45000	2200	0,04	0,08	45000	1800	0,04	0,08	45000	1400	0,02	0,05
0,75	4	42000	1700	0,04	0,08	42000	1400	0,04	0,08	42000	1100	0,02	0,05
0,75	6	28000	1150	0,04	0,08	28000	860	0,04	0,08	28000	660	0,02	0,05
0,75	8	24000	650	0,02	0,05	24000	580	0,02	0,05	24000	520	0,02	0,05
0,75	12	21000	540	0,008	0,01	21000	480	0,008	0,01	21000	400	0,008	0,01
1	4	40.000	2.850	0,05	0,1	40.000	2.200	0,05	0,1	40.000	1.700	0,02	0,05
1	6	30.000	1.900	0,05	0,1	30	1.500	0,05	0,1	30	1.200	0,02	0,05
1	8	26.000	1.500	0,05	0,1	26.000	1.200	0,05	0,1	26.000	960	0,02	0,05
1	10	22.000	1.000	0,01	0,02	21.000	760	0,01	0,02	18.000	520	0,01	0,02
1	12	20.000	760	0,01	0,01	19.000	570	0,01	0,01	17.000	400	0,01	0,01
1	14	18.000	570	0,005	0,01	17.000	430	0,005	0,01	15.000	300	0,005	0,01
1	16	16.000	400	0,005	0,01	15.000	300	0,005	0,01	13.000	200	0,005	0,01
1,25	10	21000	1500	0,05	0,01	21000	1200	0,05	0,05	21000	950	0,015	0,01
1,5	6	30.000	2.700	0,075	0,15	30.000	2.200	0,075	0,15	27.000	1.500	0,03	0,06
1,5	8	24.000	2.100	0,075	0,15	24.000	1.700	0,075	0,15	21.000	1.100	0,03	0,06
1,5	10	24.000	1.900	0,075	0,15	24.000	1.500	0,075	0,15	21.000	1.000	0,03	0,06
1,5	12	21.000	1.300	0,075	0,1	21.000	1.000	0,075	0,1	18.000	680	0,03	0,06
1,5	15	17000	940	0,05	0,1	17000	720	0,05	0,1	17000	490	0,03	0,05
1,5	16	14.000	760	0,05	0,1	13.000	560	0,05	0,1	10.000	340	0,03	0,05
1,5	20	12.000	340	0,02	0,05	11.000	240	0,02	0,05	9.000	150	0,02	0,05
2	8	25.000	2.400	0,1	0,2	24.000	2.300	0,1	0,2	20.000	1.500	0,05	0,1
2	10	20.000	2.200	0,1	0,2	19.000	2.000	0,1	0,2	17.000	1.400	0,05	0,1
2	12	16.000	1.900	0,1	0,2	15.000	1.700	0,1	0,2	13.000	1.100	0,05	0,1
2	16	14.000	1.600	0,1	0,1	13.000	1.400	0,1	0,1	11.000	950	0,05	0,1
2	20	11.000	1.100	0,05	0,1	10.000	890	0,05	0,1	9.000	640	0,05	0,1
3	12	20.000	2.800	0,15	0,3	18.000	2.500	0,15	0,3	16.000	1.700	0,06	0,15

Max cutting depth



Attention : sparks and/or flames can cause coolant fire. Be sure adequate fire prevention is available.
1. Speeds and feeds are designed to be used in conjunction with small passes on a high speed & precision machine set-up.
2. Do not use inflammable coolant. Using worn tools may generate sparks.
3. Use compresed air or a high quality coolant with a low co-efficient of smoke emission.
* Modified parameters

CUTTING CONDITIONS

EPS-CPR

Regular milling



Ø	α°	l1	max. depth of cut ap / ae						ae	~ 45 HRC SKD61 • NAK55 •NAK80 • HPMI		45 ~ 55 HRC SKD61 • STAVAX • HPM38		55 ~ 65 HRC Hardened Steel	
			ap							ap = 120%	ae = 120%	ap = 100%	ae = 100%	ap = 60%	ae = 80%
			R0,05	R0,1	R0,2	R0,3	R0,5	R1		S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)
1	0°	4	0,01	0,02	0,04	0,05	-	-	0,300	23.000	1.300	20.000	1.050	17.000	755
1	0°	4	-	-	-	-	-	-	0,300	23000	1300	20000	1050	17000	755
1	0°	6	0,005	0,01	0,02	0,025	-	-	0,210	20.500	1.050	18.000	835	15.500	605
1	0°	6	0,01	0,02	0,04	0,05	-	-	0,300	25.500	1.250	22.500	1.150	19.000	840
1,5	0°	6	-	-	0,04	0,06	-	-	0,450	17.000	1.450	16.000	1.250	13.500	880
1,5	0°	10	-	-	0,018	0,027	-	-	0,292	14.500	1.000	13.500	900	11.000	625
1,5	0°	16	-	-	0,007	0,01	-	-	0,112	9.150	525	8.650	460	7.150	320
2	0°	8	-	0,02	0,04	0,06	0,075	-	0,600	13.000	1.450	13.000	1.300	11.500	1.000
2	0°	10	-	0,016	0,032	0,048	0,06	-	0,510	12.000	1.300	12.000	1.150	11.000	905
2	0°	12	-	0,01	0,02	0,03	0,037	-	0,420	11.500	1.150	11.500	1.050	10.000	810
3	0°	8	-	-	0,04	-	-	-	0,900	9.550	1.500	8.600	1.150	7.650	825
3	0°	12	-	-	0,04	0,06	0,075	-	0,900	9.550	1.500	8.600	1.150	7.650	825
3	0°	16	-	-	0,028	0,042	0,052	-	0,720	8.500	1.200	7.650	910	6.800	660
4	0°	16	-	-	0,04	0,06	0,075	0,12	1,200	7.150	2.050	6.450	1.550	5.000	965
4	0°	20	-	-	0,032	0,048	0,06	0,2	1,020	6.750	1.950	6.100	1.450	4.750	910

1. Use a rigid and precise machine and holder.
2. When machining carbon steels or hardened steels, using MQL (Minimum Quantity Lubrication/mist coolant) is recommended.
3. The above condition shows an approximate standard for contouring operation (side milling) with a low machining load. If abnormal cutting sounds, vibration or chattering occur depending on the machineshape, cutting amount, rigidity of the machine or work holding condition etc., please adjust the speed, feed and the depth of cut.
4. Adjust the speed, feed rate, and depth of cut if chattering, vibration or abnormal grinding sounds occur.
5. Helical or ramp milling is recommanded during the approach of a Z cut.
6. Adjust the speed, feed rate, and the depth of the cut according to the shape of the work, rigidity of the machine, and how the work is held.

Side milling (Contour line finish)

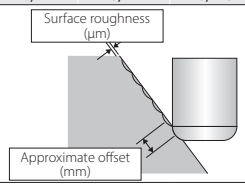


Ø	α°	l1	max. depth of cut ap / ae						ae	~ 45 HRC SKD61 • NAK55 •NAK80 • HPMI		45 ~ 55 HRC SKD61 • STAVAX • HPM38		55 ~ 65 HRC Hardened Steel	
			ap							ap = 120%	ae = 120%	ap = 100%	ae = 100%	ap = 60%	ae = 80%
			R0,05	R0,1	R0,2	R0,3	R0,5	R1		S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)
1	0°	4	0,006	0,015	0,02	0,03	-	-	0,030	27.000	1.500	24.500	1.250	22.500	995
1	0°	6	0,006	0,015	0,02	0,03	-	-	0,027	24.000	1.200	21.500	1.000	20.000	800
1,5	0°	6	-	-	0,02	0,03	-	-	0,045	21.000	1.750	18.500	1.450	16.000	1.050
1,5	0°	10	-	-	0,018	0,027	-	-	0,036	17.500	1.250	15.500	1.050	13.500	760
1,5	0°	16	-	-	0,008	0,012	-	-	0,022	11.000	640	10.000	530	8.650	390
2	0°	8	-	0,015	0,02	0,03	0,05	-	0,060	16.500	1.850	16.000	1.600	15.000	1.350
2	0°	10	-	0,015	0,02	0,03	0,05	-	0,060	15.500	1.650	15.500	1.450	14.500	1.200
2	0°	12	-	0,015	0,02	0,03	0,05	-	0,054	14.500	1.500	14.500	1.300	13.500	1.050
3	0°	8	-	-	0,02	-	-	-	0,080	12.000	2.000	11.000	1.400	10.000	1.100
3	0°	12	-	-	0,02	0,03	0,05	-	0,080	12.000	2.000	11.000	1.400	10.000	1.100
3	0°	16	-	-	0,02	0,03	0,05	-	0,080	10.500	1.600	9.600	1.150	9.000	875
4	0°	16	-	-	0,02	0,03	0,05	0,08	0,080	7.900	2.500	7.150	2.050	6.450	1.450
4	0°	20	-	-	0,02	0,03	0,05	0,08	0,080	7.450	2.400	6.750	1.950	6.100	1.350

Approximate offset (mm)



Corner Radius R (mm)	Target surface roughness (µm)													
	0,1	0,25	0,5	0,75	1	1,25	1,5	1,75	2	2,5	3	3,5	4	5
R 0,05	0,006	0,01	0,014	0,017	0,02	0,022	0,024	0,026	0,028	-	-	-	-	-
R 0,1	0,009	0,014	0,02	0,024	0,028	0,032	0,035	0,037	0,04	0,045	0,049	-	-	-
R 0,2	0,012	0,02	0,028	0,035	0,04	0,045	0,049	0,053	0,057	0,063	0,07	0,075	0,08	0,9
R 0,3	0,015	0,025	0,035	0,042	0,049	0,055	0,06	0,065	0,07	0,077	0,085	0,092	0,098	0,11
R 0,5	0,02	0,032	0,045	0,055	0,065	0,07	0,078	0,084	0,09	0,1	0,11	0,118	0,125	0,141
R 1	0,028	0,045	0,063	0,078	0,09	0,1	0,11	0,118	0,125	0,142	0,155	0,168	0,18	0,2



EPL-LN-EBD

Standard milling



		Cu				< 32 HRC				32 - 41 HRC				42 - 50 HRC			
R	l1 (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)
0,15	0,5	32.000	600	0,020	0,030	32.000	400	0,010	0,015	32.000	300	0,010	0,015	32.000	300	0,005	0,005
0,15	1	32.000	450	0,020	0,030	32.000	300	0,010	0,015	32.000	200	0,010	0,015	32.000	200	0,005	0,005
0,2	1	32.000	600	0,025	0,050	32.000	400	0,015	0,025	32.000	300	0,015	0,020	32.000	300	0,010	0,010
0,2	2	27.000	450	0,025	0,050	27.000	300	0,015	0,025	27.000	200	0,015	0,020	27.000	200	0,010	0,010
0,25	1	32.000	750	0,040	0,050	32.000	500	0,020	0,025	32.000	400	0,020	0,020	32.000	400	0,010	0,010
0,25	2	32.000	600	0,040	0,050	32.000	400	0,020	0,025	32.000	300	0,020	0,020	32.000	300	0,010	0,010
0,25	3	27.000	450	0,040	0,050	27.000	300	0,020	0,025	27.000	200	0,020	0,020	27.000	200	0,010	0,010
0,25	4	27.000	450	0,040	0,050	27.000	300	0,020	0,025	27.000	200	0,020	0,020	27.000	200	0,010	0,010
0,3	1	32.000	900	0,045	0,120	32.000	600	0,030	0,060	32.000	500	0,030	0,050	32.000	500	0,030	0,030
0,3	2	32.000	675	0,045	0,120	32.000	450	0,030	0,060	32.000	300	0,030	0,050	32.000	300	0,030	0,030
0,3	3	30.000	375	0,045	0,120	25.000	250	0,030	0,060	24.000	200	0,030	0,050	24.000	200	0,030	0,030
0,3	4	30.000	375	0,045	0,120	25.000	250	0,030	0,060	24.000	200	0,030	0,040	24.000	200	0,030	0,030
0,3	6	25.000	225	0,045	0,120	20.000	150	0,030	0,060	20.000	150	0,030	0,040	20.000	150	0,020	0,020
0,4	2	27.000	675	0,060	0,160	23.000	450	0,040	0,080	21.000	300	0,040	0,060	21.000	300	0,040	0,040
0,4	4	27.000	675	0,060	0,160	23.000	450	0,040	0,080	21.000	300	0,040	0,060	21.000	300	0,040	0,040
0,4	6	24.000	375	0,060	0,120	21.000	250	0,040	0,060	19.000	200	0,040	0,050	19.000	200	0,020	0,025
0,5	2,5	28.000	900	0,075	0,200	25.000	600	0,050	0,100	21.000	400	0,050	0,080	21.000	400	0,050	0,050
0,5	3	28.000	750	0,075	0,200	25.000	500	0,050	0,100	21.000	300	0,050	0,080	21.000	300	0,050	0,050
0,5	4	28.000	750	0,075	0,200	25.000	500	0,050	0,100	21.000	300	0,050	0,080	21.000	300	0,050	0,050
0,5	5	21.000	450	0,075	0,200	19.000	300	0,050	0,100	16.000	200	0,050	0,080	16.000	200	0,050	0,050
0,5	6	21.000	450	0,075	0,200	19.000	300	0,050	0,100	16.000	200	0,050	0,080	16.000	200	0,050	0,050
0,5	8	21.000	450	0,075	0,150	19.000	300	0,050	0,075	16.000	200	0,050	0,060	16.000	200	0,030	0,030
0,5	10	18.000	300	0,060	0,120	17.000	200	0,030	0,050	14.000	150	0,030	0,040	14.000	150	0,010	0,015
0,5	12	18.000	300	0,060	0,120	17.000	200	0,030	0,050	14.000	150	0,030	0,040	14.000	150	0,010	0,015
0,75	4	20.000	900	0,120	0,300	15.000	600	0,080	0,150	12.000	500	0,080	0,120	12.000	300	0,080	0,100
0,75	8	17.000	450	0,120	0,300	15.000	300	0,080	0,150	12.000	250	0,080	0,120	12.000	250	0,080	0,100
1	6	16.500	1.050	0,150	0,560	16.500	700	0,100	0,280	13.500	500	0,100	0,280	13.500	500	0,100	0,200
1	8	16.500	1.050	0,150	0,560	16.500	700	0,100	0,280	13.500	500	0,100	0,280	13500	500	0,100	0,200
1	10	14.000	750	0,150	0,560	13.000	500	0,100	0,280	10.000	300	0,100	0,280	10.000	300	0,100	0,200
1	12	14.000	750	0,150	0,560	13.000	500	0,100	0,280	10.000	300	0,100	0,280	10.000	300	0,100	0,200
1	14	14.000	750	0,150	0,560	13.000	500	0,100	0,280	10.000	300	0,100	0,280	10.000	300	0,100	0,200
1	16	14.000	750	0,150	0,420	13.000	500	0,100	0,210	10.000	300	0,100	0,180	10.000	300	0,060	0,100
1	20	11.000	375	0,150	0,420	10.000	250	0,100	0,210	8.000	200	0,100	0,180	8.000	200	0,060	0,100
1	25	11.000	375	0,150	0,420	10.000	250	0,100	0,210	8.000	200	0,100	0,180	8.000	200	0,060	0,100
1,5	8	12.000	900	0,200	0,840	9.500	600	0,150	0,420	7.500	400	0,150	0,360	7.500	400	0,150	0,300
1,5	10	12.000	900	0,200	0,840	9.500	600	0,150	0,420	7.500	400	0,150	0,360	7.500	400	0,150	0,300
1,5	16	10.000	450	0,200	0,840	8.500	300	0,150	0,420	6.500	250	0,150	0,360	6.500	250	0,150	0,300
1,5	20	10.000	450	0,200	0,840	8.500	300	0,150	0,420	6.500	250	0,150	0,360	6.500	250	0,150	0,300
2	10	9.000	900	0,500	1,280	7.500	600	0,200	0,640	6.000	400	0,200	0,600	6.000	400	0,200	0,400
2	16	9.000	900	0,500	1,280	7.500	600	0,200	0,640	6.000	400	0,200	0,600	6.000	400	0,200	0,400
2	20	7.000	600	0,500	1,280	6.000	400	0,200	0,640	5.000	250	0,200	0,600	5.000	250	0,200	0,400
2	25	7.000	600	0,500	1,280	6.000	400	0,200	0,640	5.000	250	0,200	0,600	5.000	250	0,200	0,400
2	30	7.000	600	0,400	1,280	6.000	400	0,200	0,640	5.000	250	0,200	0,560	5.000	250	0,120	0,200
3	10	7.000	1.500	0,750	2,400	5.500	1.000	0,300	1,200	4.500	800	0,300	0,960	4.500	800	0,300	0,600
3	12	7.000	1.500	0,750	2,400	5.500	1.000	0,300	1,200	4.500	800	0,300	0,960	4.500	800	0,300	0,600
3	20	7.000	1.200	0,750	2,400	5.500	800	0,300	1,200	4.500	600	0,300	0,960	4.500	600	0,300	0,600
3	30	5.000	600	0,750	2,400	4.000	400	0,300	1,200	4.000	300	0,300	0,960	4.000	300	0,300	0,600

CUTTING CONDITIONS

EPL-LN-EBD

High speed milling



		Cu				< 32 HRC				32 - 41 HRC				42 - 50 HRC			
R	l1 (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)	S (min-1)	F (mm/min)	ap (mm)	pf (mm)
0,15	0,5	50.000	750	0,0075	0,020	50.000	620	0,005	0,010	50.000	600	0,005	0,010	50.000	600	0,005	0,010
0,15	1	50.000	730	0,0075	0,020	50.000	600	0,005	0,010	50.000	570	0,005	0,010	50.000	570	0,005	0,010
0,2	1	50.000	1.090	0,015	0,040	50.000	900	0,020	0,010	50.000	850	0,010	0,020	50.000	850	0,010	0,020
0,2	2	50.000	850	0,015	0,040	50.000	700	0,020	0,010	50.000	660	0,010	0,020	50.000	660	0,010	0,020
0,25	1	50.000	1.420	0,0225	0,045	50.000	1.100	0,015	0,030	50.000	1.050	0,010	0,030	50.000	1.050	0,015	0,030
0,25	2	50.000	1.400	0,0225	0,045	50.000	1.000	0,015	0,030	50.000	950	0,010	0,030	50.000	950	0,015	0,030
0,25	3	50.000	1.190	0,015	0,040	48.000	900	0,010	0,020	48.000	850	0,010	0,020	48.000	850	0,010	0,020
0,25	4	45.000	1.000	0,015	0,020	43.000	600	0,010	0,010	43.000	570	0,010	0,010	43.000	570	0,010	0,010
0,3	1	50.000	1.660	0,045	0,100	50.000	1.400	0,030	0,050	50.000	1.300	0,030	0,050	50.000	1.300	0,030	0,050
0,3	2	50.000	1.600	0,045	0,100	50.000	1.300	0,030	0,050	50.000	1.200	0,030	0,050	50.000	1.200	0,030	0,050
0,3	3	50.000	1.550	0,030	0,060	50.000	1.200	0,020	0,030	50.000	1.100	0,020	0,030	50.000	1.100	0,020	0,030
0,3	4	50.000	1.200	0,015	0,040	40.000	900	0,010	0,020	40.000	850	0,010	0,020	40.000	850	0,010	0,020
0,3	6	30.000	720	0,015	0,040	26.000	600	0,010	0,020	26.000	570	0,010	0,020	25.000	540	0,010	0,020
0,4	2	50.000	2.200	0,060	0,160	50.000	2.000	0,040	0,080	50.000	1.900	0,040	0,080	50.000	1.900	0,040	0,080
0,4	4	50.000	1.680	0,060	0,160	40.000	1.200	0,040	0,080	40.000	1.100	0,040	0,080	40.000	1.100	0,040	0,080
0,4	6	32.000	1.260	0,045	0,100	30.000	800	0,030	0,050	30.000	760	0,030	0,050	30.000	760	0,030	0,050
0,5	2,5	50.000	3.270	0,075	0,200	50.000	3.400	0,050	0,100	50.000	3.200	0,050	0,100	50.000	3.200	0,050	0,100
0,5	3	50.000	3.060	0,075	0,200	45.000	3.200	0,050	0,100	45.000	3.000	0,050	0,100	45.000	3.000	0,050	0,100
0,5	4	50.000	3.000	0,075	0,200	40.000	3.000	0,050	0,100	40.000	2.850	0,050	0,100	40.000	2.850	0,050	0,100
0,5	5	47.000	2.870	0,075	0,200	36.000	2.300	0,050	0,100	36.000	2.100	0,050	0,100	36.000	2.100	0,050	0,100
0,5	6	43.000	2.600	0,075	0,200	30.000	2.000	0,050	0,100	30.000	1.900	0,050	0,100	30.000	1.900	0,050	0,100
0,5	8	27.000	2.000	0,075	0,150	26.000	1.600	0,050	0,100	26.000	1.500	0,050	0,100	26.000	1.500	0,050	0,100
0,5	10	24.000	1.400	0,015	0,040	22.000	1.100	0,010	0,020	22.000	1.000	0,010	0,020	21.000	950	0,010	0,020
0,5	12	24.000	1.400	0,015	0,040	22.000	1.100	0,010	0,020	22.000	1.000	0,010	0,020	21.000	950	0,010	0,020
0,75	4	42.000	4.110	0,150	0,300	40.000	3.900	0,075	0,150	40.000	3.700	0,075	0,150	40.000	3.700	0,075	0,1005
0,75	8	30.000	2.650	0,150	0,300	24.000	2.300	0,075	0,150	24.000	2.100	0,075	0,150	24.000	2.100	0,075	0,1005
1	6	38.000	4.000	0,200	0,400	36.000	3.000	0,100	0,200	36.000	2.800	0,100	0,200	34.000	2.600	0,100	0,200
1	8	27.000	3.360	0,200	0,400	25.000	2.600	0,100	0,200	25.000	2.400	0,100	0,200	23.000	2.200	0,100	0,200
1	10	22.000	3.050	0,200	0,400	20.000	2.400	0,100	0,200	20.000	2.200	0,100	0,200	19.000	2.000	0,100	0,200
1	12	16.000	2.580	0,200	0,400	16.000	2.000	0,100	0,200	16.000	1.900	0,100	0,200	15.000	1.700	0,100	0,200
1	14	15.000	2.400	0,200	0,300	15.000	1.800	0,100	0,200	15.000	1.700	0,100	0,200	14.000	1.500	0,100	0,200
1	16	14.000	2.200	0,200	0,200	14.000	1.700	0,100	0,100	14.000	1.600	0,100	0,100	13.000	1.400	0,100	0,100
1	20	12.000	1.200	0,100	0,200	12.000	1.200	0,050	0,100	11.000	1.100	0,050	0,100	10.000	1.000	0	0,100
1	25	12.000	1.200	0,100	0,200	12.000	1.200	0,050	0,100	11.000	1.100	0,050	0,100	10.000	1.000	0	0,100
1,5	8	32.000	4.600	0,300	0,600	30.000	4.500	0,150	0,300	30.000	4.200	0,150	0,300	25.000	3.500	0,150	0,300
1,5	10	28.000	4.000	0,300	0,600	25.000	3.800	0,150	0,300	25.000	3.600	0,150	0,300	20.000	2.800	0,150	0,300
1,5	16	20.000	2.600	0,250	0,400	16.000	2.000	0,100	0,200	16.000	1.900	0,100	0,200	13.000	1.500	0,100	0,200
1,5	20	16.000	2.200	0,250	0,400	14.000	1.800	0,100	0,200	14.000	1.700	0,100	0,200	11.000	1.300	0,100	0,200
2	10	25.000	4.500	0,400	1,000	25.000	4.500	0,200	0,500	25.000	4.200	0,200	0,500	20.000	3.300	0,200	0,500
2	16	20.000	3.460	0,400	0,600	18.000	3.200	0,200	0,500	18.000	3.000	0,200	0,500	14.000	2.300	0,200	0,500
2	20	18.000	3.000	0,400	0,500	16.000	2.800	0,200	0,400	16.000	2.600	0,200	0,400	12.000	1.900	0,200	0,400
2	25	18.000	3.000	0,250	0,600	16.000	2.800	0,100	0,300	16.000	2.600	0,100	0,300	12.000	1.900	0,100	0,300
2	30	16.000	2.850	0,250	0,400	14.000	2.400	0,100	0,200	14.000	2.200	0,100	0,200	11.000	1.700	0,100	0,200
3	10	22.000	5.900	0,750	1,250	20.000	5.400	0,300	0,500	20.000	5.000	0,300	0,500	15.000	3.750	0,300	0,500
3	12	22.000	5.900	0,750	1,250	20.000	5.400	0,300	0,500	20.000	5.000	0,300	0,500	15.000	3.750	0,300	0,500
3	20	18.000	4.400	0,750	1,250	16.000	4.200	0,300	0,500	16.000	3.900	0,300	0,500	12.000	2.900	0,300	0,500
3	30	10.000	3.200	0,600	1,25	10.000	2.600	0,3	0,5	10.000	2.400	0,3	0,5	8.000	1.900	0,3	0,5

EPL-PC-EBD-DIA



			GF				
Ø	l1	Vc	S (min-1)	F (mm/min)	ap	ae	fz (mm)
1	35	53	16.800	320	0,05	0,10	0,01
2	50	84	13.300	500	0,10	0,20	0,02
3	60	84	8.900	510	0,15	0,30	0,03
4	130	95	7.550	580	0,20	0,40	0,04
4	160	92	7.350	560	0,2	0,4	0,04
6	160	130	6.900	700	0,30	0,60	0,05
6	220	105	5.550	640	0,30	0,60	0,06
8	170	127	5.040	770	0,40	0,80	0,08
8	220	116	4.600	700	0,4	0,8	0,08

EPL-PC-EBD

Standard milling

			Cu				< 32 HRC				32 - 41 HRC				42 - 50 HRC			
R	φ°	l1 (mm)	S (min-1)	F (mm/ min)	ap (mm)	pf (mm)	S (min-1)	F (mm/ min)	ap (mm)	pf (mm)	S (min-1)	F (mm/ min)	ap (mm)	pf (mm)	S (min-1)	F (mm/ min)	ap (mm)	pf (mm)
0,5	0,9°	10	28.000	750	0,075	0,200	25.000	500	0,050	0,100	21.000	300	0,050	0,080	21.000	300	0,050	0,050
0,5	0,9°	15	21.000	450	0,075	0,150	19.000	300	0,050	0,100	16.000	200	0,050	0,080	16.000	200	0,050	0,050
0,5	0,9°	20	21.000	450	0,075	0,150	17.000	200	0,030	0,050	14.000	150	0,030	0,040	14.000	150	0,010	0,020
0,75	0,9°	20	17.000	450	0,120	0,240	15.000	300	0,080	0,120	12.000	250	0,080	0,100	12.000	250	0,075	0,100
0,75	0,9°	30	13.000	300	0.090	0,200	12.000	200	0,060	0,100	9.500	150	0,060	0,100	9.500	150	0,030	0,100
0,75	1,4°	20	17.000	450	0,120	0,300	15.000	300	0,080	0,150	12.000	250	0,080	0,150	12.000	250	0,080	0,150
1	0,9°	20	14.000	750	0,200	0,560	13.000	500	0,100	0,280	10.000	300	0,100	0,280	10.000	300	0,100	0,200
1	0,9°	30	11.000	375	0,150	0,420	10.000	250	0,100	0,210	8.000	200	0,100	0,180	8.000	200	0,080	0,100
1	1,4°	20	16.500	1.050	0,200	0,560	16.500	700	0,100	0,280	13.500	500	0,100	0,280	13.500	500	0,10	0,200
1	1,4°	30	14.000	750	0,150	0,560	13.000	500	0,100	0,280	10.000	300	0,100	0,280	10.000	300	0,100	0,200
1	1,4°	40	11.000	375	0,150	0,420	10.000	250	0,100	0,210	8.000	200	0,100	0,180	8.000	200	0,060	0,100
1,5	0,9°	20	10.000	900	0,200	0,840	9.500	600	0,150	0,420	7.500	400	0,150	0,360	7.500	400	0,150	0,300
1,5	0,9°	30	10.000	450	0,200	0,840	8.500	300	0,150	0,420	6.500	250	0,150	0,360	6.500	250	0,150	0,300
1,5	0,9°	40	10.000	450	0,200	0,840	8.500	300	0,150	0,420	6.500	250	0,150	0,300	6.500	250	0,090	0,150
1,5	1,4°	20	10.000	900	0,300	0,840	9.500	600	0,150	0,420	7.500	400	0,150	0,360	7.500	400	0,150	0,300
1,5	1,4°	30	10.000	450	0,250	0,840	8.500	300	0,150	0,420	6.500	250	0,150	0,360	6.500	250	0,150	0,300
1,5	1,4°	40	10.000	450	0,250	0,840	8.500	300	0,150	0,420	6.500	250	0,150	0,360	6.500	250	0,150	0,300
2	0,9°	30	7.000	600	0,500	1,280	6.000	400	0,200	0,640	5.000	250	0,200	0,600	5.000	250	0,200	0,400
2	0,9°	40	7.000	600	0,400	1,280	6.000	400	0,200	0,640	5.000	250	0,200	0,56	5.000	250	0,120	0,300
2	0,9°	50	7.000	600	0,400	1,280	6.000	400	0,200	0,640	5.000	250	0,200	0,56	5.000	250	0,120	0,200
2	0,9°	60	5.000	375	0,350	1,280	5.000	250	0,200	0,640	4.000	200	0,200	0,56	4.000	200	0,120	0,200
2	0,9°	70	7.000	600	0,500	1,280	6.000	400	0,200	0,640	5.000	250	0,200	0,6	5.000	250	0,200	0,400
2	1,4°	40	7.000	600	0,450	1,280	6.000	400	0,200	0,640	5.500	350	0,200	0,56	5.500	350	0,200	0,300
2	1,4°	50	7.000	600	0,450	1,280	6.000	400	0,200	0,640	5.500	350	0,200	0,56	5.500	350	0,200	0,300
2	1,4°	60	7.000	600	0,400	1,280	6.000	400	0,200	0,640	5.500	350	0,200	0,56	5.500	350	0,200	0,300
3	0,9°	50	5.000	600	0,600	2,400	6.000	400	0,200	0,640	5.500	350	0,200	0,56	5.500	350	0,200	0,600
3	0,9°	60	5.000	600	0,600	2,400	4.000	400	0,300	1,200	4.000	300	0,300	0,96	4.000	300	0,300	0,600
3	0,9°	70	5.000	600	0,600	2,400	4.000	400	0,300	1,200	4.000	300	0,300	0,96	4.000	300	0,300	0,300
3	0,9°	80	5.000	600	0,450	2,400	4.000	400	0,200	1,200	4.000	300	0,200	0,96	4.000	300	0,200	0,300
3	1,4°	60	5.000	600	0,600	2,400	4.000	400	0,300	1,200	4.000	300	0,300	0,96	4.000	300	0,300	0,600
4	0,9°	60	4.000	550	0,800	3,200	3.000	350	0,400	1,600	3.000	300	0,400	1,24	3.000	300	0,400	0,800
4	0,9°	80	4.000	550	0,800	3,200	3.000	350	0,400	1,600	3.000	300	0,400	1,24	3.000	300	0,400	0,800
4	1,4°	60	4.000	550	0,900	3,200	3.000	350	0,450	1,600	3.000	300	0,450	1,24	3.000	300	0,450	0,800
4	1,4°	80	4.000	550	0,900	3,200	3.000	350	0,450	1,600	3.000	300	0,450	1,24	3.000	300	0,450	0,800

High speed milling

			Cu				< 32 HRC				32 - 41 HRC				42 - 50 HRC			
R	φ°	l1 (mm)	S (min-1)	F (mm/ min)	ap (mm)	pf (mm)	S (min-1)	F (mm/ min)	ap (mm)	pf (mm)	S (min-1)	F (mm/ min)	ap (mm)	pf (mm)	S (min-1)	F (mm/ min)	ap (mm)	pf (mm)
0,5	0,9°	10	30.000	2.350	0,075	0,150	27.000	1.700	0,050	0,100	27.000	1.600	0,050	0,050	27.000	1.600	0,050	0,050
0,5	0,9°	15	24.000	1.400	0,015	0,040	22.000	1.100	0,010	0,020	22.000	1.000	0,010	0,020	21.000	950	0,010	0,020
0,5	0,9°	20	24.000	1.000	0,015	0,040	22.000	770	0,010	0,020	22.000	700	0,010	0,020	21.000	680	0,010	0,015
0,75	0,9°	20	24.000	1.400	0,120	0,200	21.000	1.400	0,075	0,100	21.000	1.300	0,075	0,090	21.000	1.300	0,050	0,060
0,75	0,9°	30	22.000	1.400	0,070	0,200	18.000	1.200	0,050	0,100	18.000	1.100	0,050	0,070	17.000	1.100	0,030	0,030
0,75	1,4°	20	30.000	2.400	0,120	0,300	24.000	2.000	0,075	0,150	24.000	1.900	0,075	0,120	24.000	1.900	0,080	0,100
1	0,9°	20	15.000	2.400	0,150	0,300	15.000	1.800	0,100	0,200	15.000	1.700	0,100	0,200	14.000	1.500	0,100	0,200
1	0,9°	30	14.000	2.200	0,150	0,200	14.000	1.700	0,100	0,100	14.000	1.600	0,100	0,100	13.000	1.400	0,070	0,100
1	1,4°	20	22.000	3.050	0,200	0,400	20.000	2.400	0,100	0,200	20.000	2.200	0,100	0,200	19.000	2.000	0,100	0,200
1	1,4°	30	15.000	2.200	0,150	0,200	14.000	1.700	0,100	0,100	14.000	1.600	0,100	0,100	13.000	1.400	0,100	0,100
1	1,4°	40	12.000	1.200	0,100	0,200	12.000	1.200	0,050	0,100	11.000	1.100	0,050	0,100	10.000	1.000	0,050	0,100
1,5	0,9°	20	22.000	2.900	0,200	0,600	18.000	2.700	0,150	0,300	18.000	2.500	0,150	0,300	15.000	2.000	0,150	0,300
1,5	0,9°	30	16.000	2.200	0,200	0,400	14.000	1.800	0,100	0,200	14.000	1.700	0,100	0,200	11.000	1.300	0,100	0,200
1,5	0,9°	40	16.000	1.800	0,125	0,200	12.000	1.200	0,050	0,100	12.000	1.100	0,050	0,100	9.000	820	0,050	0,100
1,5	1,4°	20	22.000	2.900	0,200	0,600	18.000	2.700	0,150	0,300	18.000	2.500	0,150	0,300	15.000	2.000	0,150	0,300
1,5	1,4°	30	20.000	2.600	0,200	0,400	16.000	2.000	0,100	0,200	16.000	1.900	0,100	0,200	13.000	1.500	0,100	0,200
1,5	1,4°	40	16.000	2.200	0,200	0,400	14.000	1.800	0,100	0,200	14.000	1.700	0,100	0,200	11.000	1.300	0,100	0,200
2	0,9°	30	18.000	3.000	0,400	0,500	16.000	2.800	0,200	0,400	16.000	2.600	0,200	0,400	12.000	1.900	0,200	0,400
2	0,9°	40	18.000	3.000	0,250	0,600	16.000	2.800	0,100	0,300	16.000	2.600	0,100	0,300	12.000	1.900	0,100	0,300
2	0,9°	50	14.000	2.200	0,250	0,400	12.000	1.800	0,100	0,300	12.000	1.700	0,100	0,200	9.000	1.700	0,100	0,200
2	0,9°	60	16.000	1.800	0,125	0,200	12.000	1.200	0,050	0,100	12.000	1.100	0,050	0,100	9.000	820	0,050	0,100
2	0,9°	70	16.000	1.800	0,120	0,200	12.000	1.200	0,050	0,100	12.000	1.100	0,050	0,100	9.000	820	0,050	0,100
2	1,4°	40	18.000	3.200	0,300	0,600	16.000	3.200	0,150	0,300	16.000	3.000	0,150	0,300	12.000	2.200	0,150	0,300
2	1,4°	50	18.000	2.800	0,300	0,400	12.000	2.200	0,150	0,300	12.000	2.000	0,150	0,300	9.000	1.600	0,150	0,300
2	1,4°	60	16.000	2.400	0,300	0,200	12.000	1.600	0,100	0,200	12.000	15.000	0,100	0,200	9.000	1.200	0,100	0,200
3	0,9°	50	9.000	3.000	0,400	0,100	9.000	2.300	0,200	0,400	9.000	2.100	0,200	0,400	7.000	1.600	0,200	0,400
3	0,9°	60	9.000	2.800	0,400	0,750	9.000	2.000	0,200	0,300	9.000	1.900	0,200	0,300	7.000	1.400	0,200	0,400
3	0,9°	70	7.000	2.300	0,400	0,750	7.000	1.500	0,200	0,300	7.000	1.500	0,200	0,300	5.900	1.100	0,200	0,300
3	0,9°	80	6.000	2.000	0,300	0,750	6.000	1.300	0,150	0,300	6.000	1.200	0,150	0,300	5.000	900	0,150	0,300
3	1,4°	60	9.000	3.200	0,400	0,750	9.000	2.400	0,200	0,400	9.000	2.200	0,200	0,400	7.000	2.000	0,200	0,400
4	0,9°	60	7.000	2.400	0,500	1,000	7.000	1.700	0,400	0,400	7.000	1.500	0,400	0,400	5.000	1.100	0,400	0,400
4	0,9°	80	7.000	2.200	0,450	1,000	6.000	1.500	0,350	0,400	6.000	1.300	0,350	0,400	4.000	800	0,350	0,400
4	1,4°	60	7.000	2.800	0,500	1,000	7.000	2.100	0,400	0,400	7.000	1.700	0,400	0,400	5.000	1.200	0,400	0,400
4	1,4°	80	7.000	2.600	0,450	1,000	6.000	1.900	0,350	0,400	6.000	1.400	0,350	0,400	4.000	900	0,350	0,400

CUTTING CONDITIONS

Milling | Endmills | Cutting conditions

EPL-CPR

Regular milling



			max. depth of cut							< 45 HRC ap=120% ae=120%		45 - 55 HRC ap=100% ae=120%		55 - 65 HRC ap=60% ae=80%	
Ø	α°	l1	R0,1	R0,2	R0,3	ap R0,5	R1	R2	ae	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)
1	0°	4	0,020	0,04	0,050	-	-	-	0,300	23.000	1.300	20.000	1.050	17.000	755
1	0°	6	0,010	0,02	0,025	-	-	-	0,210	20.500	1.050	18.000	835	15.500	605
1	0°	8	0,006	0,012	0,015	-	-	-	0,180	18.000	780	15.500	650	13.500	470
1	0°	10	-	0,008	0,010	-	-	-	0,090	16.500	650	14.500	530	12.500	380
2	0°	6	-	0,040	-	0,075	-	-	0,600	15.000	1680	15.000	1500	11.500	1.000
2	0°	8	-	0,040	-	0,075	-	-	0,600	13.000	1.450	13.000	1.300	11.500	1.000
2	0°	10	-	0,032	-	0,060	-	-	0,510	12.000	1.300	12.000	1.150	11.000	905
2	0°	12	-	0,020	-	0,037	-	-	0,420	11.500	1.150	11.500	1.050	10.000	810
2	0°	16	-	0,012	-	0,022	-	-	0,360	10.000	900	10.000	800	8.900	630
2	0,9°	20	-	-	-	0,052	-	-	0,540	13.000	1.300	13.000	1.150	11.500	910
2	0,9°	30	-	-	-	0,030	-	-	0,240	11.500	1.050	11.500	920	10.000	720
3	0°	6	-	0,044	-	0,083	-	-	0,990	11.700	2000	10.500	1530	7.650	825
3	0°	8	-	0,040	-	0,075	-	-	0,900	9.550	1.500	8.600	1.150	7.650	825
3	0°	10	-	0,040	-	0,075	-	-	0,900	9.550	1.500	8.600	1.150	7.650	825
3	0°	12	-	0,040	-	0,075	-	-	0,900	9.550	1.500	8.600	1.150	7.650	825
3	0°	16	-	0,028	-	0,052	-	-	0,720	8.500	1.200	7.650	910	6.800	660
3	0,9°	20	-	-	-	0,070	0,09	-	0,900	9.950	1.500	8.950	1.150	7.950	830
3	0,9°	30	-	-	-	0,050	0,07	-	0,810	9.550	1.350	8.600	1.000	7.650	745
3	0,9°	40	-	-	-	0,040	0,05	-	0,522	8.900	1.150	8.000	890	7.150	650
3	1,4°	20	-	-	-	0,090	0,13	-	0,900	9.950	1.690	8.950	1.350	7.950	950
3	1,4°	30	-	-	-	0,070	0,13	-	0,810	9.550	1.550	8.600	1.200	7.650	850
3	1,4°	40	-	-	-	-	0,13	-	0,522	8.900	1.350	8.000	1.040	7.150	700
4	0°	10	-	-	-	-	0,13	-	1,320	8.750	2.770	7.900	2080	5.750	1.250
4	0°	12	-	-	-	0,075	0,12	-	1,200	8.350	2.400	7.500	1800	5.400	1.080
4	0°	16	-	-	-	0,075	0,12	-	1,200	7.150	2.050	6.450	1.550	5.000	965
4	0°	20	-	-	-	0,060	0,2	-	1,020	6.750	1.950	6.100	1.450	4.750	910
4	0,9°	30	-	-	-	0,050	0,09	-	1,120	7.550	1.500	7.150	1.300	6.400	950
4	0,9°	40	-	-	-	0,040	0,09	-	0,900	7.200	1.350	6.750	1.150	5.950	850
4	0,9°	50	-	-	-	0,030	0,07	-	0,810	7.150	1.300	6.600	1.050	5.800	750
4	0,9°	60	-	-	-	-	0,05	-	0,522	6.800	1.150	6.400	950	5.600	700
4	1,4°	30	-	-	-	0,070	0,13	-	1,120	7.550	1.500	7.150	1.300	6.400	950
4	1,4°	40	-	-	-	0,060	0,13	-	0,900	7.200	1.400	6.750	1.150	5.950	850
6	0°	12	-	-	-	0,083	0,13	-	1,980	6.130	2.900	5.550	2200	3.850	900
6	0°	16	-	-	-	0,075	0,12	-	1,800	5.000	2.170	4.540	1630	3.600	800
6	0°	20	-	-	-	0,075	0,12	-	1,800	5.000	2.170	4.540	1630	3.350	700
6	0°	25	-	-	-	0,075	0,12	-	1,800	5.000	2.170	4.540	1630	3.180	650
6	0,9°	50	-	-	-	0,030	0,13	-	1,680	5.300	1.100	5.050	950	4.250	700
6	0,9°	60	-	-	-	0,030	0,09	-	1,200	5.150	1.030	4.900	900	3.950	600
6	0,9°	70	-	-	-	0,020	0,07	-	1,200	4.950	950	4.750	800	3.800	550
6	0,9°	80	-	-	-	-	0,07	-	1,020	4.750	850	4.500	720	3.750	500
8	0,9°	60	-	-	-	0,070	0,13	-	2,160	4.350	950	4.000	800	3.800	650
8	0,9°	80	-	-	-	0,050	0,09	0,2	1,920	4.150	830	3.800	700	3.550	550

Offset



	roughness (µm)												
Corner Radius R (mm)	0,10	0,25	0,75	1,00	1,25	1,50	1,75	2,00	2,50	3,00	3,25	4,00	5,00
R 0,1	0,009	0,014	0,024	0,028	0,032	0,035	0,037	0,040	0,045	0,049	-	-	-
R 0,2	0,012	0,020	0,035	0,040	0,045	0,049	0,053	0,057	0,063	0,070	0,075	0,080	0,900
R 0,3	0,015	0,025	0,042	0,049	0,055	0,060	0,065	0,070	0,077	0,085	0,092	0,098	0,110
R 0,5	0,020	0,032	0,055	0,065	0,070	0,078	0,084	0,090	0,100	0,110	0,118	0,125	0,141
R 1	0,028	0,045	0,078	0,090	0,100	0,110	0,011	0,125	0,142	0,155	0,168	0,180	0,200

EPL-CPR-DIA



	GF						
Ø	l1	Vc	S (min-1)	F (mm/min)	ap	ae	fz (mm)
4	80	75	6.000	840	0,75	1,60	0,07
4	110	50	4.000	560	0,75	1,60	0,07
6	100	75	4.000	720	1,10	3,20	0,09
6	150	57	3.000	540	1,10	3,20	0,09
8	100	101	4.000	760	1,50	4,80	0,10
8	150	75	3.000	570	1,50	4,80	0,10

CUTTING CONDITIONS

EPL-CPR

Side milling (Contour line finish)

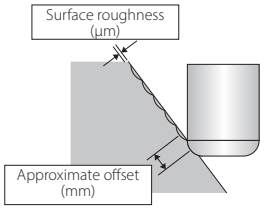


			max. depth of cut							< 45 HRC ap=120% ae=120%		45 - 55 HRC ap=100% ae=120%		55 - 65 HRC ap=60% ae=80%	
D	α°	l1	R0,1	R0,2	R0,3	ap R0,5	R1	R2	ae	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)
1	0°	4	0,015	0,020	0,03	-	-	-	0,030	27.000	1.500	24.500	1.250	22.500	995
1	0°	6	0,015	0,020	0,03	-	-	-	0,027	24.000	1.200	21.500	1.000	20.000	800
1	0°	8	0,009	0,012	0,018	-	-	-	0,021	21.000	950	19.000	790	17.500	620
1	0°	10	-	0,008	0,012	-	-	-	0,015	19.500	770	17.500	640	16.500	505
2	0°	6	-	0,020	-	0,05	-	-	0,060	16.500	1850	16.000	1.600	15.000	1.350
2	0°	8	-	0,020	-	0,05	-	-	0,060	16.500	1.850	16.000	1.600	15.000	1.350
2	0°	10	-	0,020	-	0,05	-	-	0,060	15.500	1.650	15.500	1.450	14.500	1.200
2	0°	12	-	0,020	-	0,05	-	-	0,054	14.500	1.500	14.500	1.300	13.500	1.050
2	0°	16	-	0,012	-	0,03	-	-	0,042	13.000	1.150	12.500	1.000	12.000	830
2	0,9°	20	0,050	-	-	-	-	-	0,060	16.500	1.650	16.000	1.450	15.000	1.200
2	0,9°	30	0,040	-	-	-	-	-	0,048	14.500	1.300	14.500	1.150	13.500	950
3	0°	6	-	0,020	-	0,05	-	-	0,080	12.600	2.100	11.400	1.500	10.000	1.100
3	0°	8	-	0,020	-	0,05	-	-	0,080	12.000	2.000	11.000	1.400	10.000	1.100
3	0°	10	-	0,020	-	0,05	-	-	0,080	12.000	2.000	11.000	1.400	10.000	1.100
3	0°	12	-	0,020	-	0,05	-	-	0,080	12.000	2.000	11.000	1.400	10.000	1.100
3	0°	16	-	0,020	-	0,05	-	-	0,080	10.500	1.600	9.600	1.150	9.000	875
3	0,9°	20	0,050	0,090	-	-	-	-	0,080	12.500	2.000	11.500	1.450	10.500	1.100
3	0,9°	30	0,050	0,070	-	-	-	-	0,080	12.000	1.800	11.000	1.300	10.000	985
3	0,9°	40	0,045	0,070	-	-	-	-	0,064	11.000	1.550	10.000	1.100	9.450	860
3	1,4°	20	0,090	0,130	-	-	-	-	0,080	12.500	2.250	11.500	1.750	10.500	1.250
3	1,4°	30	0,070	0,130	-	-	-	-	0,080	12.000	2.050	11.000	1.550	10.000	1.100
3	1,4°	40	-	0,130	-	-	-	-	0,064	11.000	1.750	10.000	1.300	9.450	950
4	0°	10	-	-	-	-	0,08	-	0,080	8.300	2.700	7.550	2.200	7.600	1.650
4	0°	12	-	-	-	0,08	0,08	-	0,080	7.900	2.500	7.150	2.050	7.200	1.550
4	0°	16	-	-	-	-	0,08	-	0,080	7.900	2.500	7.150	2.050	6.450	1.450
4	0°	20	-	-	-	0,05	0,08	-	0,080	7.450	2.400	6.750	1.950	6.100	1.350
4	0,9°	30	-	-	-	0,050	0,090	-	0,106	9.950	1.900	9.150	1.450	8.350	1.100
4	0,9°	40	-	-	-	0,040	0,090	-	0,106	9.600	1.750	8.800	1.350	8.050	1.000
4	0,9°	50	-	-	-	0,030	0,070	-	0,085	9.500	1.600	8.500	1.200	7.750	850
4	0,9°	60	-	-	-	-	0,050	-	0,085	9.150	1.450	8.350	1.100	7.550	750
4	1,4°	30	-	-	-	0,070	0,130	-	0,106	9.950	2.100	9.150	1.650	8.350	1.100
4	1,4°	40	-	-	-	0,060	0,130	-	0,106	9.600	1.950	8.800	1.500	8.050	950
6	0°	12	-	-	-	0,05	0,08	-	0,100	5.500	2.650	5.050	2.150	5.050	1.800
6	0°	16	-	-	-	0,05	0,08	-	0,100	5.250	2.500	4.750	2.050	4.750	1.750
6	0°	20	-	-	-	0,05	0,08	-	0,100	5.250	2.500	4.750	2.050	4.500	1.750
6	0°	25	-	-	-	0,05	0,08	-	0,100	4.950	2.350	4.500	1.950	4.250	1.600
6	0,9°	50	-	-	-	0,030	0,130	-	0,130	7.450	1.700	6.900	1.400	6.350	950
6	0,9°	60	-	-	-	0,030	0,090	-	0,130	7.200	1.600	6.700	1.300	6.150	850
6	0,9°	70	-	-	-	0,020	0,070	-	0,130	7.050	1.500	6.500	1.200	5.900	750
6	0,9°	80	-	-	-	-	0,070	-	0,100	6.900	1.400	6.350	1.100	5.850	700
8	0,9°	60	-	-	-	0,070	0,130	-	0,192	6.350	1.550	5.950	1.250	5.550	900
8	0,9°	80	-	-	-	0,050	0,090	0,2	0,160	5.950	1.300	5.550	1.050	5.150	

Offset



roughness (µm)													
Corner Radius R (mm)	0,10	0,25	0,75	1,00	1,25	1,50	1,75	2,00	2,50	3,00	3,25	4,00	5,00
R 0,1	0,009	0,014	0,024	0,028	0,032	0,035	0,037	0,040	0,045	0,049	-	-	-
R 0,2	0,012	0,020	0,035	0,040	0,045	0,049	0,053	0,057	0,063	0,070	0,075	0,080	0,900
R 0,3	0,015	0,025	0,042	0,049	0,055	0,060	0,065	0,070	0,077	0,085	0,092	0,098	0,110
R 0,5	0,020	0,032	0,055	0,065	0,070	0,078	0,084	0,090	0,100	0,110	0,118	0,125	0,141
R 1	0,028	0,045	0,078	0,090	0,100	0,110	0,011	0,125	0,142	0,155	0,168	0,180	0,200



CUTTING CONDITIONS

EPA-AL-3FS/FL

Side milling

	Aluminium wrought alloys	Aluminium cast alloy >5% Si <10% Si
Vc	500 - 800 (m/min)	400 - 700 (m/min)
Ø	fz (mm)	fz (mm)
3	0,027	0,024
4	0,036	0,032
5	0,045	0,041
6	0,054	0,049
8	0,072	0,065
10	0,090	0,081
12	0,108	0,097
16	0,144	0,130
20	0,195	0,175
ae max. 60% x D ap = 1xD		

EPN-AL-3FS/FL

Side milling

	Aluminium wrought alloys	Aluminium cast alloy >5% Si <10% Si
Vc	400 - 600 (m/min)	350 - 500 (m/min)
Ø	fz (mm)	fz (mm)
3	0,027	0,024
4	0,036	0,032
5	0,045	0,041
6	0,054	0,049
8	0,072	0,065
10	0,090	0,081
12	0,108	0,097
16	0,144	0,130
20	0,195	0,175
ae max. 60% x D ap = 1xD		

EPN-AL-3FS/FL

Slotting

	Aluminium wrought alloys	Aluminium cast alloy >5% Si <10% Si
Vc	400 - 600 (m/min)	350 - 500 (m/min)
Ø	fz (mm)	fz (mm)
3	0,019	0,017
4	0,025	0,022
5	0,032	0,029
6	0,038	0,034
8	0,050	0,046
10	0,063	0,057
12	0,076	0,068
16	0,101	0,091
20	0,137	0,123
ap = 1xD		

CUTTING CONDITIONS

HYP-CR-HI-WEMS / HYP-CR-HD-WEMS

High speed contouring

	Low Carbon - Alloy - Tool Steel									GG-GGG-GTW			Stainless steel			Aluminium - Mg			Ti Alloys		
HB/HRC	HB 150-250			HB 20-30			HRC 30-40			>HB 180			HRC 20						HRC 40-50		
N/mm²	500~800 N/mm²			800~1000 N/mm²			1000~1300 N/mm²			Non - Alloyed			400~700 N/mm²			Non-alloyed					
Vc	160 m/min			120 m/min			100 m/min			140 m/min			50 m/min			180 m/min			65 m/min		
Ø	FZ	S=n	F=Vf	FZ	S=n	F=Vf	FZ	S=n	F=Vf	FZ	S=n	F=Vf	FZ	S=n	F=Vf	FZ	S=n	F=Vf	FZ	S=n	F=Vf
4	0,035	12.730	1.790	0,03	9.550	1.150	0,03	7.960	960	0,035	11.150	1.570	0,03	3.980	480	0,035	14.330	2.010	0,025	5.180	520
6	0,04	8.490	1.360	0,035	6.370	900	0,035	5.310	750	0,04	7.430	1.190	0,035	2.660	380	0,04	9.550	1.530	0,027	3.450	380
8	0,07	6.370	1.790	0,065	4.780	1.250	0,065	3.980	1040	0,7	5.580	1.570	0,065	1.990	520	0,07	7.170	2.010	0,031	2.590	330
10	0,1	5.090	2.040	0,08	3.820	1.230	0,08	3.190	1030	0,1	4.460	1.790	0,08	1.600	520	0,1	5.730	2.300	0,038	2.070	320
12	0,12	4.240	2.040	0,1	3.190	1.280	0,1	2.660	1070	0,12	3.720	1.790	0,1	1.330	540	0,12	4.780	2.300	0,045	1.730	320
16	0,13	3.180	1.660	0,12	2.390	1.150	0,12	1.990	960	0,13	2.790	1.460	0,12	1.000	480	0,13	3.590	1.870	0,052	1.300	280
20	0,15	2.550	1.530	0,12	1.910	920	0,12	1.600	770	0,15	2.230	1.340	0,12	800	390	0,15	2.870	1.730	0,059	1.040	250

ap x d

F(fz) correction



ap	Fakt.
0,5	**1,0**
1,0	0,7
1,5	0,5
2,0	0,3

ae = 1xd



ap	Fakt.
0,5	1,2
1,0	**1,0**
1,5	0,7
2,0	0,5

ae = 0,5xd



ap	Fakt.
0,5	1,3
1,0	1,2
1,5	**1,0**
2,0	0,8

ae = 0,2xd

The above stated application data are as per **RED** marked parameters.

EPL-HI-CR-EMS / EPL-HI-CR-WEMS

	Carbon Steel / Alloyed Steel / Tool Steel									GG-GGG-GTW			INOX			Aluminium / Mg		
	~20 HRC			20 - 35 HRC			35 - 45 HRC			Unalloyed			~20HRC			Wrought Alloy		
Vc	180 m/min			160 m/min			140 m/min			145 m/min			45 m/min			180 m/min		
Ø	S (min⁻¹)	F (mm/min)	fz (mm)	S (min⁻¹)	F (mm/min)	fz (mm)	S (min⁻¹)	F (mm/min)	fz (mm)	S (min⁻¹)	F (mm/min)	fz (mm)	S (min⁻¹)	F (mm/min)	fz (mm)	S (min⁻¹)	F (mm/min)	fz (mm)
4	14.320	1.720	0,03	12.730	1.370	0,03	11.140	1.080	0,02	11.540	1.300	0,03	3.580	310	0,02	14.320	1.720	0,03
5	11.460	1.380	0,03	10.190	1.220	0,03	8.920	1.070	0,03	9.240	1.110	0,03	2.870	230	0,02	11.460	1.380	0,03
6	9.550	1.240	0,03	8.490	990	0,03	7.430	780	0,03	7.690	1.100	0,04	2.390	230	0,02	9.550	1.240	0,03
8	7.160	1.110	0,04	6.370	890	0,03	5.570	700	0,03	5.770	1.000	0,04	1.790	200	0,03	7.160	1.110	0,04
10	5.730	1.110	0,05	5.090	890	0,04	4.460	700	0,04	4.620	1.000	0,05	1.430	200	0,03	5.730	1.110	0,05
12	4.770	1.110	0,06	4.240	890	0,05	3.710	700	0,05	3.850	1.000	0,06	1.190	200	0,04	4.770	1.110	0,06
16	3.580	1.020	0,07	3.180	820	0,06	2.790	640	0,06	2.880	900	0,08	900	190	0,05	3.580	1.020	0,07
20	2.860	960	0,08	2.250	770	0,09	2.230	610	0,07	2.340	800	0,09	720	180	0,06	2.860	960	0,08

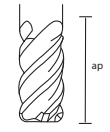
HYP-HI-EMS / HYP-HI-WEMS

Side milling (Contour line finish)

	Low Carbon - Alloy - Tool Steel									GG-GGG-GTW			Stainless steel			Aluminium - Mg			Ti Alloys		
	HB 150-250 500~800 N/mm²			HB 20-30 800~1000 N/mm²			HRC 30-40 1000~1300 N/mm²			>HB 180 Non - Alloyed			HRC 20 400~700 N/mm²			Non - Alloyed			HRC 40-50		
Vc	160 (m/min)			120 (m/min)			100 (m/min)			140 (m/min)			50 (m/min)			180 (m/min)			65 (m/min)		
Ø	Fz (mm)	S (min⁻¹)	F (mm/min)	Fz (mm)	S (min⁻¹)	F (mm/min)	Fz (mm)	S (min⁻¹)	F (mm/min)	Fz (mm)	S (min⁻¹)	F (mm/min)	Fz (mm)	S (min⁻¹)	F (mm/min)	Fz (mm)	S (min⁻¹)	F (mm/min)	Fz (mm)	S (min⁻¹)	F (mm/min)
4	0,035	12.730	1.790	0,03	9.550	1.150	0,03	7.960	960	0,035	11.150	1.570	0,03	3.980	480	0,035	14.330	2.010	0,025	5.180	520
6	0,04	8.490	1.360	0,035	6.370	900	0,035	5.310	750	0,04	7.430	1.190	0,035	2.660	380	0,04	9.550	1.530	0,027	3.450	380
8	0,07	6.370	1.790	0,065	4.780	1.250	0,065	3.980	1040	0,7	5.580	1.570	0,065	1.990	520	0,07	7.170	2.010	0,031	2.590	330
10	0,1	5.090	2.040	0,08	3.820	1.230	0,08	3.190	1030	0,1	4.460	1.790	0,08	1.600	520	0,1	5.730	2.300	0,038	2.070	320
12	0,12	4.240	2.040	0,1	3.190	1.280	0,1	2.660	1070	0,12	3.720	1.790	0,1	1.330	540	0,12	4.780	2.300	0,045	1.730	320
16	0,13	3.180	1.660	0,12	2.390	1.150	0,12	1.990	960	0,13	2.790	1.460	0,12	1.000	480	0,13	3.590	1.870	0,052	1.300	280
20	0,15	2.550	1.530	0,12	1.910	920	0,12	1.600	770	0,15	2.230	1.340	0,12	800	390	0,15	2.870	1.730	0,059	1.040	250

ap x d

F(fz) correction



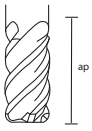
ap	Fakt.
0,5	**1,0**
1,0	0,7
1,5	0,5
2,0	0,3

ae
1xd



ap	Fakt.
0,5	0,7
1,0	**1,0**
1,5	0,7
2,0	0,5

ae
0,5xd



ap	Fakt.
0,5	1,3
1,0	1,2
1,5	**1,0**
2,0	0,8

ae
0,2xd

The above stated application data are as per RED marked parameters.

CUTTING CONDITIONS

HYP-HP-WRESF

Side milling

	GG GG-GGG		C≤0,2% S55C • SS400 ~750 N/mm²		~30 HRC SKD • SKS • SNCM		30~38 HRC NAK55 • HPMI • SKT		38~45 HRC - SUS SUS304 • X210CR12 • X40CRMOV51	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
6	4.200	585	4.200	585	3.700	370	2.900	230	2.650	210
8	3.150	565	3.150	565	2.750	350	2.150	230	1.950	210
10	2.500	500	2.500	500	2.200	350	1.750	230	1.550	210
12	2.100	500	2.100	500	1.850	330	1.450	230	1.300	210
16	1.550	400	1.550	400	1.350	320	1.050	230	995	210
20	1.250	375	1.250	375	1.100	320	875	240	795	220

Slotting

	GG GG-GGG		C≤0,2% S55C • SS400 ~750 N/mm²		~30 HRC SKD • SKS • SNCM		30~38 HRC NAK55 • HPMI • SKT		38~45 HRC - SUS SUS304 • X210CR12 • X40CRMOV51	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
6	3.150	315	3.150	315	2.650	265	2.300	180	2.100	165
8	2.350	300	2.350	300	1.950	250	1.750	175	1.550	155
10	1.900	300	1.900	300	1.550	245	1.400	165	1.250	150
12	1.550	280	1.550	280	1.300	235	1.150	160	1.050	145
16	1.150	280	1.150	280	995	235	875	140	795	125
20	955	280	955	280	795	235	700	140	635	125
25	700	245	700	245	640	225	510	125	460	115

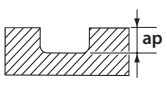
HYP-SB-EBD

Centre cutting

	Cu						30~35 HRC					35~42 HRC					42~55 HRC				
Vc	300 (m/min)						280 (m/min)					260 (m/min)					240 (m/min)				
Ø	Z	fz (mm)	ap (mm)	ae (mm)	n (min⁻¹)	F (mm/min)	fz (mm)	ap (mm)	ae (mm)	n (min⁻¹)	F (mm/min)	fz (mm)	ap (mm)	ae (mm)	n (min⁻¹)	F (mm/min)	fz (mm)	ap (mm)	ae (mm)	n (min⁻¹)	F (mm/min)
3	2	0,045	0,15	0,6	31.847	2866	0,045	0,15	0,6	29.724	2675	0,045	0,15	0,6	27.601	2484	0,045	0,15	0,6	25.478	2293
4	2	0,06	0,2	0,8	23.885	2866	0,06	0,2	0,8	22.293	2675	0,06	0,2	0,8	20.701	2484	0,06	0,2	0,8	19.108	2293
5	2	0,075	0,25	1	19.108	2866	0,075	0,25	1	17.834	2675	0,075	0,25	1	16.561	2484	0,075	0,25	1	15.287	2293
6	2	0,09	0,3	1,2	15.924	2866	0,09	0,3	1,2	14.862	2675	0,09	0,3	1,2	13.800	2484	0,09	0,3	1,2	12.739	2293
8	2	0,12	0,4	1,6	11.943	2866	0,12	0,4	1,6	11.146	2675	0,12	0,4	1,6	10.350	2484	0,12	0,4	1,6	9.554	2293
10	2	0,15	0,5	2	9.554	2866	0,15	0,5	2	8.917	2675	0,15	0,5	2	8.280	2484	0,15	0,5	2	7.643	2293
12	2	0,18	0,6	2,4	7.962	2866	0,18	0,6	2,4	7.431	2675	0,18	0,6	2,4	6.900	2484	0,18	0,6	2,4	6.369	2293

HYP-ZDS

Counterboring

	C≤0,2% - GG S55C • SS400 • GG25 ~750 N/mm2		~30 HRC SCM • SKS • SKT • SKD		30~38 HRC NAK55 • HPMI • SKT • SKD		38~45 HRC SUS SUS304 • SKD		Aluminium Alloy A7075		Aluminium Alloy Casting <Si 13%	
Vc	60~80 (m/min)		40~60 (m/min)		30~50 (m/min)		20~40 (m/min)		80~200 (m/min)		40~150 (m/min)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
4	5.950	360	4.950	295	4.000	240	3.200	155	12.500	915	9.550	575
5	4.800	360	3.950	295	3.200	240	2.550	155	10.000	915	7.650	575
6	4.000	360	3.300	295	2.700	240	2.150	155	8.400	915	6.400	575
7	3.400	360	2.800	295	2.300	240	1.850	155	7.200	915	5.500	575
8	3.000	360	2.450	295	2.000	240	1.600	155	6.350	915	4.750	575
9	2.650	360	2.200	295	1.800	240	1.450	155	5.600	915	4.200	575
10	2.400	360	2.000	295	1.600	240	1.300	155	5.000	915	3.800	575
Max cutting depth												

ap
0,5D

HYP-F1

Slotting

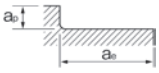
	AL		Plastic	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
3	40.000	2.500	20.000	2.000
4	35.000	2.500	20.000	2.000
5	30.000	3.000	20.000	3.000
6	25.000	3.000	20.000	3.000
8	25.000	3.000	20.000	3.000
10	22.300	3.000	16.000	2.400
12	18.600	3.000	13.500	2.400

CUTTING CONDITIONS

PXHF-AM

For both PXMZ straight shank holder / PXMC collet

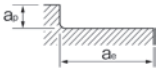
Frontal Milling L/D ≤ 4

	Prehardened Steel • Hardened Steel ~45HRC		Hardened Steel ~62HRC		Hardened Steel ~70HRC		Stainless Steel ≤200HB		Cobalt Chromium Based Alloy (Stellite)		Titanium Alloy		Ni based Alloy (Inconel 718)	
Vc	110~130m/min		90~110m/min		65~85m/min		125~145m/min		110~130m/min		90~110m/min		30~50m/min	
DC	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
12	3.180	5.270	2.650	4.390	1.990	1.580	3.580	5.930	3.180	5.270	2.650	4.390	1.060	760
16	2.390	5.280	1.990	4.390	1.490	1.570	2.690	5.940	2.390	5.280	1.990	4.390	800	770
20	1.910	5.270	1.590	4.390	1.190	1.570	2.150	5.930	1.910	5.270	1.590	4.390	640	770
Depth of cut														

ae	ap
Max: 0,5D	Max: 0,04D

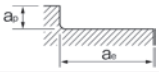
During machining, please program the milling paths according to the recommended simulated R (rt) respective to the individual end mill diameter.

Frontal Milling 4<L/D ≤ 5

	Prehardened Steel • Hardened Steel ~45HRC		Hardened Steel ~62HRC		Hardened Steel ~70HRC		Stainless Steel ≤200HB		Cobalt Chromium Based Alloy (Stellite)		Titanium Alloy		Ni based Alloy (Inconel 718)	
Vc	100~120m/min		80~100m/min		60~80m/min		115~135m/min		100~120m/min		80~100m/min		25~45m/min	
DC	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
12	2.920	3.780	2.390	3.100	1.860	1.210	3.320	4.300	2.920	3.780	2.390	3.100	930	540
16	2.190	3.780	1.790	3.090	1.390	1.200	2.490	4.300	2.190	3.780	1.790	3.090	700	540
20	1.750	3.780	1.430	3.090	1.110	1.200	1.990	4.300	1.750	3.780	1.430	3.090	560	540
Depth of cut														

ae	ap
Max: 0,5D	Max: 0,03D

Frontal Milling 5<L/D ≤ 6

	Prehardened Steel • Hardened Steel ~45HRC		Hardened Steel ~62HRC		Hardened Steel ~70HRC		Stainless Steel ≤200HB		Cobalt Chromium Based Alloy (Stellite)		Titanium Alloy		Ni based Alloy (Inconel 718)	
Vc	90~110m/min		70~90m/min		50~70m/min		100~120m/min		90~110m/min		70~90m/min		20~40m/min	
DC	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
12	2.650	2.670	2.120	2.140	1.590	800	2.920	2.940	2.650	2.670	2.120	2.140	800	350
16	1.990	2.670	1.590	2.140	1.190	800	2.190	2.940	1.990	2.670	1.590	2.140	600	350
20	1.590	2.670	1.270	2.130	960	810	1.750	2.940	1.590	2.670	1.270	2.130	480	350
Depth of cut														

ae	ap
Max: 0,5D	Max: 0,02D

PXHF-AM

Side Milling

	Prehardened Steel • Hardened Steel ~45HRC		Hardened Steel ~62HRC		Hardened Steel ~70HRC		Stainless Steel ≤200HB		Cobalt Chromium Based Alloy (Stellite)		Titanium Alloy		Ni based Alloy (Inconel 718)	
Vc	80~100m/min		50~70m/min		50~70m/min		100~120m/min		90~110m/min		70~90m/min		30~50m/min	
DC	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
12	2.390	1.200	1.590	570	1.060	230	2.650	1.340	2.390	1.200	1.590	570	800	230
16	1.790	1.200	1.190	570	800	230	1.990	1.340	1.790	1.200	1.190	570	600	230
20	1.430	1.200	960	580	640	230	1.590	1.340	1.430	1.200	960	580	480	230
Depth of cut	ae: Max: 0,05D / ap: Max: 0,5D		ae: Max: 0,02D / ap: Max: 0,5D				ae: Max: 0,05D / ap: Max: 0,5D				ae: Max: 0,02D / ap: Max: 0,5D			

1. This tool is recommended for the roughing of additive manufacturing and mold overlay surfaces.
2. Please use machines and holders that are rigid and highly accurate.
3. The values listed above are for reference. Please set the cutting condition in accordance with the actual machining environment.
4.Please reduce the feed rate when the depth of cut is greater than specified.
5. Please adjust the cutting condition when the overhang length is longer.
6. Please use a suitable fluid with high smoke retardant properties.
7. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.
8. Please use water-soluble coolant when machining stainless steel, cobalt-chromiumalloy, titanium alloy, and Ni-based alloy.
9.Tool runout should be kept to a minimum for maximum accuracy.
10. When the cutting load fluctuates in areas such as the corners, please reduce the rotational speed.
11. If the pick amount is 0.5 x D or more, cusp may occur on the machined surface.

During machining, please program the milling paths according to the recommended simulated R (rt) respective to the individual end mill diameter.

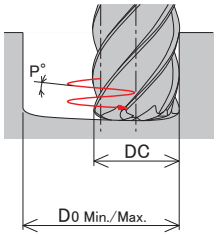
PXHF-AM

For both PXMZ straight shank holder / PXMC collet

Maximum Ramping Angle (E°)

Designation	Ramping Angle E°	Helical Milling (mm)		Helical Angle P°
		D0 Min.	D0 Max.	
PXHF-AM120C12-06R150-O	3°	18	23	1,5°
PXHF-AM160C16-06R200-O	3°	24	31	1,5°
PXHF-AM200C20-06R250-O	3°	30	39	1,5°

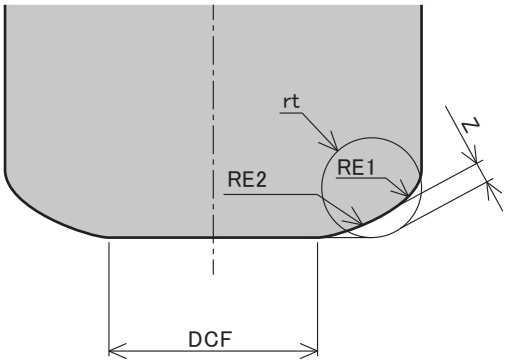




Edge shape definitions for the purpose of creating a program

Designation	R rt	Remainder Z
PXHF-AM120C12-06R150-O	R1,5	0,36
PXHF-AM160C16-06R200-O	R2	0,47
PXHF-AM200C20-06R250-O	R2,5	0,59

During machining, please program the milling paths according to the recommended simulated R (rt) respective to the individual end mill diameter.



CUTTING CONDITIONS

Milling | Endmills | Cutting conditions

V-XPM-WEDS / V-WEDS

Slotting

		E24 • XC48 Fonte GG25 490 ~ 750 MPA Low carbon steel, cast iron			35NCD16 • 40CMD8 750 ~ 1100 MPA Alloy steel, tool steel			316 • 304 800 MPA Stainless steel			Z38CDV5 • Z40CDV5 38 ~ 45 HRC Treated & pre-treated steel			Inconel • Hastelloy 35 ~ 43 HRC Steel alloys, Nickel base			TA6V 900 ~ 1100 MPA Alloy titanium		
Vc		55 m/min			45 m/min			25 m/min			30 m/min			15 m/min			22 m/min		
Nr. flutes	Ø	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)
2	2	8.754	70	0,004	7.162	57	0,004	3.979	32	0,004	4.775	38	0,004	2.387	19	0,004	3.501	28	0,004
2	2,5	7.003	63	0,005	5.730	52	0,005	3.183	29	0,005	3.820	34	0,005	1.910	17	0,005	2.801	25	0,005
2	3	5.836	70	0,006	4.775	57	0,006	2.653	32	0,006	3.183	38	0,006	1.592	19	0,006	2.334	28	0,006
2	3,5	5.002	70	0,007	4.093	57	0,007	2.274	32	0,007	2.728	38	0,007	1.364	19	0,007	2.001	28	0,007
2	4	4.377	70	0,008	3.581	57	0,008	1.989	32	0,008	2.387	38	0,008	1.194	19	0,008	1.751	28	0,008
2	4,5	3.890	70	0,009	3.183	57	0,009	1.768	32	0,009	2.122	38	0,009	1.061	19	0,009	1.556	28	0,009
2	5	3.501	70	0,01	2.865	57	0,01	1.592	32	0,01	1.910	38	0,01	955	19	0,01	1.401	28	0,01
2	5,5	3.183	76	0,012	2.604	63	0,012	1.447	35	0,012	1.736	42	0,012	868	21	0,012	1.273	31	0,012
2	6	2.918	82	0,014	2.387	67	0,014	1.326	37	0,014	1.592	45	0,014	796	22	0,014	1.167	33	0,014
2	6,5	2.693	81	0,015	2.204	66	0,015	1.224	37	0,015	1.469	44	0,015	735	22	0,015	1.077	32	0,015
2	7	2.501	75	0,015	2.046	61	0,015	1.137	34	0,015	1.364	41	0,015	682	20	0,015	1.000	30	0,015
2	7,5	2.334	75	0,016	1.910	61	0,016	1.061	34	0,016	1.273	41	0,016	637	20	0,016	934	30	0,016
2	8	2.188	79	0,018	1.790	64	0,018	995	36	0,018	1.194	43	0,018	597	21	0,018	875	32	0,018
2	8,5	2.060	78	0,019	1.685	64	0,019	936	36	0,019	1.123	43	0,019	562	21	0,019	824	31	0,019
2	9	1.945	78	0,02	1.592	64	0,02	884	35	0,02	1.061	42	0,02	531	21	0,02	778	31	0,02
2	9,5	1.843	81	0,022	1.508	66	0,022	838	37	0,022	1.005	44	0,022	503	22	0,022	737	32	0,022
2	10	1.751	84	0,024	1.432	69	0,024	796	38	0,024	955	46	0,024	477	23	0,024	700	34	0,024
2	11	1.592	80	0,025	1.303	65	0,025	724	36	0,025	869	43	0,025	434	22	0,025	637	32	0,025
2	12	1.460	73	0,025	1.194	60	0,025	663	33	0,025	796	40	0,025	398	20	0,025	584	29	0,025
2	13	1.347	67	0,025	1.102	55	0,025	612	31	0,025	735	37	0,025	367	18	0,025	539	27	0,025
2	14	1.251	63	0,025	1.024	51	0,025	569	28	0,025	682	34	0,025	341	17	0,025	500	25	0,025
2	15	1.168	70	0,03	955	57	0,03	531	32	0,03	637	38	0,03	318	19	0,03	467	28	0,03
2	16	1.095	66	0,03	896	54	0,03	498	30	0,03	597	36	0,03	299	18	0,03	438	26	0,03
2	17	1.030	62	0,03	843	51	0,03	468	28	0,03	562	34	0,03	281	17	0,03	412	25	0,03
2	18	973	68	0,035	796	56	0,035	442	31	0,035	531	37	0,035	265	19	0,035	389	27	0,035
2	19	922	65	0,035	754	53	0,035	419	29	0,035	503	35	0,035	251	18	0,035	369	26	0,035
2	20	876	70	0,04	717	57	0,04	398	32	0,04	478	38	0,04	239	19	0,04	350	28	0,04
2	22	796	72	0,045	651	59	0,045	362	33	0,045	434	39	0,045	217	20	0,045	318	29	0,045
2	24	730	73	0,05	597	60	0,05	332	33	0,05	398	40	0,05	199	20	0,05	292	29	0,05
2	25	701	77	0,055	573	63	0,055	318	35	0,055	382	42	0,055	191	21	0,055	280	31	0,055
2	30	584	70	0,06	478	57	0,06	265	32	0,06	318	38	0,06	159	19	0,06	234	28	0,06

These parameters are for use with cutting-depth of 0,5 D and a cutting-width of 1 D.
For alu. alloys < 6% Si, please use feed/flute as indicated in the column by X by 3 times the cutting speed.
For copper alloys, please use the feed/flute as indicated in the column by X by 2 times the cutting speed.
For V-WEDS, reduce cutting speed by 20% and feed/flute by 10%.

V-XPM-WETS / V-WETS

Slotting

		E24 • XC48 Fonte GG25 490 ~ 750 MPA Low carbon steel, cast iron			35NCD16 • 40CMD8 750 ~ 1100 MPA Alloy steel, tool steel			316 • 304 800 MPA Stainless steel			Z38CDV5 • Z40CDV5 38 ~ 45 HRC Treated & pre-treated steel			Inconel • Hastelloy 35 ~ 43 HRC Steel alloys, Nickel base			TA6V 900 ~ 1100 MPA Alloy titanium		
Vc		55 m/min			45 m/min			25 m/min			30 m/min			15 m/min			22 m/min		
Nr. flutes	Ø	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)
3	3	5.836	70	0,004	4.775	57	0,004	2.653	32	0,004	3.183	38	0,004	1.592	19	0,004	2.334	28	0,004
3	4	4.377	79	0,006	3.581	64	0,006	1.989	36	0,006	2.387	43	0,006	1.194	21	0,006	1.751	32	0,006
3	5	3.501	84	0,008	2.865	69	0,008	1.592	38	0,008	1.910	46	0,008	955	23	0,008	1.401	34	0,008
3	6	2.918	96	0,011	2.387	79	0,011	1.326	44	0,011	1.592	53	0,011	796	26	0,011	1.167	39	0,011
3	7	2.501	83	0,011	2.046	68	0,011	1.137	38	0,011	1.364	45	0,011	682	23	0,011	1.000	33	0,011
3	8	2.188	85	0,013	1.790	70	0,013	995	39	0,013	1.194	47	0,013	597	23	0,013	875	34	0,013
3	10	1.751	95	0,018	1.432	77	0,018	796	43	0,018	955	52	0,018	477	26	0,018	700	38	0,018
3	12	1.459	109	0,025	1.194	90	0,025	663	50	0,025	796	60	0,025	398	30	0,025	584	44	0,025
3	14	1.251	105	0,028	1.023	86	0,028	568	48	0,028	682	57	0,028	341	29	0,028	500	42	0,028
3	15	1.161	98	0,028	955	80	0,028	531	45	0,028	637	53	0,028	318	27	0,028	467	39	0,028
3	16	1.094	105	0,032	895	86	0,032	497	48	0,032	597	57	0,032	298	29	0,032	438	42	0,032
3	18	973	102	0,035	796	84	0,035	442	46	0,035	531	56	0,035	265	28	0,035	389	41	0,035
3	20	875	105	0,04	716	86	0,04	398	48	0,04	477	57	0,04	239	29	0,04	350	42	0,04
3	22	796	107	0,045	651	88	0,045	362	49	0,045	434	59	0,045	217	29	0,045	318	43	0,045
3	24	729	109	0,05	597	90	0,05	332	50	0,05	398	60	0,05	199	30	0,05	292	44	0,05
3	25	700	116	0,055	573	95	0,055	318	53	0,055	382	63	0,055	191	32	0,055	280	46	0,055
3	30	584	105	0,06	477	86	0,06	265	48	0,06	318	57	0,06	159	29	0,06	233	42	0,06

These parameters are for use with cutting-depth of 0,5 D and a cutting-width of 1 D.
For alu. alloys < 6% Si, please use feed/flute as indicated in the column by X by 3 times the cutting speed.
For copper alloys, please use the feed/flute as indicated in the column by X by 2 times the cutting speed.
For V-WEDS, reduce cutting speed by 20% and feed/flute by 10%.

CUTTING CONDITIONS

V-XPM-WEMS / V-WEMS

Side milling

		E24 • XC48 Fonte GG25 490 ~ 750 MPA Low carbon steel, cast iron			35NCD16 • 40CMD8 750 ~ 1100 MPA Alloy steel, tool steel			316 • 304 800 MPA Stainless steel			Z38CDV5 • Z40CDV5 38 ~ 45 HRC Treated & pre-treated steel			Inconel • Hastelloy 35 ~ 43 HRC Steel alloys, Nickel base			TA6V 900 ~ 1100 MPA Alloy titanium		
Vc		60 m/min			50 m/min			30 m/min			30 m/min			15 m/min			25 m/min		
Nr. flutes	Ø	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)
4	3	6.366	76	0,003	5.305	64	0,003	3.183	38	0,003	3.183	38	0,003	1.592	19	0,003	2.653	32	0,003
4	4	4.775	76	0,004	3.979	64	0,004	2.387	38	0,004	2.387	38	0,004	1.194	19	0,004	1.989	32	0,004
4	5	3.820	76	0,005	3.183	64	0,005	1.910	38	0,005	1.910	38	0,005	955	19	0,005	1.592	32	0,005
4	6	3.183	127	0,01	2.653	106	0,01	1.592	64	0,01	1.592	64	0,01	796	32	0,01	1.326	53	0,01
4	7	2.728	218	0,02	2.274	182	0,02	1.364	109	0,02	1.364	109	0,02	682	55	0,02	1.137	91	0,02
4	8	2.387	191	0,02	1.989	159	0,02	1.194	95	0,02	1.194	95	0,02	597	48	0,02	995	80	0,02
4	10	1.910	229	0,03	1.592	191	0,03	955	115	0,03	955	115	0,03	477	57	0,03	796	95	0,03
4	12	1.592	286	0,045	1.326	239	0,045	796	143	0,045	796	143	0,045	398	72	0,045	663	119	0,045
4	14	1.364	273	0,05	1.137	227	0,05	682	136	0,05	682	136	0,05	341	68	0,05	568	114	0,05
4	15	1.273	280	0,055	1.061	233	0,055	637	140	0,055	637	140	0,055	318	70	0,055	531	117	0,055
4	16	1.194	263	0,055	995	219	0,055	597	131	0,055	597	131	0,055	298	66	0,055	497	109	0,055
4	18	1.061	276	0,065	884	230	0,065	531	138	0,065	531	138	0,065	265	69	0,065	442	115	0,065
4	20	955	267	0,07	796	223	0,07	477	134	0,07	477	134	0,07	239	67	0,07	398	111	0,07
6	22	868	286	0,055	723	239	0,055	434	143	0,055	434	143	0,055	217	72	0,055	362	119	0,055
6	24	796	286	0,06	663	239	0,06	398	143	0,06	398	143	0,06	199	72	0,06	332	119	0,06
6	25	764	275	0,06	637	229	0,06	382	138	0,06	382	138	0,06	191	69	0,06	318	115	0,06
6	30	637	267	0,07	531	223	0,07	318	134	0,07	318	134	0,07	159	67	0,07	265	111	0,07

These parameters are for use with cutting-depth of 1,5 D and a cutting-width of 1 D.
For alu. alloys < 6% Si, please use feed/flute as indicated in the column by X by 3 times the cutting speed.
For copper alloys, please use the feed/flute as indicated in the column by X by 2 times the cutting speed.
For V-WEMS, reduce cutting speed by 20% and feed/flute by 10%.

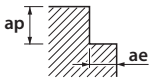
SI-WH-WRESF

Side milling

	Cast Iron FC250		Mild Steels • Carbon Steels SS400 - S50C		~ 30HRC SCM-SKT-SKS-SKD		~ 45 HRC SKD-NAK80		Stainless Steel SUS304		Titanium Alloy Ti-6Al-4V	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
6	2.920	300	3.450	300	2.650	210	2.390	170	1.860	130	1.330	80
8	2.190	340	2.590	350	1.990	240	1.790	190	1.390	150	990	90
10	1.750	380	2.070	390	1.590	270	1.430	220	1.110	170	800	110
12	1.460	410	1.720	420	1.330	290	1.190	230	930	180	660	110
16	1.090	480	1.290	490	990	340	900	270	700	210	500	130
20	880	510	1.030	520	800	360	720	290	560	230	400	140
25	700	490	830	510	640	350	570	280	450	220	320	140

Max cutting depth

ap	ae
≤15	≤0,5D



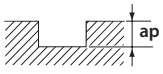
SI-WH-WRESF

Slotting

	Cast Iron FC250		Mild Steels • Carbon Steels SS400 - S50C		~ 30HRC SCM-SKT-SKS-SKD		~ 45 HRC SKD-NAK80		Stainless Steel SUS304		Titanium Alloy Ti-6Al-4V	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
6	2.390	160	2.650	160	2.120	110	1.860	90	1.330	60	800	30
8	1.790	200	1.990	190	1.590	140	1.390	110	990	80	600	40
10	1.430	220	1.590	210	1.270	150	1.110	120	800	80	480	40
12	1.190	230	1.330	220	1.060	160	930	120	660	90	400	50
16	900	270	990	260	800	190	700	150	500	110	300	60
20	720	290	800	280	640	210	560	160	400	110	240	60
25	570	280	640	280	510	200	450	150	320	110	190	60

Max cutting depth

ap	≤1D
ap Max	20 mm



V-XPM-WRESF / V-WREES / V-WRESF

Slotting

		E24 • XC48 Fonte GG25 490 ~ 750 MPA Low carbon steel, cast iron			35NCD16 • 40CMD8 750 ~ 1100 MPA Alloy steel, tool steel			316 • 304 800 MPA Stainless steel			Z38CDV5 • Z40CDV5 38 ~ 45 HRC Treated & pre-treated steel			Inconel • Hastelloy 35 ~ 43 HRC Steel alloys, Nickel base			TA6V 900 ~ 1100 MPA Alloy titanium		
Vc		55 m/min			45 m/min			25 m/min			30 m/min			15 m/min			22 m/min		
Nr. flutes	Ø	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)
4	6	2.918	233	0,02	2.387	191	0,02	1.326	106	0,02	1.592	127	0,02	796	64	0,02	1.167	93	0,02
4	7	2.501	250	0,025	2.046	205	0,025	1.137	114	0,025	1.364	136	0,025	682	68	0,025	1.000	100	0,025
4	8	2.188	263	0,03	1.790	215	0,03	995	119	0,03	1.194	143	0,03	597	72	0,03	875	105	0,03
4	10	1.751	280	0,04	1.432	229	0,04	796	127	0,04	955	153	0,04	477	76	0,04	700	112	0,04
4	12	1.459	350	0,06	1.194	286	0,06	663	159	0,06	796	191	0,06	398	95	0,06	584	140	0,06
4	14	1.251	325	0,065	1.023	266	0,065	568	148	0,065	682	177	0,065	341	89	0,065	500	130	0,065
4	15	1.167	327	0,07	955	267	0,07	531	149	0,07	637	178	0,07	318	89	0,07	467	131	0,07
4	16	1.094	328	0,075	895	269	0,075	497	149	0,075	597	179	0,075	298	90	0,075	438	131	0,075
4	18	973	331	0,085	796	271	0,085	442	150	0,085	531	180	0,085	265	90	0,085	389	132	0,085
4	20	875	350	0,1	716	286	0,1	398	159	0,1	477	191	0,1	239	95	0,1	350	140	0,1
5	22	796	438	0,11	651	358	0,11	362	199	0,11	434	239	0,11	217	119	0,11	318	175	0,11
5	25	700	438	0,125	573	358	0,125	318	199	0,125	382	239	0,125	191	119	0,125	280	175	0,125
5	28	625	391	0,125	512	320	0,125	284	178	0,125	341	213	0,125	171	107	0,125	250	156	0,125
6	30	584	438	0,125	477	358	0,125	265	199	0,125	318	239	0,125	159	119	0,125	233	175	0,125
6	32	547	410	0,125	448	336	0,125	249	187	0,125	298	224	0,125	149	112	0,125	219	164	0,125
6	35	500	375	0,125	409	307	0,125	227	171	0,125	273	205	0,125	136	102	0,125	200	150	0,125
6	36	486	365	0,125	398	298	0,125	221	166	0,125	265	199	0,125	133	99	0,125	195	146	0,125
6	40	438	328	0,125	358	269	0,125	199	149	0,125	239	179	0,125	119	90	0,125	175	131	0,125

These parameters are for use with cutting-depth of 1 D and a cutting-width of 1 D.
For V-WREES, V-WRESF, reduce cutting speed by 20% and feed/flute by 10%.

V-XPM-WRESF / V-WREES / V-WRESF

Side milling

		E24 • XC48 Fonte GG25 490 ~ 750 MPA Low carbon steel, cast iron			35NCD16 • 40CMD8 750 ~ 1100 MPA Alloy steel, tool steel			316 • 304 800 MPA Stainless steel			Z38CDV5 • Z40CDV5 38 ~ 45 HRC Treated & pre-treated steel			Inconel • Hastelloy 35 ~ 43 HRC Steel alloys, Nickel base			TA6V 900 ~ 1100 MPA Alloy titanium		
Vc		55 m/min			45 m/min			25 m/min			30 m/min			15 m/min			22 m/min		
Nr. flutes	Ø	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)
4	6	2.918	292	0,025	2.387	239	0,025	1.326	133	0,025	1.592	159	0,025	796	80	0,025	1.167	117	0,025
4	7	2.501	300	0,03	2.046	246	0,03	1.137	136	0,03	1.364	164	0,03	682	82	0,03	1.000	120	0,03
4	8	2.188	394	0,045	1.790	322	0,045	995	179	0,045	1.194	215	0,045	597	107	0,045	875	158	0,045
4	10	1.751	385	0,055	1.432	315	0,055	796	175	0,055	955	210	0,055	477	105	0,055	700	154	0,055
4	12	1.459	467	0,08	1.194	382	0,08	663	212	0,08	796	255	0,08	398	127	0,08	584	187	0,08
4	14	1.251	425	0,085	1.023	348	0,085	568	193	0,085	682	232	0,085	341	116	0,085	500	170	0,085
4	15	1.167	397	0,085	955	325	0,085	531	180	0,085	637	216	0,085	318	108	0,085	467	159	0,085
4	16	1.094	438	0,1	895	358	0,1	497	199	0,1	597	239	0,1	298	119	0,1	438	175	0,1
4	18	973	428	0,11	796	350	0,11	442	195	0,11	531	233	0,11	265	117	0,11	389	171	0,11
4	20	875	455	0,13	716	372	0,13	398	207	0,13	477	248	0,13	239	124	0,13	350	182	0,13
5	22	796	557	0,14	651	456	0,14	362	253	0,14	434	304	0,14	217	152	0,14	318	223	0,14
5	25	700	560	0,16	573	458	0,16	318	255	0,16	382	306	0,16	191	153	0,16	280	224	0,16
5	28	625	438	0,14	512	358	0,14	284	199	0,14	341	239	0,14	171	119	0,14	250	175	0,14
6	30	584	490	0,14	477	401	0,14	265	223	0,14	318	267	0,14	159	134	0,14	233	196	0,14
6	32	547	460	0,14	448	376	0,14	249	209	0,14	298	251	0,14	149	125	0,14	219	184	0,14
6	35	500	420	0,14	409	344	0,14	227	191	0,14	273	229	0,14	136	115	0,14	200	168	0,14
6	36	486	408	0,14	398	334	0,14	221	186	0,14	265	223	0,14	133	111	0,14	195	163	0,14
6	40	438	368	0,14	358	301	0,14	199	167	0,14	239	201	0,14	119	100	0,14	175	147	0,14

These parameters are for use with cutting-depth of 1 D and a cutting-width of 1 D.
For V-WREES, V-WRESF, reduce cutting speed by 20% and feed/flute by 10%.

CUTTING CONDITIONS

Milling | Endmills | Cutting conditions

VP-RESF-SP

Slotting

		E24 • XC48 Fonte GG25 490 ~ 750 MPA Low carbon steel, cast iron			35NCD16 • 40CMD8 750 ~ 1100 MPA Alloy steel, tool steel			316 • 304 800 MPA Stainless steel			Z38CDV5 • Z40CDV5 38 ~ 45 HRC Treated & pre-treated steel		
Vc		53 m/min			45 m/min			25 m/min			40 m/min		
Nr. flutes	Ø	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)
3	8	2.109	633	0,1	1.790	537	0,1	995	298	0,1	1.592	477	0,1
3	10	1.687	506	0,1	1.432	430	0,1	796	239	0,1	1.273	382	0,1
3	12	1.406	506	0,12	1.194	430	0,12	663	239	0,12	1.061	382	0,12
3	16	1.054	380	0,12	895	322	0,12	497	179	0,12	796	286	0,12
3	20	844	329	0,13	716	279	0,13	398	155	0,13	560	218	0,13
4	25	400	208	0,13	420	218	0,13	220	114	0,13	400	192	0,12

These parameters are for use with cutting-depth of 0,8 D and a cutting-width of 1 D.
For the end mill dia 25 mm 4 flutes, the cutting depth may not exceed 0.5D.

V-XPM-WEHS

Slotting

		E24 • XC48 Fonte GG25 490 ~ 750 MPA Low carbon steel, cast iron			35NCD16 • 40CMD8 750 ~ 1100 MPA Alloy steel, tool steel			316 • 304 800 MPA Stainless steel			Z38CDV5 • Z40CDV5 38 ~ 45 HRC Treated & pre-treated steel			Inconel • Hastelloy 35 ~ 43 HRC Steel alloys, Nickel base			TA6V 900 ~ 1100 MPA Alloy titanium		
Vc		55 m/min			45 m/min			25 m/min			30 m/min			15 m/min			22 m/min		
Nr. flutes	Ø	S (min^{-1})	F (mm/ min)	AZ (mm)	S (min^{-1})	F (mm/ min)	AZ (mm)	S (min^{-1})	F (mm/ min)	AZ (mm)	S (min^{-1})	F (mm/ min)	AZ (mm)	S (min^{-1})	F (mm/ min)	AZ (mm)	S (min^{-1})	F (mm/ min)	AZ (mm)
2	2	8.754	70	0,004	7.162	57	0,004	3.979	32	0,004	4.775	38	0,004	2.387	19	0,004	3.501	28	0,004
2	3	5.836	70	0,006	4.775	57	0,006	2.653	32	0,006	3.183	38	0,006	1.592	19	0,006	2.334	28	0,006
2	4	4.377	70	0,008	3.581	57	0,008	1.989	32	0,008	2.387	38	0,008	1.194	19	0,008	1.751	28	0,008
2	5	3.501	70	0,01	2.865	57	0,01	1.592	32	0,01	1.910	38	0,01	955	19	0,01	1.401	28	0,01
3	6	2.918	96	0,011	2.387	79	0,011	1.326	44	0,011	1.592	53	0,011	796	26	0,011	1.167	39	0,011
3	7	2.501	90	0,012	2.046	74	0,012	1.137	41	0,012	1.364	49	0,012	682	25	0,012	1.000	36	0,012
3	8	2.188	85	0,013	1.790	70	0,013	995	39	0,013	1.194	47	0,013	597	23	0,013	875	34	0,013
3	9	1.945	82	0,014	1.592	67	0,014	884	37	0,014	1.061	45	0,014	531	22	0,014	778	33	0,014
3	10	1.751	95	0,018	1.432	77	0,018	796	43	0,018	955	52	0,018	477	26	0,018	700	38	0,018
3	11	1.592	95	0,02	1.302	78	0,02	723	43	0,02	868	52	0,02	434	26	0,02	637	38	0,02
3	12	1.459	109	0,025	1.194	90	0,025	663	50	0,025	796	60	0,025	398	30	0,025	584	44	0,025
3	13	1.347	105	0,026	1.102	86	0,026	612	48	0,026	735	57	0,026	367	29	0,026	539	42	0,026
3	14	1.251	105	0,028	1.023	86	0,028	568	48	0,028	682	57	0,028	341	29	0,028	500	42	0,028
3	15	1.167	105	0,03	955	86	0,03	531	48	0,03	637	57	0,03	318	29	0,03	467	42	0,03
3	16	1.094	105	0,032	895	86	0,032	497	48	0,032	597	57	0,032	298	29	0,032	438	42	0,032
3	18	973	102	0,035	796	84	0,035	442	46	0,035	531	56	0,035	265	28	0,035	389	41	0,035
3	20	875	105	0,04	716	86	0,04	398	48	0,04	477	57	0,04	239	29	0,04	350	42	0,04
4	22	796	111	0,035	651	91	0,035	362	51	0,035	434	61	0,035	217	30	0,035	318	45	0,035
4	24	729	117	0,04	597	95	0,04	332	53	0,04	398	64	0,04	199	32	0,04	292	47	0,04
4	25	700	126	0,045	573	103	0,045	318	57	0,045	382	69	0,045	191	34	0,045	280	50	0,045
4	28	625	125	0,05	512	102	0,05	284	57	0,05	341	68	0,05	171	34	0,05	250	50	0,05
4	30	584	128	0,055	477	105	0,055	265	58	0,055	318	70	0,055	159	35	0,055	233	51	0,055

These parameters are for use with cutting-depth of 0,5 D and a cutting-width of 1 D for end mills 2 and 3 flutes.
These parameters are for use with cutting-depth of 0.25 D and a cutting-width of 1 D for end mills 4 flutes.
For alu. alloys < 6% Si, please use feed/flute as indicated in the column by X by 3 times the cutting speed.
For copper alloys, please use the feed/flute as indicated in the column by X by 2 times the cutting speed.

V-XPM-WEHS

Side milling

		E24 • XC48 Fonte GG25 490 ~ 750 MPA Low carbon steel, cast iron			35NCD16 • 40CMD8 750 ~ 1100 MPA Alloy steel, tool steel			316 • 304 800 MPA Stainless steel			Z38CDV5 • Z40CDV5 38 ~ 45 HRC Treated & pre-treated steel			Inconel • Hastelloy 35 ~ 43 HRC Steel alloys, Nickel base			TA6V 900 ~ 1100 MPA Alloy titanium		
Vc		55 m/min			45 m/min			25 m/min			30 m/min			15 m/min			22 m/min		
Nr. flutes	Ø	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)	S (min^{-1})	F (mm/min)	AZ (mm)
2	2	8.754	70	0,004	7.162	57	0,004	3.979	32	0,004	4.775	38	0,004	2.387	19	0,004	3.501	28	0,004
2	3	5.836	70	0,006	4.775	57	0,006	2.653	32	0,006	3.183	38	0,006	1.592	19	0,006	2.334	28	0,006
2	4	4.377	70	0,008	3.581	57	0,008	1.989	32	0,008	2.387	38	0,008	1.194	19	0,008	1.751	28	0,008
2	5	3.501	70	0,01	2.865	57	0,01	1.592	32	0,01	1.910	38	0,01	955	19	0,01	1.401	28	0,01
3	6	2.918	105	0,012	2.387	86	0,012	1.326	48	0,012	1.592	57	0,012	796	29	0,012	1.167	42	0,012
3	7	2.501	105	0,014	2.046	86	0,014	1.137	48	0,014	1.364	57	0,014	682	29	0,014	1.000	42	0,014
3	8	2.188	131	0,02	1.790	107	0,02	995	60	0,02	1.194	72	0,02	597	36	0,02	875	53	0,02
3	9	1.945	117	0,02	1.592	95	0,02	884	53	0,02	1.061	64	0,02	531	32	0,02	778	47	0,02
3	10	1.751	131	0,025	1.432	107	0,025	796	60	0,025	955	72	0,025	477	36	0,025	700	53	0,025
3	11	1.592	119	0,025	1.302	98	0,025	723	54	0,025	868	65	0,025	434	33	0,025	637	48	0,025
3	12	1.459	153	0,035	1.194	125	0,035	663	70	0,035	796	84	0,035	398	42	0,035	584	61	0,035
3	13	1.347	141	0,035	1.102	116	0,035	612	64	0,035	735	77	0,035	367	39	0,035	539	57	0,035
3	14	1.251	150	0,04	1.023	123	0,04	568	68	0,04	682	82	0,04	341	41	0,04	500	60	0,04
3	15	1.167	140	0,04	955	115	0,04	531	64	0,04	637	76	0,04	318	38	0,04	467	56	0,04
3	16	1.094	148	0,045	895	121	0,045	497	67	0,045	597	81	0,045	298	40	0,045	438	59	0,045
3	18	973	146	0,05	796	119	0,05	442	66	0,05	531	80	0,05	265	40	0,05	389	58	0,05
3	20	875	158	0,06	716	129	0,06	398	72	0,06	477	86	0,06	239	43	0,06	350	63	0,06
4	22	796	223	0,07	651	182	0,07	362	101	0,07	434	122	0,07	217	61	0,07	318	89	0,07
4	24	729	219	0,075	597	179	0,075	332	99	0,075	398	119	0,075	199	60	0,075	292	88	0,075
4	25	700	224	0,08	573	183	0,08	318	102	0,08	382	122	0,08	191	61	0,08	280	90	0,08
4	28	625	225	0,09	512	184	0,09	284	102	0,09	341	123	0,09	171	61	0,09	250	90	0,09
4	30	584	233	0,1	477	191	0,1	265	106	0,1	318	127	0,1	159	64	0,1	233	93	0,1

These parameters are for use with cutting-depth of 1,5 D and a cutting-width of 0,1 D.
For alu. alloys < 6% Si, please use feed/flute as indicated in the column by X by 3 times the cutting speed.
For copper alloys, please use the feed/flute as indicated in the column by X by 2 times the cutting speed.

SEP-EL

3xD cutting length

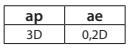
Slot Milling

	Thermoplastic Resin (Natural Grade)		Thermosetting Resin Thermoplastic Resin (Fiber Reinforced Grade)	
Vc (m/min)	60 ~ 70		50 ~ 70	
DC X APMX	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
0,5 X 1,5	38.200	1.530	31.800	1.270
1 X 3	19.100	2.290	15.900	1.910
2 X 6	9.500	1.430	8.000	1.200
3 X 9	6.400	1.150	5.300	950
4 X 12	5.600	1.340	4.800	1.010
6 X 18	3.700	1.110	3.400	920
Depth of cut	 ap 1D			

The table above is for when using air-blow.

3xD cutting length

Side Milling

	Thermoplastic Resin (Natural Grade)		Thermosetting Resin Thermoplastic Resin (Fiber Reinforced Grade)	
Vc (m/min)	100 ~ 150		60 ~ 70	
DC X APMX	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
0,5 X 1,5	40.000	2.400	38.200	2.290
1 X 3	31.800	3.820	19.100	2.290
2 X 6	20.700	3.730	9.500	2.000
3 X 9	14.900	3.580	7.400	2.220
4 X 12	11.900	3.570	5.600	1.680
6 X 18	8.000	2.880	3.700	1.330
Depth of cut	 ap 3D / ae 0,2D			

The table above is for when using air-blow.

3xD cutting length

Plunging

	Thermoplastic Resin (Natural Grade)		Thermosetting Resin Thermoplastic Resin (Fiber Reinforced Grade)	
Vc (m/min)	50 ~ 70		50 ~ 70	
DC X APMX	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
0,5 X 1,5	31.800	320	31.800	320
1 X 3	15.900	480	15.900	480
2 X 6	9.500	360	8.000	300
3 X 9	6.400	290	5.300	240
4 X 12	5.600	340	4.800	250
6 X 18	3.700	280	3.400	230
Depth of cut	 ap 1D			

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used. The feed rate can be increased if the shape of the workpiece and method of fixation are rigid.
3. Reduce speed and feed as well as depth of cut when high precision is required.
4. When the chips wind around the end mill. reduce the speed and feed.
5. Please remove cutting chips to prevent them from getting caught or entangled.
6. For higher quality processing. the use of a water-soluble cutting fluid is recommended (excluding nylon and Bakelite).
7. Please step feed when processing by plunging.

The table above is for when using air-blow.

SEP-EL

5xD cutting length

Side Milling

	Thermoplastic Resin (Natural Grade)		Thermosetting Resin Thermoplastic Resin (Fiber Reinforced Grade)	
Vc (m/min)	50 ~ 100		50 ~ 70	
DC X APMX	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
0,5 X 2,5	31.800	1.910	31.800	1.910
1 X 5	19.100	2.290	19.100	2.290
2 X 10	12.700	1.910	9.500	2.000
3 X 15	9.500	1.710	7.400	2.220
4 X 20	8.000	1.920	5.600	1.680
6 X 30	5.300	1.270	3.700	1.330
Depth of cut	ap: 5D, ae: 0,05D		ap: 5D, ae: 0,1D	

The table above is for when using air-blow.

5xD cutting length

Plunging

	Thermoplastic Resin (Natural Grade)		Thermosetting Resin Thermoplastic Resin (Fiber Reinforced Grade)	
Vc (m/min)	50 ~ 70		50 ~ 70	
DC X APMX	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
0,5 X 2,5	31.800	320	31.800	320
1 X 5	15.900	480	15.900	480
2 X 10	9.500	360	8.000	300
3 X 15	6.400	290	5.300	240
4 X 20	5.600	340	4.800	250
6 X 30	3.700	280	3.400	230
Depth of cut	ap: 1D			

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used. The feed rate can be increased if the shape of the workpiece and method of fixation are rigid.
3. Reduce speed and feed as well as depth of cut when high precision is required.
4. When the chips wind around the end mill. reduce the speed and feed.
5. Please remove cutting chips to prevent them from getting caught or entangled.
6. For higher quality processing. the use of a water-soluble cutting fluid is recommended (excluding nylon and Bakelite).
7. Please step feed when processing by plunging.

The table above is for when using air-blow.

CUTTING CONDITIONS

AE-VMSX Square Type

Slot Milling

	Mild Steel • Carbon Steel • Cast Iron SS400 • S55C • FC250 ~750N/mm²		Alloy Steel • Tool Steel SCM • SKS • SKD ~30HRC		Prehardened Steel • Hardened Steel PX5 • NAK80 30~45HRC		Stainless Steel SUS304 • SUS420 ≤200HB		Precipitation Stainless Steel SUS630		Titanium Alloy Ti-6Al-4V		Ni-Based Alloy Inconel 718	
Cutting Speed	100 (80-120)		90 (70-110)		80 (60-100)		70 (50-80)		70 (60-80)		60 (50-70)		25 (20-30)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
3	10.600	930	9.600	690	8.500	510	7.400	470	8.540	430	7.430	410	2.650	160
4	8.000	960	7.200	720	6.400	510	5.600	490	6.410	460	5.570	440	1.990	170
5	6.400	1.020	5.700	800	5.100	610	4.500	560	5.120	490	4.460	470	1.590	180
6	5.300	1.060	4.800	900	4.200	670	3.700	370	4.270	480	3.710	460	1.330	180
8	4.000	910	3.600	720	3.200	640	2.800	370	2.750	450	2.390	430	1.000	200
10	3.200	840	2.900	700	2.500	550	2.200	350	2.200	420	1.910	400	800	180
12	2.700	810	2.400	670	2.100	550	1.900	330	1.830	420	1.590	400	660	180
Depth of cut	ap: 1D						DC: DC≤6 → ap: 0,5D; 6<DC → ap: 1D				ap: 0,25D			

Slide Milling

	Mild Steel • Carbon Steel • Cast Iron SS400 • S55C • FC250 ~750N/mm²		Alloy Steel • Tool Steel SCM • SKS • SKD ~30HRC		Prehardened Steel • Hardened Steel PX5 • NAK80 30~45HRC		Hardened Steel STAVAX • HPM38 (~55HRC)		Stainless Steel SUS304 • SUS420 ≤200HB		Precipitation Stainless Steel SUS630		Titanium Alloy Ti-6Al-4V		Ni-Based Alloy Inconel 718	
Cutting Speed	130 (100-150)		120 (100-150)		100 (80-120)		70 (60-80)		80 (60-100)		80 (70-90)		70 (60-80)		30 (20-40)	
Ø	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
3	13.800	1.660	12.700	1.070	10.600	760	7.430	480	8.000	480	9.760	510	8.490	480	3.180	220
4	10.400	1.830	9.600	1.150	8.000	800	5.570	530	6.000	530	7.320	550	6.370	530	2.390	240
5	8.300	1.990	7.600	1.220	6.400	900	4.460	540	4.800	560	5.860	560	5.090	540	1.910	250
6	6.900	2.070	6.400	1.540	5.300	1.060	3.720	550	4.200	640	4.880	580	4.240	550	1.590	250
8	5.200	1.770	4.800	1.540	4.000	1.040	2.790	430	3.200	610	3.200	450	2.790	430	1.190	230
10	4.100	1.640	3.800	1.370	3.200	900	2.230	410	2.500	580	2.560	430	2.230	410	960	220
12	3.500	1.400	3.200	1.280	2.700	760	1.860	400	2.100	530	2.140	420	1.860	400	800	210
Depth of cut	ap: 1,5D; ae: 0,2D															

1. The above milling condition is a guideline for the overhang length is 3×D.
2. Use a rigid and precise machine and holder.
3. The rotational speed is calculated by the median of the recommended cutting speed. Adjustment may be necessary depending on the rigidity of the workpiece fixture and machine.
4. Please use a suitable fluid with high smoke retardant properties.
5. During dry (no fluid) milling, please use air blow to remove disposable chips from the milling area and to eliminate chip packing.
6. Please use water-soluble coolant when machining stainless steel, precipitation stainless steel, titanium alloy, Ni-based alloy.
7. Reduce speed and feed as well as depth of cut when high precision is required.
8. Adjust the speed and feed accordingly when the overhang length is longer than specified.

Cutting Condition Guide for Changes in Overhang Length

DC≥Ø6

	Work Material	Mild Steel • Carbon Steel • Cast Iron SS400 • S55C • FC250 ~750N/mm²		Alloy Steel • Tool Steel SCM • SKS • SKD ~30HRC		Prehardened Steel • Hardened Steel PX5 • NAK80 30~45HRC		Hardened Steel STAVAX • HPM38 (~55HRC)		Stainless Steel SUS304 • SUS420 ≤200HB		Precipitation Stainless Steel SUS630		Titanium Alloy Ti-6Al-4V		Ni-Based Alloy Inconel 718	
Ø	L/D	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)	S (min⁻¹)	F (mm/min)
Slot Milling	4	80%		70%		70%		-		60%		60%		50%		50%	
	5	70%		60%		60%		-		50%		50%		50%		50%	
Side Milling	4	90%		90%		80%		60%		70%		70%		60%		60%	
	5	80%		80%		70%		60%		70%		70%		60%		60%	

CUTTING CONDITIONS

Milling | Indexables | Cutting conditions

PAS BORE

45° Face milling

	Work Material	Tensile Strength / Hardness	Milling Speed Vc (m/min)	Feed per Tooth fz (mm/t)	Depth of Cut ap (mm)	Grade
P	Mild Steel-Carbon Steel (SS400-S10C)	~180HB	180 (100~ 250)	0,18 (0,15 ~ 0,35)	3	XP3035 XC3025
P	Carbon Steel-Alloy Steel (S50C-SCM440)	~280HB	180 (100 ~ 250)	0,18 (0,15 ~ 0,35)	3	XP3035 XC3025
P	Die Steel (SKD11-SKD61)	~280HB	150 (80 ~ 200)	0,15 (0,10 ~ 0,30)	3	XP3035 XC3025
M	Stainless Steel (Wet) (SUS304-SUS420)	~250HB	120 (80~ 180)	0,12 (0,08 ~ 0,25)	3	XP2040
K	Cast Iron (FC250)	~300N/mm²	180 (100~ 350)	0,20 (0,15 ~ 0,35)	4	XC1015
K	Ductile Cast Iron (FCD400)	~600N/mm²	180 (100~270)	0,20 (0,10 ~ 0,30)	3	XC1015
H	Pre-hardened Steel (NAK80)	40~43HRC	100 (60~ 150)	0,12 (0,08 ~ 0,20)	1,5	XP2040
H	Steel for Die Casting (DAC55-DH31)	43~48HRC	80 (40 ~ 120)	0,10 (0,05 ~ 0,15)	0,5	XP2040
H	Hardened Steel (SKD11)	50~60HRC	60 (40 ~ 90)	0,08 (0,05 ~ 0,15)	0,5	XP2040

PAO BORE

45° Face milling

	Work Material	Tensile Strength / Hardness	Milling Speed Vc (m/min)	Feed per Tooth fz (mm/t)	Depth of Cut ap (mm)	Grade
P	Mild Steel-Carbon Steel (SS400-S10C)	~180HB	180 (100~ 250)	0,25 (0,20 ~ 0,50)	2	XP3035
P	Carbon Steel-Alloy Steel (S50C-SCM440)	~280HB	180 (100 ~ 250)	0,25 (0,20 ~ 0,50)	2	XP3035
P	Die Steel (SKD11-SKD61)	~280HB	150 (80 ~ 200)	0,25 (0,15 ~ 0,40)	2	XP3035
M	Stainless Steel (Wet) (SUS304-SUS420)	~250HB	120 (80~ 180)	0,20 (0,15 ~ 0,40)	2	XP2040
K	Cast Iron (FC250)	~300N/mm²	200 (100~ 350)	0,30 (0,20 ~ 0,50)	2	XC1015 XP1020
K	Ductile Cast Iron (FCD400)	~600N/mm²	180 (100~270)	0,28 (0,15 ~ 0,40)	2	XC1015 XP1020
S	Heat Resistant Alloys (Inconel 718)	-	35 (25 ~ 60)	0,12 (0,05 ~ 0,2)	1	XC5040
S	Titanium Alloy (Ti-Al-4V)	-	40 (30 ~ 120)	0,15 (0,1 ~ 0,25)	1,5	XC5040
H	Pre-hardened Steel (NAK80)	40~43HRC	100 (60~ 150)	0,15 (0,10 ~ 0,25)	1,5	XP2040
H	Steel for Die Casting (DAC55-DH31)	43~48HRC	80 (40 ~ 120)	0,12 (0,05 ~ 0,20)	0,5	XP2040
H	Hardened Steel (SKD11)	50~55HRC	60 (40 ~ 90)	0,10 (0,05 ~ 0,20)	0,5	XP2040

PFAL BORE

Face milling finishing cutter for aluminium

	Work Material	Component	Material Symbol	Application	Cutting Speed Vc (m/min) BT30	Cutting Speed Vc (m/min) BT40, BT50 HSK63	Feed per Tooth fz (mm/t)	Depth of Cut ap (mm)
N	Aluminium Alloy	~ 12% Si	A7075, A5052, A2017, ADC12	Semi-finishing	1.000 (800 ~ 2.000)	2.000 (1.000 ~ 5.000)	0.08 (0.05 ~ 0.10)	1.5 (1.0 ~ 2.0)
N	Aluminium Alloy	~ 12% Si	A7075, A5052, A2017, ADC12	Finishing	1.000 (800 ~ 2.000)	2.000 (1.000 ~ 5.000)	0.06 (0.05 ~ 0.08)	0.5 (0.3 ~ 1.0)
N	Aluminium Alloy	~ 13% Si	AC9A, AC98	Semi-finishing	600 (400 ~ 800)		0.08 (0.05 ~ 0.10)	1.5 (1.0 ~ 2.0)
N	Aluminium Alloy	~ 13% Si	AC9A, AC98	Finishing	600 (400 ~ 800)		0.06 (0.05 ~ 0.08)	0.5 (0.3 ~ 1.0)

CUTTING CONDITIONS

PFDC

Economical 4-corner insert with 90° cutting angle

Work Material		Component	Material Symbol	Vc (m/min) Cutting Speed	fz(mm/t) Feed per Tooth	ap(mm) Depth of Cut
N	Aluminium Alloys	~12%Si	A7075 • A5052 • A2017 etc ADC12 etc	200 ~ 2.500	0,15 (0,05 ~ 0,25)	3
		13%Si~	AC9A • AC98 etc	100 ~ 300	0,15 (0,05 ~ 0,25)	3
	Thermoplastic Resin (XP4610 recommended)	-	MC Nylon • PVC • POM • PTFE (dry)	2.700 (1.500 ~ 4.000)	0,1 (0,05 ~ 0,15)	2
		-	PP • 6 Nylon (dry)	3.800 (3.500 ~ 4.000)	0,1 (0,05 ~ 0,15)	2
		-	Acrylic • Transparent PVC (dry)	1.700 (1.000 ~ 2.500)	0,03 (0,02 ~ 0,05)	2
		-	Acrylic • Transparent PVC (wet)	2.000 (1.000 ~ 3.500)	0,03 (0,02 ~ 0,05)	2
	Thermosetting Resin (XP4610 recommended)	-	Bakelite(dry)	1.600 (600 ~ 2.200)	0,1 (0,05 ~ 0,15)	2

PSTW BORE

90° shoulder cutter

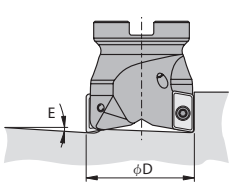
Work Material		Tensile Strength / Hardness	Milling Speed Vc (m/min)	Insert size			
				TN*U09...		TN*U12...	
				Feed per Tooth fz (mm/t)	Depth of Cut ap (mm)	Feed per Tooth fz (mm/t)	Depth of Cut ap (mm)
P	Mild Steel-Carbon Steel (SS400-S10C)	~180HB	180 (100~ 250)	0,12 (0,05~0,2)	2	0,15 (0,05~0,25)	3
	Carbon Steel-Alloy Steel (S50C-SCM440)	~280HB	180 (100 ~ 250)	0,12 (0,05~0,2)	2	0,15 (0,05~0,25)	3
	Die Steel (SKD11-SKD61)	~280HB	150 (80 ~ 200)	0,1 (0,05~0,18)	2	0,12 (0,05~0,2)	3
M	Stainless Steel (Dry) (SUS304-SUS420)	~250HB	150 (80 ~ 200)	0,08 (0,05~0,16)	1,5	0,1 (0,05~0,18)	2
	Stainless Steel (Wet) (SUS304,SUS420)	~250HB	80 (60 ~ 120)	0,08 (0,05~0,16)	1,5	0,1 (0,05~0,18)	2
K	Cast Iron (FC250)	~350N/mm²	200 (100~ 350)	0,15 (0,05~0,25)	2	0,2 (0,1~0,3)	3
	Ductile Cast Iron (FCD400)	~800N/mm²	180 (100~270)	0,12 (0,05~0,2)	2	0,15 (0,05~0,25)	3
N	Aluminium Alloy	~13%Si	300 (200~1.500)	0,12 (0,08~0,25)	2	0,15 (0,1~0,3)	3
S	Superalloy (Wet) (Inconel*718)	-	35 (25 ~ 60)	0,06 (0,04~0,1)	0,8	0,08 (0,05~0,15)	1
	Titanium Alloy (Ti-Al-4V)	-	40 (30 ~ 120)	0,06 (0,04~0,1)	1	0,08 (0,05~0,15)	1,5
H	Pre-hardened Steel (NAK80)	40~43HRC	100 (50~ 150)	0,08 (0,06~0,15)	1	0,1 (0,08~0,2)	1,5
	Steel for Die Casting (DAC55-DH31)	43~48HRC	80 (40 ~ 120)	0,06 (0,05~0,13)	0,8	0,08 (0,06~0,15)	1
	Hardened Steel (SKD11)	50~55HRC	60 (40 ~ 90)	0,05 (0,04~0,08)	0,4	0,06 (0,05~0,1)	0,5

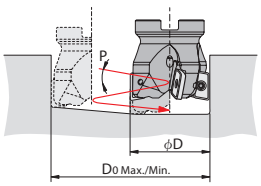
PSE
90° shoulder cutter

Work Material		Tensile Strength / Hardness	Insert Size								Grade
			ZD-T11...				ZDKT15...				
			ap:10mm ae:0,2D		ap:3mm ae:1,0D		ap:14mm ae:0,2D		ap:5mm ae:1,0D		
			Milling Speed Vc (m/min)	Feed per Tooth fz (mm/t)	Milling Speed Vc (m/min)	Feed per Tooth fz (mm/t)	Milling Speed Vc (m/min)	Feed per Tooth fz (mm/t)	Milling Speed Vc (m/min)	Feed per Tooth fz (mm/t)	
P	Mild Steel-Carbon Steel (SS400-S10C)	~180HB	180 (100~ 250)	0,25 (0,2 ~ 0,5)	180 (100~ 250)	0,12 (0,05 ~ 0,2)	180 (100~ 250)	0,3 (0,2 ~ 0,6)	180 (100~ 250)	0,15 (0,05 ~ 0,25)	XP3035
	Carbon Steel-Alloy Steel (S50C-SCM440)	~280HB	180 (100 ~ 250)	0,2 (0,15 ~ 0,4)	180 (100~ 250)	0,11 (0,05 ~ 0,2)	180 (100~ 250)	0,25 (0,15 ~ 0,5)	180 (100~ 250)	0,12 (0,05 ~ 0,2)	XP3035
	Die Steel (SKD11-SKD61)	~280HB	150 (80 ~ 200)	0,2 (0,15 ~ 0,4)	150 (80 ~ 200)	0,1 (0,05 ~ 0,18)	150 (80 ~ 200)	0,25 (0,15 ~ 0,5)	150 (80 ~ 200)	0,12 (0,05 ~ 0,2)	XP3035
M	Stainless Steel (Dry) (SUS304-SUS420)	~250HB	150 (80 ~ 200)	0,18 (0,15 ~ 0,4)	150 (80 ~ 200)	0,1 (0,05 ~ 0,18)	150 (80 ~ 200)	0,2 (0,15 ~ 0,45)	150 (80 ~ 200)	0,12 (0,05 ~ 0,2)	XC5035
	Stainless Steel (Coolant) (SUS304-SUS420)	~250HB	80 (60 ~ 120)	0,18 (0,15 ~ 0,4)	80 (60 ~ 120)	0,1 (0,05 ~0,18)	80 (60 ~ 120)	0,2 (0,15 ~ 0,45)	80 (60 ~ 120)	0,12 (0,05 ~ 0,2)	XP2040
K	Cast Iron (FC250)	~350N/mm²	180 (100 ~ 300)	0,25 (0,15 ~ 0,5)	180 (100 ~ 300)	0,12 (0,05 ~ 0,2)	180 (100 ~ 300)	0,3 (0,2 ~ 0,6)	180 (100 ~ 300)	0,15 (0,05 ~ 0,25)	XC1015
	Ductile Cast Iron (FCD400)	~800N/mm²	180 (100~250)	0,15 (0,1 ~ 0,4)	180 (100~250)	0,12 (0,05 ~ 0,2)	180 (100~250)	0,2 (0,15 ~ 0,5)	180 (100~250)	0,15 (0,05 ~ 0,25)	XC1015
N	Aluminium Alloys	~13%Si	300 (200 ~1.500)	0,3 (0,2 ~ 0,5)	300 (200 ~1.500)	0,15 (0,1 ~ 0,25)	300 (200 ~1.500)	0,35 (0,2 ~ 0,6)	300 (200 ~1.500)	0,18 (0,1 ~ 0,3)	CK010
S	Heat Resistant Alloys (Wet) (Inconel 718)	–	35 (25 ~ 60)	0,15 (0,1 ~ 0,3)	35 (25 ~ 60)	0,1 (0,05 ~ 0,15)	35 (25 ~ 60)	0,2 (0,1 ~ 0,3)	35 (25 ~ 60)	0,12 (0,05 ~ 0,15)	XC5040
	Titanium Alloy (Wet) (Ti-6Al-4V)	–	40 (30 ~ 120)	0,18 (0,1 ~ 0,35)	40 (30 ~ 120)	0,1 (0,08 ~ 0,25)	40 (30 ~ 120)	0,22 (0,1 ~ 0,35)	40 (30 ~ 120)	0,12 (0,08 ~0,25)	XC5040
H	Pre-hardened Steel (NAK80)	40~43HRC	100 (40 ~ 150)	0,18 (0,1 ~ 0,3)	90 (40 ~ 150)	0,1 (0,08~0,2)	100 (40 ~ 150)	0,22 (0,1~0,35)	90 (40 ~ 150)	0,12 (0,08~0,25)	XP6015
	Steel for Die Casting (DAC55-DH31)	43~48HRC	80 (40 ~ 120)	0,12 (0,08~0,2)	70 (40 ~ 120)	0,08 (0,06~0,15)	80 (40 ~ 120)	0,15 (0,08~0,25)	70 (40 ~ 120)	0,1 (0,06~0,2)	XP6015
	Hardened Steel (SKD11)	50~55HRC	60 (40 ~90)	0,1 (0,05~0,2)	50 (40 ~90)	0,06 (0,05~0,1)	60 (40 ~90)	0,12 (0,05~0,2)	50 (40 ~90)	0,08 (0,05~0,12)	XP6015

Maximum ramping (E) & Helical angle (P)

Insert Size	ZD-T11...				ZDKT15...			
D	Ramping Angle E°	Helical Milling (mm)		Helical Angle P°	Ramping Angle E°	Helical Milling (mm)		Helical Angle P°
		D Min.	D Max.			D Min.	D Max.	
16	10,8	18	29	9,8	-	-	-	-
17	9,8	22	31	7,0	-	-	-	-
18	9,8	22	33	7,0	-	-	-	-
20	9,8	30	37	7,0	-	-	-	-
21	8,5	32	39	4,5	-	-	-	-
22	7,5	34	41	4,5	-	-	-	-
25	7,5	40	47	4,5	9,5	37	48	7,5
26	6,8	42	49	4,2	8,3	38	50	6,0
28	6,3	46	53	3,9	8,3	39	54	5,6
30	5,5	50	57	3,4	7,4	43	58	5,3
32	4,8	53	61	3,2	6,8	47	62	5,0
33	4,5	56	63	3,0	6,3	49	64	4,2
35	3,2	60	67	2,5	5,9	53	68	3,8
40	2,9	72	77	2,2	5,1	63	78	3,2
50	2,2	93	98	1,7	2,5	86	98	2,5
63	1,8	118	123	1,5	2,5	111	124	1,5
80	1,4	152	157	1,0	2,0	147	158	1,3
100	-	-	-	-	1,5	190	198	1,1
125	-	-	-	-	0,9	240	248	0,9





CUTTING CONDITIONS

Milling | Indexables | Cutting conditions

PSEL

90° shoulder cutter

Work Material		Tensile Strength / Hardness	Insert Size				Grade
			ZD-T11...		ZDKT15...		
			Milling Speed Vc (m/min)	Feed per Tooth fz (mm/t)	Milling Speed Vc (m/min)	Feed per Tooth fz (mm/t)	
P	Mild Steel-Carbon Steel (SS400-S10C)	~180HB	160 (100~ 200)	0,25 (0,2 ~ 0,4)	160 (100~ 200)	0,3 (0,2 ~ 0,4)	XP3035
P	Carbon Steel-Alloy Steel (S50C-SCM440)	~280HB	150 (100 ~ 200)	0,2 (0,15 ~ 0,3)	150 (100~ 200)	0,25 (0,15 ~ 0,3)	XP3035
P	Die Steel (SKD11-SKD61)	~280HB	130 (80 ~ 180)	0,2 (0,15 ~ 0,3)	130 (80 ~ 180)	0,25 (0,15 ~ 0,3)	XP3035
M	Stainless Steel (Dry) (SUS304-SUS420)	~250HB	150 (100 ~ 200)	0,12 (0,1 ~ 0,3)	150 (100 ~ 200)	0,15 (0,1 ~ 0,3)	XC5035
M	Stainless Steel (Coolant) (SUS304-SUS420)	~250HB	80 (60 ~ 120)	0,12 (0,1 ~ 0,3)	80 (60 ~ 120)	0,15 (0,1 ~ 0,3)	XP2040
K	Cast Iron (FC250)	~350N/mm²	160 (100 ~ 300)	0,2 (0,2 ~ 0,35)	160 (100 ~ 300)	0,25 (0,2 ~ 0,35)	XC1015
K	Ductile Cast Iron (FCD400)	~800N/mm²	160 (100 ~ 250)	0,15 (0,2 ~ 0,3)	160 (100 ~ 250)	0,2 (0,2 ~ 0,3)	XC1015
N	Aluminium Alloys	~13%Si	300 (200 ~ 1.000)	0,25 (0,1 ~ 0,4)	300 (200 ~ 1.000)	0,3 (0,1 ~ 0,4)	CK010
S	Heat Resistant Alloys (Wet) (Inconel 718)	–	35 (25 ~ 60)	0,15 (0,1 ~ 0,3)	35 (25 ~ 60)	0,18 (0,1 ~ 0,3)	XC5040
S	Titanium Alloy (Wet) (Ti-6Al-4V)	–	40 (30 ~ 120)	0,15 (0,1 ~ 0,3)	40 (30 ~ 120)	0,18 (0,1 ~ 0,3)	XC5040
H	Pre-hardened Steel (NAK80)	40~43HRC	100 (40 ~ 150)	0,15 (0,1 ~ 0,3)	100 (40 ~ 150)	0,18 (0,1 ~ 0,3)	XP6015
H	Steel for Die Casting (DAC55-DH31)	43~48HRC	60 (40 ~ 120)	0,12 (0,05 ~ 0,2)	60 (40 ~ 120)	0,15 (0,05 ~ 0,2)	XP6015

PSF

4 corner shoulder cutter

Work Material		Tensile Strength / Hardness	Milling Speed Vc (m/min)	Feed per Tooth fz (mm/t)	Depth of Cut ap (mm)	Grade
P	Mild Steel-Carbon Steel (SS400-S10C)	~180HB	180 (100~ 250)	0,12 (0,05 ~ 0,2)	3	XP3035 XP2040
P	Carbon Steel-Alloy Steel (S50C-SCM440)	~280HB	180 (100 ~ 250)	0,12 (0,05 ~ 0,2)	3	XP3035 XP2040
P	Die Steel (SKD11-SKD61)	~280HB	150 (80 ~ 200)	0,1 (0,05 ~ 0,18)	3	XP3035 XP2040
M	Stainless Steel (coolant) (SUS304-SUS420)	~250HB	80 (60~ 120)	0,1 (0,05 ~ 0,18)	2	XP2040
M	Stainless Steel (Dry) (SUS304-SUS420)	~250HB	150 (80~ 200)	0,1 (0,05 ~ 0,18)	2	XC5035
K	Cast Iron (FC250)	~350N/mm²	180 (100~ 350)	0,12 (0,05 ~ 0,2)	3	XC1015
K	Ductile Cast Iron (FCD400)	~800N/mm²	180 (100~270)	0,12 (0,05 ~ 0,2)	3	XC1015
N	Alluminium Alloy	~13%Si	300 (200~ 1.500)	0,15 (0,1 ~ 0,25)	3	CK010
S	Heat Resistant Alloy (Wet) (Inconel 718)	-	35 (25~60)	0,1 (0,05 ~ 0,15)	1,5	XC5040
S	Titanium Alloy (Wet) (Ti-6Al-4V)	-	40 (30~120)	0,1 (0,05 ~ 0,18)	1,5	XC5040
H	Pre-hardened Steel (NAK80)	40~43HRC	90 (40~ 150)	0,1 (0,08 ~ 0,2)	1,5	XP2040
H	Steel for Die Casting (DAC55-DH31)	43~48HRC	70 (40 ~ 120)	0,08 (0,06 ~ 0,15)	0,5	XP2040
H	Hardened Steel (SKD11)	50~55HRC	50 (40 ~ 90)	0,06 (0,05 ~ 0,1)	0,5	XP2040

PSFL

90° shoulder cutter

Work Material		Tensile Strength / Hardness	Insert Size			
			SD-T09...		SD-T12...	
			Milling Speed Vc (m/min)	Feed per Tooth fz (mm/t)	Milling Speed Vc (m/min)	Feed per Tooth fz (mm/t)
P	Mild Steel-Carbon Steel (SS400-S10C)	~180HB	160 (100~ 200)	0,25 (0,2 ~ 0,4)	160 (100~ 200)	0,3 (0,2 ~ 0,4)
	Carbon Steel-Alloy Steel (S50C-SCM440)	~280HB	150 (100 ~ 200)	0,2 (0,15 ~ 0,3)	150 (100~ 200)	0,25 (0,15 ~ 0,3)
	Die Steel (SKD11-SKD61)	~280HB	130 (80 ~ 180)	0,2 (0,15 ~ 0,3)	130 (80 ~ 180)	0,25 (0,15 ~ 0,3)
M	Stainless Steel (Dry) (SUS304-SUS420)	~250HB	150 (100 ~ 200)	0,12 (0,1 ~ 0,3)	150 (100 ~ 200)	0,15 (0,1 ~ 0,3)
	Stainless Steel (Coolant) (SUS304-SUS420)	~250HB	80 (60 ~ 120)	0,12 (0,1 ~ 0,3)	80 (60 ~ 120)	0,15 (0,1 ~ 0,3)
K	Cast Iron (FC250)	~350N/mm²	160 (100 ~ 300)	0,2 (0,2 ~ 0,35)	160 (100 ~ 300)	0,25 (0,2 ~ 0,4)
	Ductile Cast Iron (FCD400)	~800N/mm²	160 (100 ~ 250)	0,2 (0,15 ~ 0,3)	160 (100 ~ 250)	0,2 (0,15 ~ 0,35)
N	Aluminium Alloys	~13%Si	300 (200 ~ 1.000)	0,25 (0,1 ~ 0,4)	300 (200 ~ 1.000)	0,3 (0,1 ~ 0,4)
S	Heat Resistant Alloys (Wet) (Inconel 718)	–	35 (25 ~ 60)	0,15 (0,08 ~ 0,3)	35 (25 ~ 60)	0,18 (0,1 ~ 0,3)
	Titanium Alloy (Wet) (Ti-6Al-4V)	–	40 (30 ~ 120)	0,15 (0,08 ~ 0,3)	40 (30 ~ 120)	0,18 (0,1 ~ 0,3)
H	Pre-hardened Steel (NAK80)	40~43HRC	100 (40 ~ 150)	0,15 (0,08 ~ 0,3)	100 (40 ~ 150)	0,18 (0,1 ~ 0,3)
	Steel for Die Casting (DAC55-DH31)	43~48HRC	60 (40 ~ 120)	0,12 (0,05 ~ 0,2)	60 (40 ~ 120)	0,15 (0,05 ~ 0,2)

Ratio cutting depth

Depth of cut ap (mm)	Maximum width of Cut ae (mm)	Ratio to adjust cutting speed vp	Ratio to adjust feed rate fP
~ 0,2D	1D	0,8	0,5
0,2 ~ 0,3D	0,7D	0,8	0,6
0,4 ~ 0,5D	0,5D	0,9	0,7
0,6 ~ 0,7D	0,3D	0,9	0,8
0,8 ~ 1D	0,2D	1	0,9
1,1 ~ 1,5D	0,1D	1	1

CUTTING CONDITIONS

PMD

Side Milling - Slot Milling

For horizontal milling, calculate by per tooth.

Work Material		Tensile Strength / Hardness	Side Milling ap: 10mm ae:0,2D		Slot Milling ap: 3mm ae:1,0D	
			Cutting Speed Vc (m/min)	Feed per tooth fz (mm/t)	Cutting Speed Vc (m/min)	Feed per tooth fz (mm/t)
P	Mild Steel-Carbon Steel (SS400-S10C)	~180HB	180 (100~ 250)	0,25 (0,2~0,5)	180 (100~ 250)	0,12(0,05~0,2)
	Carbon Steel-Alloy Steel (S50C-SCM440)	~280HB	180 (100 ~ 250)	0,2(0,15~0,4)	180 (100 ~ 250)	0,11(0,05~0,2)
	Die Steel (SKD11-SKD61)	~280HB	150 (80 ~ 200)	0,2(0,15~0,4)	150 (80 ~ 200)	0,1(0,05~0,18)
M	Stainless Steel (Dry) (SUS304-SUS420)	~250HB	150 (80 ~ 200)	0,18(0,15~0,4)	150 (80 ~ 200)	0,1(0,05~0,18)
	Stainless Steel (Wet) (SUS304,SUS420)	~250HB	80 (60 ~ 120)	0,18(0,15~0,4)	80 (60 ~ 120)	0,1(0,05~0,18)
K	Cast Iron (FC250)	~350N/mm²	180 (100~ 300)	0,25(0,15~0,5)	180 (100~ 300)	0,12(0,05~0,2)
	Ductile Cast Iron (FCD400)	~800N/mm²	180 (100~ 250)	0,15(0,1~0,4)	180 (100~ 250)	0,12(0,05~0,2)
N	Aluminium Alloy	~13%Si	300 (200~1.500)	0,3(0,2~0,5)	300 (200~1.500)	0,15(0,1~0,25)
S	Superalloy (Wet) (Inconel®718)	-	35 (25 ~ 60)	0,15 (0,1~0,3)	35 (25 ~ 60)	0,1(0,05~0,15)
	Titanium Alloy (Wet) (Ti-6Al-4V)	-	40 (30 ~ 120)	0,18(0,1~0,35)	40 (30 ~ 120)	0,1(0,08~0,25)
H	Pre-hardened Steel (NAK80)	40~43HRC	100 (40~ 150)	0,18(0,1~0,3)	90 (40~ 150)	0,1(0,08~0,2)
	Steel for Die Casting (DAC-MAGIC, DH31)	43~48HRC	80 (40 ~ 120)	0,12(0,08~0,2)	70 (40 ~ 120)	0,08(0,06~0,15)
	Hardened Steel (SKD11)	50~55HRC	60 (40 ~ 90)	0,1(0,05~0,2)	50 (40 ~ 90)	0,06(0,05~0,1)

Drilling

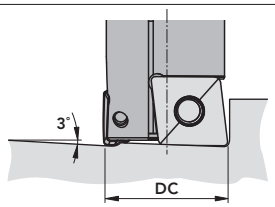
For both counterboring and plunge milling

Work Material		Tensile Strength / Hardness	Cutting Speed Vc (m/min)	Feed Rate f (mm/rev)		
				Ø20	Ø25	Ø32
P	Mild Steel-Carbon Steel (SS400-S10C)	~180HB	160(100~200)	0,07(0,05~0,08)	0,08(0,06~0,1)	0,1(0,08~0,12)
	Carbon Steel-Alloy Steel (S50C-SCM440)	~280HB	150(100~200)	0,07(0,05~0,08)	0,08(0,06~0,1)	0,1(0,08~0,12)
	Die Steel (SKD11-SKD61)	~280HB	120(80~180)	0,07(0,05~0,08)	0,08(0,06~0,1)	0,1(0,08~0,12)
M	Stainless Steel (Dry) (SUS304-SUS420)	~250HB	130(80~180)	0,07(0,05~0,08)	0,08(0,06~0,1)	0,1(0,08~0,12)
K	Cast Iron (FC250)	~350N/mm²	200(150~180)	0,07(0,05~0,08)	0,08(0,06~0,1)	0,1(0,08~0,12)
	Ductile Cast Iron (FCD400)	~800N/mm²	160(100~220)	0,07(0,05~0,08)	0,08(0,06~0,1)	0,1(0,08~0,12)
N	Aluminium Alloy	~13%Si	200(100~800)	0,07(0,05~0,08)	0,08(0,06~0,1)	0,1(0,08~0,12)
S	Superalloy (Wet) (Inconel®718)	-	50(30~60)	0,07(0,05~0,08)	0,08(0,06~0,1)	0,1(0,08~0,12)
	Titanium Alloy (Wet) (Ti-6Al-4V)	-	60(30~100)	0,07(0,05~0,08)	0,08(0,06~0,1)	0,1(0,08~0,12)
H	Pre-hardened Steel (NAK80)	40~43HRC	100(60~120)	0,07(0,05~0,08)	0,08(0,06~0,1)	0,1(0,08~0,12)
	Steel for Die Casting (DAC-MAGIC, DH31)	43~48HRC	80(40~100)	0,07(0,05~0,08)	0,08(0,06~0,1)	0,1(0,08~0,12)
	Hardened Steel (SKD11)	50~55HRC	60(40~80)	0,07(0,05~0,08)	0,08(0,06~0,1)	0,1(0,08~0,12)

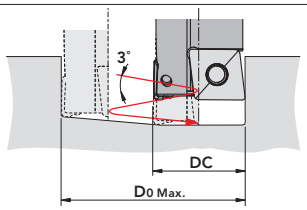
* Above recommended speed is for short shank type.
  For long shank type, use the following cutting condition: cutting speed = 80% of the above settings.
1. The indicated speeds and feeds are for milling with water-soluble coolant.
2. The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting condition.
3. Inserts should be attached to the holder tightly in a very neat condition.
4. Fasten the work material to reduce the possibility of work deformation, deflection of machined surface, or vibration.

Set the maximum processing angle during ramping and helical drilling operations to less than 3°

Ramping



Helical Drilling



Unit: mm

(DC)	(D0 Max.)
20	37
25	47
32	61

CUTTING CONDITIONS

Milling | Indexables | Cutting conditions

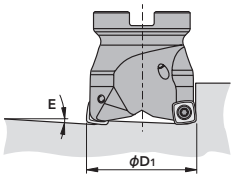
PHC

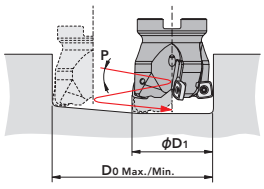
High feed radius cutter

Work Material		Tensile Strength / Hardness	Vc (m/min)	Insert Size												Grade
				SPMT07...				SDMT09...				SXMT12...				
				Feed per Tooth fz (mm/t)	ap (mm)			Feed per Tooth fz (mm/t)	ap (mm)			Feed per Tooth fz (mm/t)	ap (mm)			
					L/D=2	L/D=3	L/D=4		L/D=2	L/D=3	L/D=4		L/D=2	L/D=3	L/D=4	
P	Mild Steel-Carbon Steel (SS400-S10C)	~180HB	180 (60~250)	0,7 (0,3~1,5)	0,8	0,6	0,4	0,8 (0,3~1,8)	1	0,8	0,5	1,25 (0,5~3,2)	1,2	1,2	1	XP3035
	Carbon Steel-Alloy Steel (S50C-SCM440)	~280HB	180 (60~250)	0,7 (0,3~1,3)	0,8	0,6	0,4	0,8 (0,3~1,5)	1	0,8	0,5	1,25 (0,5~3)	1,2	1,2	1	XP3035
	Die Steel (SKD11-SKD61)	~280HB	180 (60~250)	0,7 (0,3~1,3)	0,6	0,5	0,3	0,8 (0,3~1,5)	0,8	0,6	0,4	1,25 (0,5~3)	1,2	1,2	1	XP3035
M	Stainless Steel (Dry) (SUS304-SUS420)	~250HB	160 (80~200)	0,4 (0,3~1,2)	0,6	0,5	0,3	0,5 (0,3~1,5)	0,8	0,6	0,4	1 (0,5~2,5)	1,2	1	1	XC5035
	Stainless Steel (Coolant) (SUS304-SUS420)	~250HB	120 (60 ~ 180)	0,4 (0,3~1,2)	0,6	0,5	0,3	0,5 (0,3~1,5)	0,8	0,6	0,4	1 (0,5~2,5)	1,2	1	1	XP2040
K	Cast Iron (FC250)	~350N/mm²	200 (100~300)	0,8 (0,4~1,5)	0,8	0,6	0,4	1 (0,5~1,8)	1	0,8	0,5	1,5 (0,5~3,5)	1,5	1,5	1	XC1015
	Ductile Cast Iron (FCD400)	~800N/mm²	180 (100~250)	0,7 (0,3~1,3)	0,8	0,6	0,4	0,9 (0,5~1,5)	1	0,8	0,5	1,35 (0,5~3)	1,2	1,2	0,9	XC1015
S	Heat Resistant Alloys (Wet) (Inconel 718)	–	30 (25~60)	0,3 (0,2~0,7)	0,4	0,4	0,3	0,4 (0,2~0,8)	0,5	0,5	0,4	0,5 (0,2~1)	1	1	0,8	XC5040
	Titanium Alloy (Wet) (Ti-6Al-4V)	–	80 (50~120)	0,4 (0,3~0,8)	0,4	0,4	0,3	0,5 (0,3~1)	0,5	0,5	0,3	0,7 (0,3~1,2)	0,8	0,8	0,4	XC5040
H	Pre-hardened Steel (NAK80)	40~43HRC	120 (40~150)	0,4 (0,2~0,8)	0,4	0,4	0,3	0,5 (0,2~1)	0,5	0,5	0,3	0,8 (0,3~1,5)	1	1	0,5	XP2040
	Steel for Die Casting (DAC55-DH31)	43~48HRC	90 (40~120)	0,3 (0,2~0,6)	0,4	0,4	0,3	0,4 (0,2~0,8)	0,5	0,5	0,3	0,7 (0,3~1,2)	0,7	0,7	0,5	XP2040
	Hardened Steel (SKD11)	50~55HRC	60 (40~90)	0,2 (0,2~0,5)	0,3	0,3	0,2	0,3 (0,2~0,7)	0,3	0,3	0,2	0,5 (0,3~0,8)	0,5	0,5	0,4	XP2040

Maximum Ramping Angle (E)

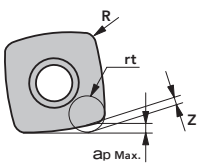
Insert Size	SPMT07...				SDMT09...				SXMT12...			
D	Ramping Angle E°	Helical Milling(mm)		Helical Angle P°	Ramping Angle E°	Helical Milling(mm)		Helical Angle P°	Ramping Angle E°	Helical Milling(mm)		Helical Angle P°
		D Min.	D Max.			D Min.	D Max.			D Min.	D Max.	
16	5,9	22	31	4,5	-	-	-	-	-	-	-	-
17	4,9	24	33	3,6	-	-	-	-	-	-	-	-
18	4,2	26	35	3,1	-	-	-	-	-	-	-	-
20	3,2	30	39	2,3	-	-	-	-	-	-	-	-
21	2,8	32	41	2,0	-	-	-	-	-	-	-	-
22	2,6	34	43	1,8	-	-	-	-	-	-	-	-
25	2,0	40	49	1,3	3,6	35	48	3,1	-	-	-	-
26	1,8	42	51	1,1	3,1	37	50	2,6	-	-	-	-
28	1,6	46	55	1,0	2,6	41	54	2,1	-	-	-	-
30	1,4	50	59	0,8	2,2	45	58	1,9	7,9	40	58	6,5
32	1,3	54	63	0,7	2,0	49	62	1,7	7,2	44	62	6,1
33	1,2	56	65	0,6	1,8	51	64	1,5	6,4	46	64	4,4
35	1,1	60	69	0,5	1,6	55	68	1,4	4,4	50	68	3,7
40	-	-	-	-	1,2	65	78	1,0	2,9	60	78	2,5
50	-	-	-	-	0,9	85	98	0,8	1,5	80	98	1,3
63	-	-	-	-	0,8	111	124	0,7	1,1	106	124	0,9
80	-	-	-	-	-	-	-	-	1,3	140	158	1,1
100	-	-	-	-	-	-	-	-	0,7	180	198	0,6





Flute shape dimensions (for programming)

Insert size	R	ap max	R rt	Z
SPMT07···	0,5	0,8	1,2	0,35
SDMT09···	0,8	1	2	0,7
SXMT12···	1	2	3	1,15



For machining purposes: create machining programs for the recommended simulated R. Unit: mm

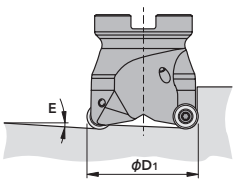
PRC

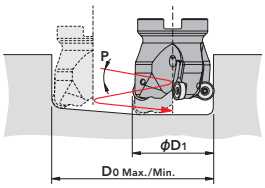
Radius cutter

Work Material		Tensile Strength / Hardness	Milling Speed Vc (m/min)	Insert size						Grade
				RPH.10...		RPH.12...		RPH.16...		
				Feed per Tooth fz (mm/t)	Depth of Cut ap (mm)	Feed per Tooth fz (mm/t)	Depth of Cut ap (mm)	Feed per Tooth fz (mm/t)	Depth of Cut ap (mm)	
P	Mild Steel-Carbon Steel (SS400-S10C)	~180HB	200 (100 ~ 300)	0,25 (0,1 ~ 0,35)	2	0,3 (0,1 ~ 0,4)	2,4	0,35 (0,1 ~ 0,5)	3,2	XP3035
	Carbon Steel-Alloy Steel (S50C-SCM440)	~280HB	180 (100 ~ 250)	0,2 (0,1 ~ 0,3)	2	0,25 (0,1 ~ 0,35)	2,4	0,3 (0,1 ~0,45)	3,2	XP3035
	Die Steel (SKD11-SKD61)	~280HB	150 (80 ~ 200)	0,2 (0,1 ~ 0,3)	2	0,25 (0,1 ~ 0,35)	2,4	0,3 (0,1 ~0,45)	3,2	XP3035
M	Stainless Steel (DRY) (SUS304-SUS420)	~250HB	160 (80 ~ 200)	0,25 (0,1 ~ 0,35)	2	0,3 (0,1 ~ 0,4)	2,4	0,35 (0,1 ~ 0,5)	3,2	XC5035
	Stainless Steel (WET) (SUS304-SUS420)	~250HB	120 (60 ~ 180)	0,25 (0,1 ~ 0,35)	2	0,3 (0,1 ~ 0,4)	2,4	0,35 (0,1 ~ 0,5)	3,2	XP2040
K	Cast Iron (FC250)	~350N/mm²	220 (100 ~ 350)	0,25 (0,05 ~ 0,4)	2	0,3 (0,1 ~ 0,5)	2,4	0,35 (0,1 ~ 0,6)	3,2	XC1015
	Ductile Cast Iron (FCD400)	~800N/mm²	150 (100 ~ 220)	0,2 (0,1 ~ 0,3)	2	0,25 (0,1 ~ 0,35)	2,4	0,3 (0,1 ~0,45)	3,2	XC1015
N	Aluminium Alloys	~13%Si	600 (300 ~ 1.500)	0,4 (0,2 ~ 0,8)	2	0,6 (0,2 ~ 1)	2,4	0,8 (0,3 ~ 1,5)	3,2	CK010
S	Heat Resistant Alloys (Inconel 718)	–	40 (25 ~ 60)	0,15 (0,05 ~0,25)	2	0,2 (0,05 ~ 0,3)	2,4	0,25 (0,05 ~0,4)	3,2	XC5040
	Titanium Alloy (Ti-6Al-4V)	–	80 (50 ~ 120)	0,2 (0,1 ~ 0,3)	2	0,25 (0,1 ~ 0,35)	2,4	0,3 (0,1 ~0,45)	3,2	XC5040
H	Pre-hardened Steel (NAK80)	40~43HRC	120 (40 ~ 150)	0,15 (0,05 ~ 0,25)	1,5	0,2 (0,05 ~ 0,3)	1,5	0,25 (0,05 ~0,4)	1,5	XP6015
	Steel for Die Casting (DAC55-DH31)	43~48HRC	80 (40 ~ 120)	0,15 (0,05 ~ 0,25)	1	0,2 (0,05 ~ 0,3)	1	0,25 (0,05 ~ 0,4)	1	XP6015
	Hardened Steel (SKD11)	50~55HRC	60 (30~ 90)	0,15 (0,05 ~ 0,25)	0,5	0,2 (0,05 ~0,3)	0,5	0,25 (0,05 ~ 0,4)	0,5	XP6015

Maximum Ramping Angle (E)

Insert Size	RPH*10...				RPH*12...				RPH*16...			
D	Ramping Angle E°	Helical Milling(mm)		Helical Angle P°	Ramping Angle E°	Helical Milling(mm)		Helical Angle P°	Ramping Angle E°	Helical Milling(mm)		Helical Angle P°
		D Min.	D Max.			D Min.	D Max.			D Min.	D Max.	
20	1,3	26	30	1,3	-	-	-	-	-	-	-	-
24	-	-	-	-	6,0	30	36	2,2	-	-	-	-
25	2,0	37	40	1,8	-	-	-	-	-	-	-	-
30	2,5	46	50	1,6	5,3	42	48	1,9	-	-	-	-
32	3,0	50	54	1,5	4,0	46	52	1,7	7,0	39	48	2,1
40	-	-	-	-	2,8	62	68	1,4	4,8	55	64	1,8
50	-	-	-	-	2,6	81	88	1,1	4,0	75	84	1,5
63	-	-	-	-	1,9	107	114	0,9	2,8	101	110	1,1
80	-	-	-	-	1,3	142	148	0,7	2,0	135	144	0,9
100	-	-	-	-	1,0	181	188	0,5	1,5	175	184	0,7





CUTTING CONDITIONS

Milling | Indexables | Cutting conditions

PDR

High feed radius cutter

Work Material		Tensile strength / Hardness	Milling Speed Vc (m/min)	PDR SS/MT/CN			PDR BORE				
				Feed per Tooth fz (mm)	Depth of Cut ap (mm)		Feed per Tooth fz (mm)	Depth of Cut ap (mm)			
					120	170		100	200	300	400
P	Mild Steel-Carbon Steel (SS400-S10C)	~180HB	180 (90~220)	0,7(0,3~1)	3	2	0,6(0,3~1)	3	3	2	2
P	Carbon Steel-Alloy Steel (S50C-SCM440)	~280HB	180 (90~220)	0,7(0,3~1)	3	2	0,6(0,3~1)	3	3	2	2
P	Die Steel (SKD11-SKD61)	~280HB	150 (90~180)	0,6(0,3~1)	3	2	0,5(0,3~1)	3	2	2	2
K	Cast Iron (FC250)	~350N/mm²	180 (100~250)	0,8(0,3~1,5)	3	2	0,7(0,3~1,5)	3	3	2	2
K	Ductile Cast Iron (FCD400)	~800N/mm²	150 (100~250)	0,7(0,3~1,2)	3	2	0,6(0,3~1,2)	3	3	2	2

PFB-SP, PFB-SH, PFB-Q

Finishing ball nose cutter

Work Material		Tensile Strength / Hardness	Milling Speed Vc (m/min)	Depth of Cut ap (mm)	Feed per Tooth fz (mm/t)			
					D			
					Ø 6,8	Ø 10,12	Ø 16,20	Ø 25-30-32
P	Mild Steel-Carbon Steel (SS400-S10C)	~180HB	300 (200~ 400)	0,02 D	0,1	0,12	0,14	0,18
P	Carbon Steel-Alloy Steel (S50C-SCM440)	~280HB	300 (200~ 400)	0,02 D	0,07	0,1	0,12	0,14
P	Die Steel (SKD11-SKD61)	~280HB	250 (150 ~ 350)	0,02 D	0,07	0,1	0,12	0,14
M	Stainless Steel (Dry) (SUS304-SUS420)	~250HB	250 (150 ~ 350)	0,02 D	0,07	0,12	0,14	0,17
K	Cast Iron (FC250)	~300N/mm²	400 (300~ 500)	0,02 D	0,12	0,14	0,18	0,22
K	Ductile Cast Iron (FCD400)	~600N/mm²	300 (200~ 400)	0,02 D	0,1	0,12	0,14	0,18
N	Aluminium Alloy	~13% Si	500 (400~ 600)	0,03 D	0,12	0,14	0,18	0,22
N	Copper Alloy (C1100)	-	300 (200 ~ 400)	0,03 D	0,11	0,13	0,17	0,22
S	Heat Resistant Alloys (Wet) (Inconel 718)	-	50 (25~ 80)	0,015 D	0,04	0,05	0,06	0,06
S	Titanium Alloy (Wet) (Ti-Al-4V)	-	90 (40~120)	0,02 D	0,06	0,08	0,11	0,13
H	Pre-hardened Steel (NAK80, STAVAX)	40~43HRC	200 (100~ 300)	0,015 D	0,06	0,07	0,0,8	0,1
H	Steel for Die Casting (DAC55-DH31)	43~48HRC	180 (90 ~ 200)	0,015 D	0,05	0,06	0,07	0,07
H	Hardened Steel (SKD11)	50~60HRC	150 (100 ~ 250)	0,01 D	0,05	0,06	0,07	0,07

PFB-D

Finishing ball nose cutter

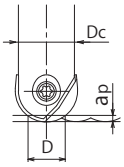
Work Material		Tensile Strength / Hardness	Milling Speed Vc (m/min)	Depth of Cut ap (mm)	Feed per Tooth fz (mm/t)			
					D			
					Ø 6,8	Ø 10,12	Ø 16,20	Ø 25-30-32
N	Graphite	-	500 (400~ 600)	0,03 D	0,14	0,17	0,21	0,25
N	CFRP Carbon Fiber Reinforced Plastic	-	300 (300 ~ 500)	0,03 D	0,11	0,13	0,17	0,20

PFB

Chart of cutting depth and actual cutting diameter

Depth of cut		Actual cutting diameter														
D	R	0,1	0,2	0,3	0,4	0,5	0,8	1	1,5	2	2,5	3	3,5	4	4,5	5
6	3	1,5	2,2	2,6	3	3,3	4,1	-	-	-	-	-	-	-	-	-
7	3,5	1,6	2,3	2,8	3,3	3,6	4,5	-	-	-	-	-	-	-	-	-
8	4	1,8	2,5	3	3,5	3,9	4,8	-	-	-	-	-	-	-	-	-
10	5	2	2,8	3,4	3,9	4,4	5,4	6	7,1	-	-	-	-	-	-	-
12	6	2,2	3,1	3,7	4,3	4,8	6	6,6	7,9	8,9	-	-	-	-	-	-
16	8	2,5	3,6	4,3	5	5,6	7	7,7	9,3	10,6	11,6	-	-	-	-	-
20	10	2,8	4	4,9	5,6	6,2	7,8	8,7	10,5	12	13,2	14,3	15,2	-	-	
25	12,5	3,2	4,5	5,4	6,3	7	8,8	9,8	11,9	13,6	15	16,2	17,3	18,3	-	-
30	15	3,5	4,9	6	6,9	7,7	9,7	10,8	13,1	15	16,6	18	19,3	20,4	21,4	22,4
32	16	3,6	5	6,2	7,1	7,9	10	11,1	13,5	15,5	17,2	18,7	20	21,2	22,2	23,2

How to determine actual cutting diameter D



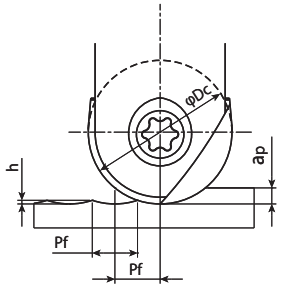
$$D=2\sqrt{apx(Dc-ap)}$$

Recommended pick feed and milling surface roughness

Unit: mm

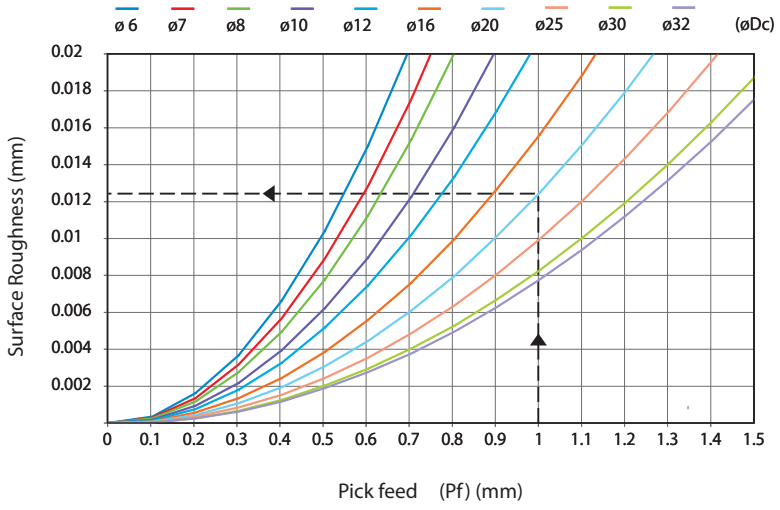
D	6	7	8	10	12	16	20	25	30	32
Pf	0,4	0,45	0,5	0,6	0,7	0,8	1	1,2	1,3	1,4
h	0,007	0,007	0,008	0,009	0,01	0,01	0,012	0,014	0,014	0,015

Theoretical milling surface roughness



$h = 0.5\times (Dc-\sqrt{Dc^2-Pf^2})$

Dc=20mm
Pf=1mm
→h=0.0125mm



CUTTING CONDITIONS

PFR-ST, PFR-SH

Standard conditions

Work Material		Tensile Strength / Hardness	Cutting Speed Vc (m/min)			Depth of Cut ap (mm)	Feed per Tooth fz (mm/t)			
			L/D				D			
			2,5D	5D	8D		Ø 6,7	Ø 8~11	Ø 12~17	Ø 20~32
P	Mild Steel·Carbon Steel SS400 - S10C	~180HB	200 (150~250)	80%	60%	0,05Dc	0,12	0,2	0,22	0,25
P	Carbon Steel·Alloy Steel S50C - SCM440	~280HB	180 (150~250)	80%	60%	0,05Dc	0,15	0,18	0,22	0,25
P	Die Steel SKD11 - SKD61	~280HB	150 (120~200)	80%	60%	0,05Dc	0,1	0,15	0,18	0,2
M	Stainless Steel (SUS304 - SUS420)	~250HB	150 (100~200)	80%	60%	0,03Dc	0,08	0,12	0,15	0,18
K	Cast Iron FC250	~300N/mm²	200 (150~250)	80%	60%	0,05Dc	0,15	0,2	0,25	0,3
K	Ductile Cast Iron FCD400	~600N/mm²	150 (100~200)	80%	60%	0,05Dc	0,12	0,15	0,2	0,25
N	Aluminium Alloy	~13%Si	300 (200~400)	80%	60%	0,05Dc	0,2	0,25	0,3	0,35
S	Superalloy (Wet) (Inconel 718)	-	30 (20~40)	80%	60%	0,02Dc	0,04	0,05	0,08	0,12
S	Titanium Alloy (Wet) (Ti-Al-4V)	-	50 (40~60)	80%	60%	0,02Dc	0,05	0,08	0,1	0,15
H	Pre-hardened Steel (NAK80, STAVAX)	40 ~ 43HRC	120 (100~150)	80%	60%	0,03Dc	0,08	0,1	0,12	0,18
H	Die Cast Steel (DAC55, DH31)	43 ~ 48HRC	80 (50~100)	80%	60%	0,025Dc	0,05	0,08	0,1	0,15
H	Hardened Steel (SKD11)	50 ~ 60HRC	60 (40~80)	80%	60%	0,02Dc	0,04	0,05	0,08	0,1

PFR-D

Standard conditions

Work Material		Cutting Speed Vc (m/min)			Depth of Cut ap (mm)	Feed per Tooth fz (mm/t)			
		L/D				D			
		2,5D	5D	8D		Ø 6,7	Ø 8~11	Ø 12~17	Ø 20~32
N	Graphite	250 (150~350)	80%	60%	0,1Dc	0,25	0,4	0,5	0,5
N	CFRP Carbon Fiber Reinforced Plastic	200 (150~250)	80%	60%	0,5Dc	0,05	0,1	0,15	0,2

PFR - High speed finishing conditions

Steel shank

Work Material		Tensile Strength / Hardness	Milling Speed Vc (m/min)	Depth of Cut ap (mm)	Feed per Tooth fz (mm/t)			
					D			
					Ø 6~8	Ø 10~13	Ø 16~21	Ø 25~32
P	Mild Steel·Carbon Steel SS400 - S10C	~180HB	450	0,02Dc	0,1	0,12	0,14	0,18
	Carbon Steel·Alloy Steel S50C - SCM440	~280HB	450	0,02Dc	0,07	0,1	0,12	0,14
	Die Steel SKD11 - SKD61	~280HB	375	0,02Dc	0,07	0,1	0,12	0,14
M	Stainless Steel (SUS304 - SUS420)	~250HB	375	0,02Dc	0,07	0,12	0,14	0,17
K	Cast Iron FC250	~300N/mm²	600	0,02Dc	0,12	0,14	0,18	0,22
	Ductile Cast Iron FCD400	~600N/mm²	450	0,02Dc	0,1	0,12	0,14	0,18
N	Aluminium Alloy	~13%Si	750	0,03Dc	0,12	0,14	0,18	0,22
S	Superalloy (Wet) (Inconel 718)	-	70	0,015Dc	0,04	0,05	0,06	0,06
	Titanium Alloy (Wet) (Ti-Al-4V)	-	120	0,02Dc	0,06	0,08	0,11	0,13
H	Pre-hardened Steel (NAK80, STAVAX)	40 ~ 43HRC	300	0,015Dc	0,06	0,07	0,08	0,1
	Die Cast Steel (DAC55, DH31)	43 ~ 48HRC	270	0,015Dc	0,05	0,06	0,07	0,07
	Hardened Steel (SKD11)	50 ~ 60HRC	220	0,01Dc	0,05	0,06	0,07	0,07

PFR - High speed finishing conditions

Carbide shank short type

Work Material		Tensile Strength / Hardness	Milling Speed Vc (m/min)	Depth of Cut ap (mm)	Feed per Tooth fz (mm/t)			
					D			
					Ø 6~8	Ø 10~13	Ø 16~21	Ø 25~32
P	Mild Steel·Carbon Steel SS400 - S10C	~180HB	540	0,02Dc	0,1	0,12	0,14	0,18
	Carbon Steel·Alloy Steel S50C - SCM440	~280HB	540	0,02Dc	0,07	0,1	0,12	0,14
	Die Steel SKD11 - SKD61	~280HB	450	0,02Dc	0,07	0,1	0,12	0,14
M	Stainless Steel (SUS304 - SUS420)	~250HB	450	0,02Dc	0,07	0,12	0,14	0,17
K	Cast Iron FC250	~300N/mm²	720	0,02Dc	0,12	0,14	0,18	0,22
	Ductile Cast Iron FCD400	~600N/mm²	540	0,02Dc	0,1	0,12	0,14	0,18
N	Aluminium Alloy	~13%Si	600	0,03Dc	0,12	0,14	0,18	0,22
S	Superalloy (Wet) (Inconel 718)	-	80	0,015Dc	0,04	0,05	0,06	0,06
	Titanium Alloy (Wet) (Ti-Al-4V)	-	150	0,02Dc	0,06	0,08	0,11	0,13
H	Pre-hardened Steel (NAK80, STAVAX)	40 ~ 43HRC	340	0,015Dc	0,06	0,07	0,08	0,1
	Die Cast Steel (DAC55, DH31)	43 ~ 48HRC	290	0,015Dc	0,05	0,06	0,07	0,07
	Hardened Steel (SKD11)	50 ~ 60HRC	260	0,01Dc	0,05	0,06	0,07	0,07

PFR - High speed finishing conditions

Carbide shank long type

Work Material		Tensile Strength / Hardness	Milling Speed Vc (m/min)	Depth of Cut ap (mm)	Feed per Tooth fz (mm/t)			
					D			
					Ø 6~8	Ø 10~13	Ø 16~21	Ø 25~32
P	Mild Steel·Carbon Steel SS400 - S10C	~180HB	480	0,02Dc	0,1	0,12	0,14	0,18
	Carbon Steel·Alloy Steel S50C - SCM440	~280HB	480	0,02Dc	0,07	0,1	0,12	0,14
	Die Steel SKD11 - SKD61	~280HB	400	0,02Dc	0,07	0,1	0,12	0,14
M	Stainless Steel (SUS304 - SUS420)	~250HB	400	0,02Dc	0,07	0,12	0,14	0,17
K	Cast Iron FC250	~300N/mm²	640	0,02Dc	0,12	0,14	0,18	0,22
	Ductile Cast Iron FCD400	~600N/mm²	480	0,02Dc	0,1	0,12	0,14	0,18
N	Aluminium Alloy	~13%Si	800	0,03Dc	0,12	0,14	0,18	0,22
S	Superalloy (Wet) (Inconel 718)	-	80	0,015Dc	0,04	0,05	0,06	0,06
	Titanium Alloy (Wet) (Ti-Al-4V)	-	144	0,02Dc	0,06	0,08	0,11	0,13
H	Pre-hardened Steel (NAK80, STAVAX)	40 ~ 43HRC	320	0,015Dc	0,06	0,07	0,08	0,1
	Die Cast Steel (DAC55, DH31)	43 ~ 48HRC	288	0,015Dc	0,05	0,06	0,07	0,07
	Hardened Steel (SKD11)	50 ~ 60HRC	240	0,01Dc	0,05	0,06	0,07	0,07

PFR - High speed finishing conditions

Carbide shank extra long type

Work Material		Tensile Strength / Hardness	Milling Speed Vc (m/min)	Depth of Cut ap (mm)	Feed per Tooth fz (mm/t)			
					D			
					Ø 6~8	Ø 10~13	Ø 16~21	Ø 25~32
P	Mild Steel·Carbon Steel SS400 - S10C	~180HB	360	0,02Dc	0,1	0,12	0,14	0,18
	Carbon Steel·Alloy Steel S50C - SCM440	~280HB	360	0,02Dc	0,07	0,1	0,12	0,14
	Die Steel SKD11 - SKD61	~280HB	300	0,02Dc	0,07	0,1	0,12	0,14
M	Stainless Steel (SUS304 - SUS420)	~250HB	300	0,02Dc	0,07	0,12	0,14	0,17
K	Cast Iron FC250	~300N/mm²	480	0,02Dc	0,12	0,14	0,18	0,22
	Ductile Cast Iron FCD400	~600N/mm²	360	0,02Dc	0,1	0,12	0,14	0,18
N	Aluminium Alloy	~13%Si	600	0,03Dc	0,12	0,14	0,18	0,22
S	Superalloy (Wet) (Inconel 718)	-	60	0,015Dc	0,04	0,05	0,06	0,06
	Titanium Alloy (Wet) (Ti-Al-4V)	-	110	0,02Dc	0,06	0,08	0,11	0,13
H	Pre-hardened Steel (NAK80, STAVAX)	40 ~ 43HRC	240	0,015Dc	0,06	0,07	0,08	0,1
	Die Cast Steel (DAC55, DH31)	43 ~ 48HRC	220	0,015Dc	0,05	0,06	0,07	0,07
	Hardened Steel (SKD11)	50 ~ 60HRC	180	0,01Dc	0,05	0,06	0,07	0,07

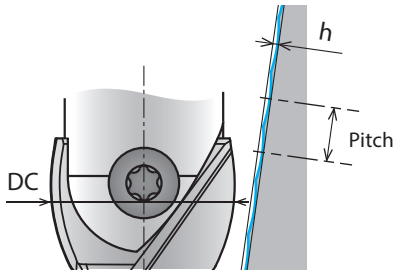
PFB-BR
Barrel Type Tool

Work Material		Tensile Strength / Hardness	Milling Speed Vc (m/min)	Depth of Cut ap (mm)	fz (mm/t)		
					DC		
					Ø 10,12	Ø 16,20	Ø 25-32
P	Mild Steel-Carbon Steel (SS400-S10C)	~180HB	300 (200~ 400)	0,2 D	0,12	0,14	0,18
P	Carbon Steel-Alloy Steel (S50C-SCM440)	~280HB	300 (200~ 400)	0,2 D	0,1	0,12	0,14
P	Die Steel (SKD11-SKD61)	~280HB	250 (150 ~ 350)	0,2 D	0,1	0,12	0,14
M	Stainless Steel (Dry) (SUS304-SUS420)	~250HB	250 (150 ~ 350)	0,2 D	0,12	0,14	0,17
K	Cast Iron (FC250)	~300N/mm²	400 (300~ 500)	0,2 D	0,14	0,18	0,22
K	Ductile Cast Iron (FCD400)	~600N/mm²	300 (200~ 400)	0,2 D	0,12	0,14	0,18
S	Heat Resistant Alloys (Wet) (Inconel 718)	-	50 (25~ 80)	0,15 D	0,05	0,06	0,06
S	Titanium Alloy (Wet) (Ti-Al-4V)	-	90 (40~120)	0,2 D	0,08	0,11	0,13
H	Pre-hardened Steel (NAK80, STAVAX)	40~43HRC	200 (100~ 300)	0,15 D	0,07	0,0,8	0,1
H	Steel for Die Casting (DAC55-DH31)	43~48HRC	180 (90 ~ 200)	0,15 D	0,06	0,07	0,07
H	Hardened Steel (SKD11)	50~60HRC	150 (100 ~ 250)	0,1 D	0,06	0,07	0,07

The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting conditions.

Theoretical Cusp Height

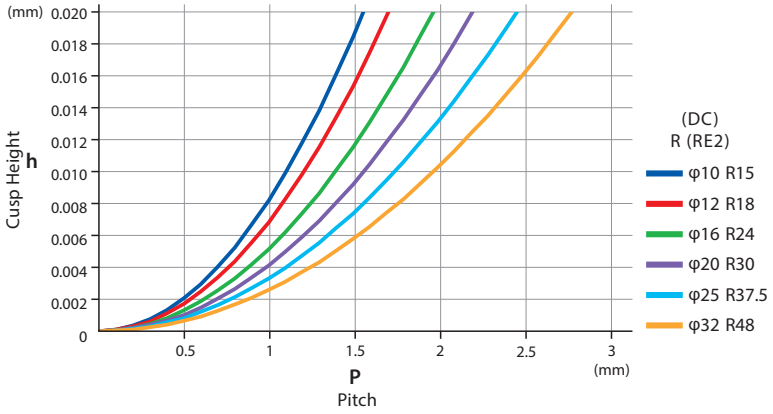
(PFB-BR) Barrel Type Tool



$$h = 0.5 \times \left(2 \times RE2 - \sqrt{(2 \times RE2)^2 - P^2}\right)$$

h: Cusp height
P: Pitch
RE2: peripheral edge R

Cusp Height and Pitch



CUTTING CONDITIONS

PFB-LZ

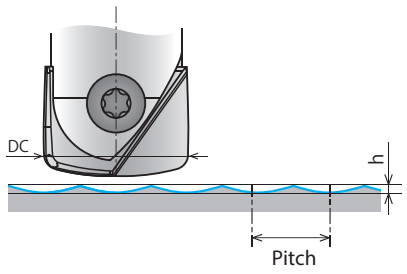
Lens Type Tool

Work Material		Tensile Strength / Hardness	Milling Speed Vc (m/min)	Depth of Cut ap (mm)	fz (mm/t)		
					DC		
					Ø 10,12	Ø 16,20	Ø 25-32
P	Mild Steel-Carbon Steel (SS400-S10C)	~180HB	300 (200~800)	0,2 D	0,12	0,14	0,18
P	Carbon Steel-Alloy Steel (S50C-SCM440)	~280HB	300 (200~800)	0,2 D	0,1	0,12	0,14
P	Die Steel (SKD11-SKD61)	~280HB	250 (150~600)	0,2 D	0,1	0,12	0,14
M	Stainless Steel (Dry) (SUS304-SUS420)	~250HB	250 (150~650)	0,2 D	0,12	0,14	0,17
K	Cast Iron (FC250)	~300N/mm²	400 (300~800)	0,2 D	0,14	0,18	0,22
K	Ductile Cast Iron (FCD400)	~600N/mm²	300 (200~800)	0,2 D	0,12	0,14	0,18
S	Heat Resistant Alloys (Wet) (Inconel 718)	-	50 (25~80)	0,15 D	0,05	0,06	0,06
S	Titanium Alloy (Wet) (Ti-Al-4V)	-	90 (40~120)	0,2 D	0,08	0,11	0,13
H	Pre-hardened Steel (NAK80, STAVAX)	40~43HRC	200 (100~350)	0,15 D	0,07	0,0,8	0,1
H	Steel for Die Casting (DAC55-DH31)	43~48HRC	180 (90~350)	0,15 D	0,06	0,07	0,07
H	Hardened Steel (SKD11)	50~60HRC	150 (100~300)	0,1 D	0,06	0,07	0,07

The above cutting conditions are to be used as general guidelines. Adjustments may be necessary depending on actual cutting conditions.

Theoretical Cusp Height

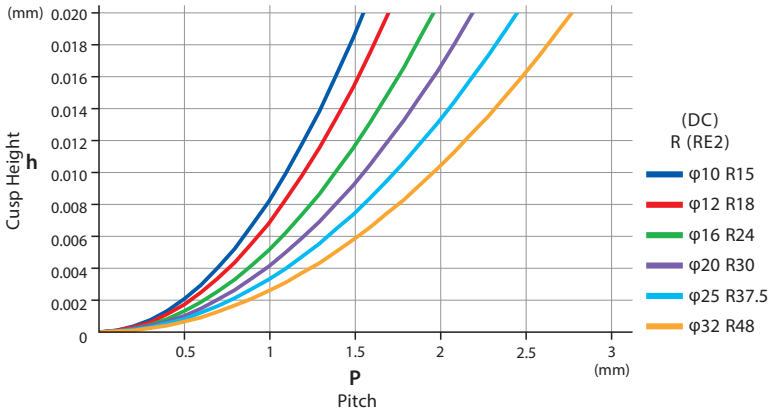
(PFB-LZ) Lens Type Tool



$$h = 0.5 \times \left(2 \times RE2 - \sqrt{(2 \times RE2)^2 - P^2}\right)$$

h: Cusp height
P: Pitch
RE2: peripheral edge R

Cusp Height and Pitch



PXNL / PXNH

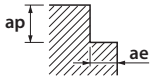
Side milling L/D≤3,5

	Cast iron FC250		Carbon steel		Alloy steel		Stainless steel Hardened steel		Stainless steel SUS304	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
10	2.860	720	3.820	840	3.180	520	2.860	350	2.550	280
12	2.390	600	3.180	700	2.650	440	2.390	290	2.120	230
16	1.790	620	2.390	720	1.990	450	1.790	300	1.590	240
20	1.430	660	1.910	760	1.590	480	1.430	310	1.270	250
25	890	450	1.270	560	1.020	340	890	220	760	170

Max cutting depth

ap	ae
0,5 D	0,3 D

ap	ae
0,5 D	0,2 D



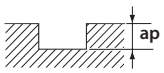
PXNL / PXNH

Slotting L/D≤3,5

	Cast iron FC250		Carbon steel		Alloy steel		Stainless steel Hardened steel		Stainless steel SUS304	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
10	2.230	360	3.180	450	2.550	270	2.230	170	1.910	130
12	1.860	300	2.650	370	2.120	220	1.860	140	1.590	110
16	1.390	320	1.990	400	1.590	240	1.390	150	1.190	120
20	1.110	360	1.590	450	1.270	270	1.110	170	950	130
25	760	280	1.150	370	890	210	760	130	640	100

Max cutting depth

ap
0,5 D



CUTTING CONDITIONS

PXVC

Side milling L/D≤5

	Mild steel - Carbon steel Cast iron SS400 · S55C · FC250 ~750 N/mm2		Alloy steel Tool steel SCM · SKT · SKS · SKD ~30 HRC		Stainless steel Hardened steel SUS304 · SKD ~45 HRC		Hardened steel Titanium alloy steel (wet) Ti-6Al-4V 45~55 HRC	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
10	4.780	1.150	3.820	920	3.190	770	2.550	620
12	3.980	960	3.190	770	2.660	640	2.130	520
14	3.420	830	2.730	660	2.280	550	1.820	440
16	2.990	720	2.390	580	1.990	480	1.600	390
18	2.660	640	2.130	520	1.770	430	1.420	350
20	2.390	580	1.910	460	1.600	390	1.280	310
22	2.180	530	1.740	420	1.450	350	1.160	280
25	1.910	460	1.530	370	1.280	310	1.020	250
32-5F	1.500	380	1.200	240	1.000	250	800	160
32-8F	1.500	480	1.200	390	1.000	320	800	260
Max cutting depth	ap: 0,5 D, ae: 0,2 D				ap: 0,5 D, ae: 0,1 D		ap: 0,5 D, ae: 0,05 D	

PXVC

Side milling 5<L/D≤6

	Mild steel - Carbon steel Cast iron SS400 · S55C · FC250 ~750 N/mm2		Alloy steel Tool steel SCM · SKT · SKS · SKD ~30 HRC		Stainless steel Hardened steel SUS304 · SKD ~45 HRC		Hardened steel Titanium alloy steel (wet) Ti-6Al-4V 45~55 HRC	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
10	4.300	1.040	3.510	850	2.870	690	2.230	540
12	3.590	870	2.920	710	2.390	580	1.860	450
14	3.070	740	2.510	610	2.050	500	1.600	390
16	2.690	650	2.190	530	1.800	440	1.400	340
18	2.390	580	1.950	470	1.600	390	1.240	300
20	2.150	520	1.760	430	1.440	350	1.120	270
22	1.960	480	1.600	390	1.310	320	1.020	250
25	1.720	420	1.410	340	1.150	280	900	220
32	Maximum length of L/D=5 in combination with the standard shank							
Max cutting depth	ap: 0,5 D, ae: 0,2 D				ap: 0,5 D, ae: 0,1 D		ap: 0,5 D, ae: 0,05 D	

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used
3. Please adjust the cutting condition when the overhang length is longer.
4. Please consider the overhang length as the total length of replaceable head and overhang length of shank holder.

PXVC

Side milling 6<L/D≤7

	Mild steel - Carbon steel Cast iron SS400 · S55C · FC250 ~750 N/mm2		Alloy steel Tool steel SCM · SKT · SKS · SKD ~30 HRC		Stainless steel Hardened steel SUS304 · SKD ~45 HRC		Hardened steel Titanium alloy steel (wet) Ti-6Al-4V 45~55 HRC	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
10	3.820	920	3.190	770	2.550	620	1.910	460
12	3.190	770	2.660	640	2.130	520	1.600	390
14	2.730	660	2.280	550	1.820	440	1.370	330
16	2.390	580	1.990	480	1.600	390	1.200	290
18	2.130	520	1.770	430	1.420	350	1.070	260
20	1.910	460	1.600	390	1.280	310	960	240
22	1.740	420	1.450	350	1.160	280	870	210
25	1.530	370	1.280	310	1.020	250	770	190
32	Maximum length of L/D=5 in combination with the standard shank							
Max cutting depth	ap: 0,5 D, ae: 0,2 D				ap: 0,5 D, ae: 0,1 D		ap: 0,5 D, ae: 0,05 D	

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used
3. Please adjust the cutting condition when the overhang length is longer.
4. Please consider the overhang length as the total length of replaceable head and overhang length of shank holder.

CUTTING CONDITIONS

PXVC

Slotting **L/D≤5**

	Mild steel - Carbon steel Cast iron SS400 · S55C · FC250 ~750 N/mm2		Alloy steel Tool steel SCM · SKT · SKS · SKD ~30 HRC		Stainless steel Hardened steel SUS304 · SKD ~45 HRC		Hardened steel Titanium alloy steel (wet) Ti-6Al-4V 45~55 HRC	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
10	4.780	960	3.820	770	3.180	640	2.390	480
12	3.980	800	3.180	640	2.650	530	1.990	400
14	3.410	680	2.730	550	2.270	450	1.710	340
16	2.980	600	2.390	480	1.990	400	1.490	300
18	2.650	530	2.120	420	1.770	350	1.330	270
20	2.390	480	1.910	380	1.590	320	1.190	240
22	2.170	430	1.740	350	1.450	290	1.090	220
25	1.910	380	1.530	310	1.270	250	950	190
32	Not recommended (due to the large number of flutes)							
Max cutting depth	ap ≤ 0,5 D		ap ≤ 0,4 D		ap ≤ 0,3 D		ap ≤ 0,3 D	

PXVC

Slotting **5<L/D≤6**

	Mild steel - Carbon steel Cast iron SS400 · S55C · FC250 ~750 N/mm2		Alloy steel Tool steel SCM · SKT · SKS · SKD ~30 HRC		Stainless steel Hardened steel SUS304 · SKD ~45 HRC		Hardened steel Titanium alloy steel (wet) Ti-6Al-4V 45~55 HRC	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
10	3.820	770	3.190	640	2.550	510	2.070	420
12	3.190	640	2.660	540	2.130	430	1.730	350
14	2.730	550	2.280	460	1.820	370	1.480	300
16	2.390	480	1.990	400	1.600	320	1.300	260
18	2.130	430	1.770	360	1.420	290	1.150	230
20	1.910	390	1.600	320	1.280	260	1.040	210
22	1.740	350	1.450	290	1.160	240	950	190
25	1.530	310	1.280	260	1.020	210	830	170
32	Maximum length of L/D=5 in combination with the standard shank							
Max cutting depth	ap ≤ 0,5 D		ap ≤ 0,4 D		ap ≤ 0,3 D		ap ≤ 0,3 D	

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used
3. Please adjust the cutting condition when the overhang length is longer.
4. Please consider the overhang length as the total length of replaceable head and overhang length of shank holder.

PXVC

Slotting **6<L/D≤7**

	Mild steel - Carbon steel Cast iron SS400 · S55C · FC250 ~750 N/mm2		Alloy steel Tool steel SCM · SKT · SKS · SKD ~30 HRC		Stainless steel Hardened steel SUS304 · SKD ~45 HRC		Hardened steel Titanium alloy steel (wet) Ti-6Al-4V 45~55 HRC	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
10	3.190	640	2.550	510	2.230	450	1.910	390
12	2.660	540	2.130	430	1.860	380	1.600	320
14	2.280	460	1.820	370	1.600	320	1.370	280
16	1.990	400	1.600	320	1.400	280	1.200	240
18	1.770	360	1.420	290	1.240	250	1.070	220
20	1.600	320	1.280	260	1.120	230	960	200
22	1.450	290	1.160	240	1.020	210	870	180
25	1.280	260	1.020	210	900	180	770	160
32	Maximum length of L/D=5 in combination with the standard shank							
Max cutting depth	ap ≤ 0,3 D		ap ≤ 0,3 D		ap ≤ 0,25 D		ap ≤ 0,2 D	

1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the cutting depth is large or when machines with low rigidity are used
3. Please adjust the cutting condition when the overhang length is longer.
4. Please consider the overhang length as the total length of replaceable head and overhang length of shank holder.

CUTTING CONDITIONS

PXSE

Side milling L/D≤3,5

	Mild steel - Carbon steel Cast iron SS400 · S55C · FC250 ~750 N/mm2		Alloy steel Tool steel SCM · SKT · SKS · SKD ~30 HRC		Stainless steel Hardened steel SUS304 · SKD ~45 HRC		Hardened steel Titanium alloy steel (wet) Ti-6Al-4V 45~55 HRC		Heat steel Inconel	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
10	3.810	920	3.190	770	2.070	500	2.070	420	800	130
12	3.180	760	2.650	640	1.700	400	1.700	350	650	100
16	2.390	570	1.950	470	1.250	300	1.250	250	500	80
20	1.910	460	1.550	370	1.000	250	1.000	200	400	65
25	1.530	370	1.240	300	800	200	800	160	320	50
Max cutting depth	ap 0,5 D	ae 0,15 D			ap 0,5 D	ae 0,1 D	ap 0,5 D	ae 0,05 D	ap 0,5 D	ae 0,05 D

PXSE

Slotting L/D≤3,5

	Mild steel - Carbon steel Cast iron SS400 · S55C · FC250 ~750 N/mm2		Alloy steel Tool steel SCM · SKT · SKS · SKD ~30 HRC		Stainless steel Hardened steel SUS304 · SKD ~45 HRC		Hardened steel Titanium alloy steel (wet) Ti-6Al-4V 45~55 HRC		Heat steel Inconel	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
10	3.030	610	3.030	610	1.600	320	1.600	260	800	130
12	2.500	500	1.550	300	1.300	250	1.300	250	650	100
16	1.850	350	1.150	250	1.000	200	1.000	200	500	80
20	1.500	300	950	200	750	160	750	160	400	65
25	1.200	240	760	160	600	130	600	130	320	50
Max cutting depth	ap ≤ 0,35 D				ap ≤ 0,3 D		ap ≤ 0,2 D		ap 0,1 D	

PXSM

Side milling L/D≤3,5

	Mild steel - Carbon steel Cast iron SS400 · S55C · FC250 ~750 N/mm2		Alloy steel Tool steel SCM · SKT · SKS · SKD ~30 HRC		Stainless steel Hardened steel SUS304 · SKD ~45 HRC		Hardened steel Titanium alloy steel (wet) Ti-6Al-4V 45~55 HRC		Heat steel Iconel	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
10	5.730	2.070	4.780	1.440	3.820	1.150	3.190	960	1.910	420
12	4.780	1.730	3.980	1.200	3.190	960	2.660	800	1.600	350
16-6F	3.590	1.300	2.990	900	2.390	720	1.990	600	1.200	260
16-8F	3.590	1.730	2.990	1.200	2.390	960	1.990	800	1.200	350
20	2.870	1.730	2.390	1.200	1.910	960	1.600	800	960	350
25	2.300	1.380	1.910	960	1.530	770	1.280	640	770	280
Max cutting depth	ap ≤ 0,5 D	ae ≤ 0,05 D			ap ≤ 0,5 D	ae ≤ 0,02 D			ap ≤ 0,3 D	ae ≤ 0,02 D

CUTTING CONDITIONS

PXRE

Corner radius type **L/D≤3,5**



Ø	Mild steel - Carbon steel Cast iron SS400 · S55C · FC250 ~750 N/mm2		Alloy steel Tool steel SCM · SKT · SKS · SKD ~30 HRC		Hardened steel Prehardened steel SKD · NAK80 · HPM50 (38~45 HRC)		Hardened steel 45~55 HRC		Hardened steel 55~60 HRC	
	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)
10	6.370	12.800	4.800	7.800	3.900	6.000	3.300	4.100	2.800	2.700
12	5.800	10.600	4.000	6.500	3.200	4.900	2.700	3.300	2.300	2.200
16	4.000	11.900	3.000	7.700	2.400	5.900	2.000	3.900	1.700	2.700
20	3.200	9.550	2.400	6.500	1.900	4.900	1.600	3.300	1.400	2.200

Max cutting depth

ap	ae
0,1 x R	0,3 D

ap	ae
0,1 x R	0,3 D

PXDR-P

Corner radius type **L/D≤5**



Ø	Mild steel - Carbon steel Cast iron SS400 · S55C · FC250 ~750 N/mm2		Alloy steel Tool steel SCM · SKT · SKS · SKD ~30 HRC		Stainless steel Hardened steel SUS304S · SKD ~45 HRC		Hardened steel 45~55 HRC	
	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)
10	4.770	3.580	4.770	2.860	4.770	2.150	4.770	1.430
12	3.980	2.980	3.980	2.390	3.980	1.790	3.980	1.190
16	2.980	2.240	2.980	1.790	2.980	1.340	2.980	900
20	2.390	1.790	2.390	1.430	2.390	1.070	2.390	720

Max cutting depth

ap	ae
0,05 D	0,25 D

ap	ae
0,03 D	0,25 D

PXDR-N

Corner radius type **L/D≤5**



Ø	Alloy steel Tool steel SCM · SKT · SKS · SKD ~30 HRC		Stainless steel Hardened steel SUS304S · SKD ~45 HRC		Hardened steel SUS304S · SKD 45~55 HRC		Hardened steel 55~60 HRC	
	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)
10	4.770	3.580	3.820	2.290	3.180	1.150	3.180	950
12	3.980	2.980	3.180	1.910	2.650	950	2.650	800
16	2.980	2.240	2.390	1.430	1.990	720	1.990	600
20	2.390	1.790	1.910	1.150	1.590	570	1.590	480

Max cutting depth

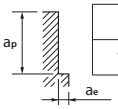
ap	ae
0,03 D	0,25 D

ap	ae
0,02 D	0,2 D

CUTTING CONDITIONS

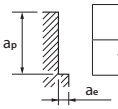
PXSH For both PXMZ straight shank holder / PXMC collet

Side milling L/D≤4

	Hardened Steel - Prehardened Steel SCM • SKD61• NAK80		Hardened Steel ~55HRC		~62HRC		~66HRC		~70HRC	
Cutting Speed	110 ~ 130		80 ~ 100		60 ~ 80		50 ~ 70		40 ~ 60	
Ø	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)
12	3.180	2.290	2.390	1.720	1.860	940	1.590	690	1.330	510
16	2.390	2.290	1.790	1.720	1.390	930	1.190	690	1.000	510
20	1.910	2.290	1.430	1.720	1.110	930	960	690	800	510
25	1.530	2.450	1.150	1.840	890	1.000	760	730	640	510
Depth of cut	 ap / ae	ap: 1 D, ae: 0,05 D; aeMax=1mm	ap: 1 D, ae: 0,03 D; aeMax=1mm		ap: 1 D, ae: 0,02 D; aeMax=0,5mm					

PXSH For both PXMZ straight shank holder / PXMC collet

Side milling 4<L/D≤5

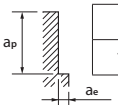
	Hardened Steel - Prehardened Steel SCM • SKD61• NAK80		Hardened Steel ~55HRC		~62HRC		~66HRC		~70HRC	
Cutting Speed	75 ~ 95		55 ~ 75		40 ~ 60		35 ~ 55		25 ~ 45	
Ø	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)	S (min-1)	F (mm/min)
12	2.260	1.630	1.730	1.250	1.330	480	1.190	340	930	200
16	1.690	1.620	1.290	1.240	1.000	480	900	350	700	200
20	1.350	1.620	1.040	1.250	800	480	720	350	560	200
25	1.080	1.730	830	1.330	640	720	570	550	450	360
Depth of cut	 ap / ae	ap: 1 D, ae: 0,03 D; aeMax=1mm	ap: 1 D, ae: 0,02 D; aeMax=1mm		ap: 0,7 D, ae: 0,02 D; aeMax=0,5mm					

1. Use a rigid and precise machine and holder.
2. When chattering occurs, reduce the speed and feed simultaneously.
3. Please adjust the cutting condition when the overhang length islonger.
4. Please consider the overhang length as the total length of replaceable head and overhang length of shank holder.
5. Use an air blow or a suitable cutting uid with high smoke retardantproperties.

CUTTING CONDITIONS

PXSH For both PXMZ straight shank holder / PXMC collet

High Speed Side milling L/D≤4

	Hardened Steel - Prehardened Steel SCM • SKD61• NAK80		Hardened Steel ~55HRC		~62HRC		~66HRC		~70HRC	
Cutting Speed	160 ~ 180		140 ~ 160		95 ~ 115		80 ~ 100		60 ~ 80	
Ø	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
12	4.510	2.600	3.980	2.290	2.790	1.130	2.390	860	1.860	600
16	3.380	2.600	2.990	2.300	2.090	1.130	1.790	860	1.390	600
20	2.710	2.600	2.390	2.290	1.670	1.130	1.430	860	1.110	600
25	2.170	2.780	1.910	2.440	1.340	1.210	1.150	920	890	640
Depth of cut										
	ap: 1 D	ae: 0,05 D	ap: 1 D	ae: 0,03 D	ap: 1 D	ae: 0,015 D	ap: 1 D	ae: 0,01 D		
	aeMax=1mm		aeMax=1mm		aeMax=0,5mm		aeMax=0,2mm			

1. Tools can cause sparks. Do not use flammable fluids.
2. Use a rigid and precise machine and holder.
3. When chattering occurs, reduce the speed and feed simultaneously.
4. Please consider the overhang length as the total length of replaceable head and overhang length of shank holder.
5. Use an air blow or a suitable cutting uid with high smoke retardant properties.

Caution: Sparks generated during operation or heat caused by tool breakage can cause fire.
Be sure to use all proper fire - prevention measures.
The conditions below are for high speed / high precision machining centers.

CUTTING CONDITIONS

PXBE-P

Ball nose type L/D≤5



Ø	Mild steel - Carbon steel Cast iron SS400 · S55C · FC250 ~750 N/mm2		Alloy steel Tool steel SCM · SKT · SKS · SKD ~30 HRC		Stainless steel Hardened steel SUS304S · SKD ~45 HRC		Hardened steel Titanium alloy steel (wet) Ti-6Al-4V 45~55 HRC	
	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
10	4.770	2.150	3.820	1.720	3.180	1.430	3.180	950
12	3.980	1.790	3.180	1.430	2.650	1.190	2.650	800
16	2.980	1.340	2.390	1.070	1.990	900	1.990	600
20	2.390	1.070	1.910	860	1.590	720	1.590	480

Max cutting depth

ap	Pf
0,07D	0,15 D

ap	Pf
0,04D	0,1 D

PXBE-N

Ball nose type L/D≤3,5



Ø	Mild steel - Carbon steel Cast iron SS400 · S55C · FC250 ~750 N/mm2		Alloy steel Tool steel SCM · SKT · SKS · SKD ~30 HRC		Stainless steel Hardened steel SUS304S · SKD ~45 HRC		Hardened steel Titanium alloy steel (wet) Ti-6Al-4V 45~55 HRC		Hardened steel 55~60 HRC	
	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
10	7.960	3.580	7.960	3.580	6.370	2.290	4.770	1.430	3.180	480
12	6.630	2.980	6.630	2.980	5.310	1.910	3.980	1.190	2.650	400
16	4.970	2.240	4.970	2.240	3.980	1.430	2.980	900	1.990	300
20	3.980	1.790	3.980	1.790	3.180	1.150	2.390	720	1.590	240

Max cutting depth

ap	Pf
0,05D	0,15 D

ap	Pf
0,04D	0,1 D

ap	Pf
0,03D	0,05 D

PXBM

Ball nose type L/D≤3,5



Ø	Mild steel - Carbon steel Cast iron SS400 · S55C · FC250 ~750 N/mm2		Alloy steel Tool steel SCM · SKT · SKS · SKD ~30 HRC		Stainless steel Hardened steel SUS304S · SKD ~45 HRC		Hardened steel Titanium alloy steel (wet) Ti-6Al-4V 45~55 HRC		Hardened steel 55~60 HRC	
	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)	S (min^{-1})	F (mm/min)
10	7.960	4.770	7.960	4.770	6.360	3.050	4.770	1.910	3.180	640
12	6.600	3.900	6.600	3.900	5.300	2.500	3.950	1.500	2.600	550
16	4.950	4.500	4.950	4.500	3.950	2.900	2.950	1.800	1.900	600
20	3.950	3.500	3.950	3.500	3.150	2.300	2.350	1.500	1.600	500

Max cutting depth

ap	Pf
0,02 D	0,05 D

PXAL

Side milling L/D≤3

	Aluminium Alloy Expanding Material A5052 • A7075	
Ø	S (min^{-1})	F (mm/min)
10	16.000	4.800
12	13.300	3.990
14	11.400	3.420
16	10.000	3.600
18	8.900	3.210
20	8.000	3.840
22	7.300	3.510
25	6.400	3.840
Depth of cut	ap: 0,7 D	ae: 0,2 D

PXAL

Side milling 3<L/D≤5

	Aluminium Alloy Expanding Material A5052 • A7075	
Ø	S (min^{-1})	F (mm/min)
10	9.600	2.310
12	8.000	1.920
14	6.900	1.660
16	6.000	1.730
18	5.400	1.560
20	4.800	1.850
22	4.400	1.690
25	3.900	1.880
Depth of cut	ap: 0,7 D	ae: 0,08 D

PXAL

Side milling 5<L/D≤7

	Aluminium Alloy Expanding Material A5052 • A7075	
Ø	S (min^{-1})	F (mm/min)
10	6.400	1.390
12	5.400	1.170
14	4.600	1.000
16	4.000	1.040
18	3.600	940
20	3.200	1.110
22	2.900	1.010
25	2.600	1.130
Depth of cut	ap: 0,7 D	ae: 0,04 D

CUTTING CONDITIONS

PXAL

Slot milling L/D≤3



Aluminium Alloy Expanding Material A5052 • A7075		
Ø	S (min^{-1})	F (mm/min)
10	16.000	4.800
12	13.300	3.990
14	11.400	3.420
16	10.000	3.000
18	8.900	2.670
20	8.000	2.400
22	7.300	2.190
25	6.400	1.920
Depth of cut	ap 0,5 D	

PXAL

Slot milling 3<L/D≤5



Aluminium Alloy Expanding Material A5052 • A7075		
Ø	S (min^{-1})	F (mm/min)
10	9.600	2.160
12	8.000	1.800
14	6.900	1.560
16	6.000	1.350
18	5.400	1.220
20	4.800	1.080
22	4.400	990
25	3.900	880
Depth of cut	ap 0,35 D	

PXAL

Slot milling 5<L/D≤7

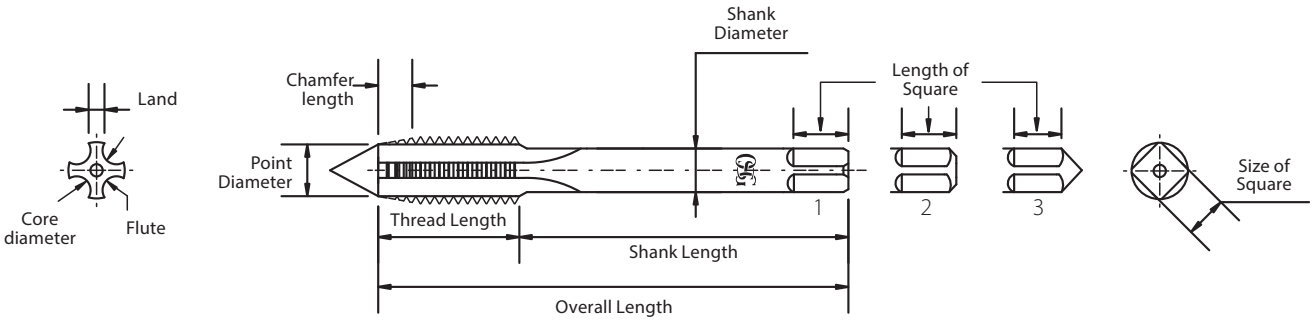


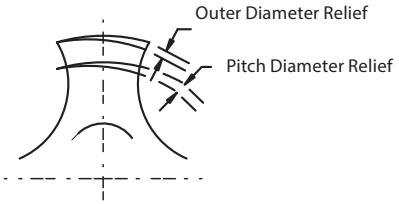
Aluminium Alloy Expanding Material A5052 • A7075		
Ø	S (min^{-1})	F (mm/min)
10	6.400	960
12	5.400	810
14	4.600	690
16	4.000	600
18	3.600	540
20	3.200	480
22	2.900	440
25	2.600	390
Depth of cut	ap 0,2 D	

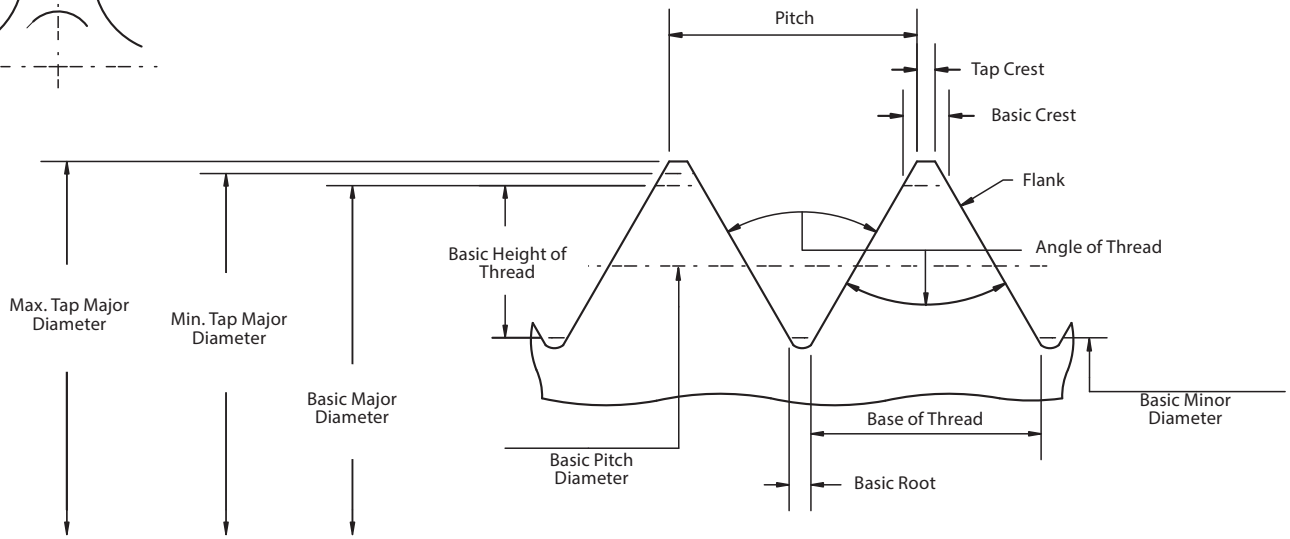
1. Use a rigid and precise machine and holder.
2. Please adjust the speed and feed when the depth of cut is large or when machines with low rigidity are used.
3. Please adjust the cutting condition when the overhang length is longer.
4. Please consider the overhang length as the total length of replaceable head and overhang length of shank holder.
5. When milling copper and copper alloys, lower the rotational speed by 20 to 40%, feed rate by 50 to 80%, and cutting depth by ap 50 to 80% in accordance with the table above.
6. Please always use the appropriate cutting fluid recommended by the cutting fluid manufacturer in the machining of magnesium alloys. Be cautious with the cutting chips as they are highly flammable and may pose a serious fire risk if not properly handled.

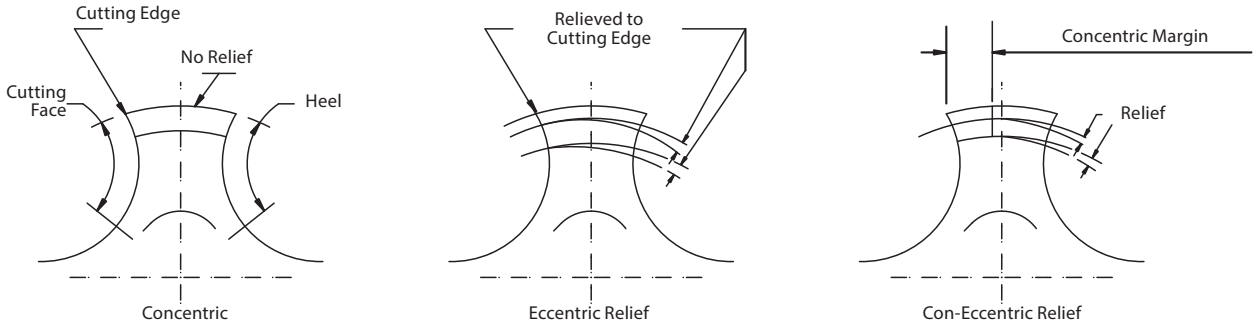


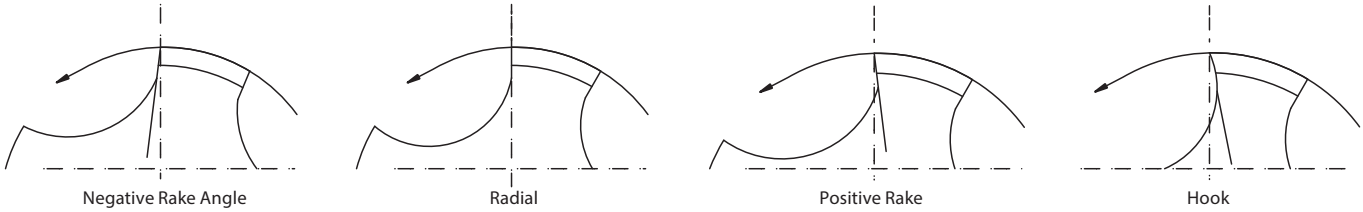
Illustration of tap terms











NOMENCLATURE

Tap & Screw thread

Allowance: The minimum clearance or maximum interference which is intended between mating parts.

Angle of Thread: The angle included between the flanks of a thread measured in an axial plane.

Back Taper: A slight taper on the threaded portion of the tap, making the pitch diameter near the shank smaller than that at the chamfer.

Basic: The theoretical or nominal standard size from which all variations are made.

Chamfer: The tapered and relieved cutting teeth at the front end of the threaded section. Common types of chamfer are taper, 8 to 10 threads long, plug, 3 to 5 threads, semi (or modified) bottom = 2.5
- 3 threads and bottoming, 1-1/2 threads.

Crest: The top surface joining the two sides or flanks of a thread.

Cutting Face: The leading side of the land.

Flute: The longitudinal channels formed on a tap to create cutting edges on the thread profile.

Heel: The following side of the land.

Height of Thread: In profile, distance between crest and bottom section of thread measured to the axis.

Hook Face: A concave cutting face of the land. This may be varied for different materials and conditions.

Interrupted Thread: Alternate teeth are removed in the thread helix on a tap having an odd number of flutes.

Land: Threaded sections between the flutes of a tap.

Lead of Thread: The distance a screw thread advances axially in one turn.

Major Diameter: The largest diameter of the screw or nut on a straight screw thread.

Minor Diameter: The smallest diameter of the screw or nut on a straight screw thread.

Neck: The reduced diameter, on some taps, between the threaded portion and the shank.

Pitch: The distance from a point on one thread to a corresponding point on the next thread, measured parallel to the axis.

Pitch Diameter: On a straight screw thread, the diameter of an imaginary cylinder where the width of the thread and the width of the space between threads is equal.

Point Diameter: The diameter at the leading end of the chamfered portion.

Radial: The straight face of a land, the plane of which passes through the axis of the tap.

Rake: The angle of the cutting face of the land in relation to an axial plane intersecting the cutting face at the major diameter.

Relief: The removal of metal behind the cutting edge to provide clearance between the part being threaded and a portion of the threaded land. Also, see back taper.
- **Chamfer Relief:** The gradual decrease in land height from cutting edge to heel on the chamfered portion of the tap land to provide radial clearance for the cutting edge.
- **Con-eccentric Relief:** Radial relief in the thread form starting back of a concentric margin.
- **Eccentric Thread Relief:** Radial relief in the thread form starting at the cutting edge and continuing to the heel.

Root: The bottom surface joining the flanks of two adjacent threads.
Side or Flank Thread: The surface of the thread which connects the crest to the root.

Shank: The portion of the tap by which it is held.

Spiral Point: An oblique cutting edge ground into the lands to provide a shear cutting action on the first few threads.

Square: The squared end of the tap shank by which the tap is driven.

Thread: The helical formed portion of the tap which produces the pitch in a pre-existing hole.

Thread Lead Angle: The angle made by the helix of the thread at the pitch diameter, with a plane perpendicular to the axis.

Threads per Inch: The number of threads in one inch of length.
Thread:
- **Single:** A thread in which lead is equal to pitch.
- **Double:** A thread in which lead is equal to twice the pitch.
- **Triple:** A thread in which lead is equal to triple the pitch.



HARDNESS CONVERSION TABLE

Approximate conversion value for hardness

Hardness				Traction	
HRA	HRC	HV	HB	Kgf/mm2	N/mm2/Mpa
		120	114	42	410
		125	119	43	420
		130	123	45	440
		135	128	46	450
		140	133	48	470
		145	138	49	480
		150	142	51	500
		155	147	52	510
		160	152	54	530
		165	157	55	540
		170	161	56	550
		175	166	58	570
		180	171	59	580
		185	176	61	600
		190	180	62	610
		195	185	64,5	630
		200	190	66,5	650
		205	195	67,5	660
		210	199	69,5	680
		215	204	70,5	690
		220	209	72,5	710
		225	214	73,5	720
		230	218	75,5	740
		235	223	76,5	750
60,7	20,5	240	228	78,5	770
61,2	21,5	245	233	79,5	780
61,6	22	250	237	81,5	800
62,4	24	260	247	84,5	830
63,1	25,5	270	256	88	860
63,8	27	280	266	91	890
64,5	28,5	290	275	95	930
65,2	30	300	285	98	960
65,8	31	310	294	101	990
66,4	32	320	304	104	1020
67	33,5	330	313	108	1060
67,6	34,5	340	323	111	1090
68,1	35,5	350	332	114	1120
68,7	36,5	360	342	118	1160
69,2	37,5	370	351	121	1190
69,8	39	380	361	124	1220
70,3	40	390	370	129	1260
70,8	41	400	380	132	1290
71,4	42	410	389	136	1330
71,8	42,5	420	399	139	1360
72,3	43,5	430	408	143	1400
72,8	44,5	440	418	146	1430
73,3	45,5	450	427	150	1470
73,6	46	460	432	153	1500
74,1	47	470	442	157	1540
74,5	47,5	480	450	160	1570
74,9	48,5	490	456	164	1610
72,3	49	500	466	168	1650
75,7	50	510	475	171	1680
76,1	50,5	520	483	175	1720
76,4	51	530	492	180	1760
76,7	51,5	540	500	183	1790
77	52,5	550	509	187	1830
77,4	53	560	517	191	1870
77,8	53,5	570	526	195	1910
78	54	580	535	198	1940
78,4	54,5	590	543	202	1980
78,6	55	600	552	206	2020
79,2	56,5	620	569	214	2100
79,8	57,5	640	586	222	2180
80,3	58,5	660			
80,8	59	680			
81,3	60	700			
81,8	61	720			
82,2	62	740			
82,6	62,5	760			
83	63,5	780			
83,4	64	800			
83,8	64,5	820			
84,1	65,5	840			
84,4	66	860			
84,7	66,5	880			
85	67	900			
85,3	67,5	920			
85,6	68	940			

SURFACE TREATMENTS

Generally, a tap properly designed and used under ideal conditions will produce surface results without the use of superficial treatments. However, under certain conditions and types of materials, additional tap life, improvement in finish and better gaging will be noted through the use of surface treatments applied to the finished tap.

The treatments applied can be divided into two groups: those that penetrate the surface, and those that are applied to the external surface itself.

The second group covers a wider range of choices including external treatments such as TiN, TiCN, TiAlN and oxide finishes.

Steam Oxide:
A black oxided surface (Fe_3O_4) produced on the surface of a finished tap by means of a steam furnace. This oxidized surface is porous and helps retain cutting fluid in the working portion of the tap. The materials on which steam oxide has shown improvement in performance are stainless steels, steel forgings, tool and die steels, hot and cold rolled steels, and high nickel alloys.

Nitride:
A hard superficial case, approximately 69 HRC, on the surface of a finished tap produced by means of an ion furnace. The advantages of a Nitride surface treatment is the increase in wear resistance due to the higher surface hardness. This surface treatment is very effective in both abrasive and tough materials such as cast iron, plastics and high silicon cast aluminium. Note: Extra caution is needed when selecting a Nitride surface treatment because the increased hardness is not recommended for fast spiral flute taps and taps smaller than machine screw No. 2.

Titanium Nitride (TiN):
A thin deposit (approx. 0.0001") applied to the surface of a finished tap utilizing PVD coating technology. TiN coating increases the surface hardness and wear resistance. Use of TiN coating on standard tools will help increase tool life in harder materials (up to 32 HRC), such as stainless steels, steel forgings, tool and die steels and hot and cold rolled steels. TiN coating also works very well with water-base cutting fluids.

Titanium Carbon Nitride (TiCN):
Similar to TiN, TiCN is applied utilizing PVD coating technology. This coating combines high hardness (approx. 2800 vickers) with the anti-seizure properties of Nitride. A lower coefficient of friction helps reduce welding by 75% over TiN coated tools. These features make TiCN especially beneficial in non-ferrous material and hardened steels. OSG's special TiCN coating is incorporated into many of our stocked items.

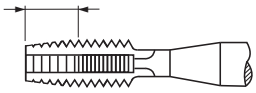
Titanium Aluminium Nitride (TiAlN):
TiAlN is applied using PVD coating technology. The addition of aluminium reduces friction and increases the coating oxidation temperature. As a result, TiAlN has increased resistance to heat and oxidation wear. This makes TiAlN better suited for High Speed/High Heat applications. OSG's special TiAlN coating is incorporated into many of our tools.

Chrome Nitride (CrN):
An extremely high surface lubricity makes CrN the proper selection of coating for non-ferrous materials. Aluminium (6061, 7075, etc.) and copper alloys (bronze, brass, etc.) are notorious for their tendency to adhere to the tool when heat is generated. This coating negates the effects of heat by reducing the amount of friction caused when these materials are being machined, while adding increased hardness.

Diamond:
OSG's patented Ultra-Fine diamond coating is grown on the tools at our laboratories. It is ideal for materials such as graphite, aluminium, and copper alloys. Commonly mistaken for a "Diamond-like" coating because of its shiny and smooth surface, this tool promotes finer surface finishes versus the competition's diamond coating and exponentially more tool life than that of PVD coated tools. Special processes enable high adherence to the tool and prevent it from flaking off. Diamond is not intended to cut steel.

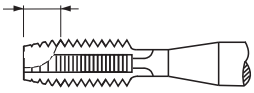
CHAMFER FORMS

FORM A



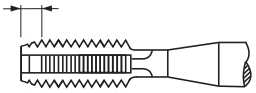
- Long
- 6 - 8 threads
- For short through holes
- Increases the torque and therefore the possibility danger of breakage

FORM B



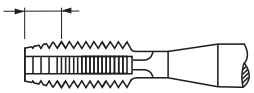
- Medium
- 3,5 - 5,5 threads
- With spiral point, useful for through holes
- For all through holes and deep tapping holes
- Efficient in tough and hard materials

FORM C



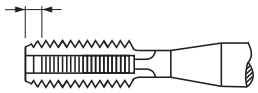
- Short
- 2 - 3 threads
- For blind holes
- For aluminium, grey cast iron and brass

FORM D



- Medium
- 3,5 - 5 threads
- For through and blind holes with sufficient run-out

FORM E



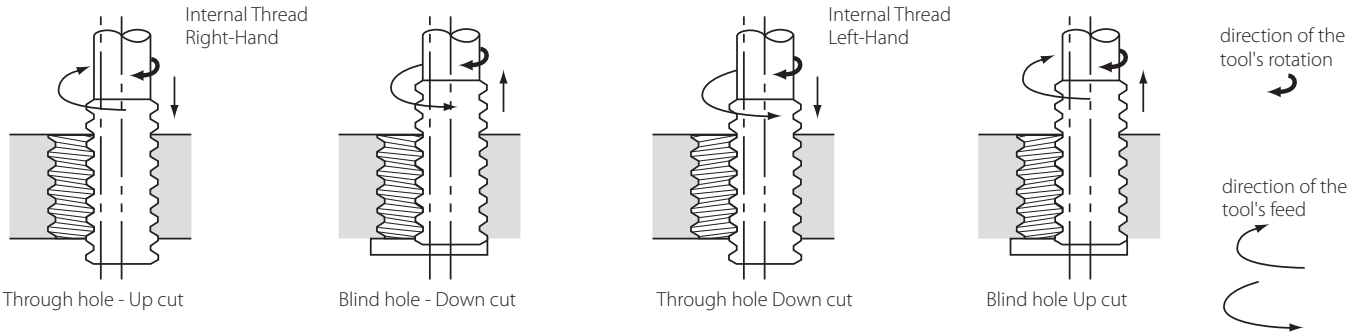
- Extremely short
- 1,5 - 2 threads
- For blind holes with little run-out depth

Type of taps & features

Type	Features	Application
Spiral Fluted Taps 	• Spiral flute • Chips flow out against tapping direction (ejected from holes) • Lower tapping torque and applicable for tapping to the bottom of holes • Good cutting action	• For blind holes • Materials where chips come out continuously in coil shape
Spiral Pointed Taps 	• Spiral point(Chip Drive) • Pushes chips forward with low cutting torque • Shallow and unique flute form provides strong structure • Good cutting action	• For through holes • Materials where chips come out continuously in coil shape • High speed tapping
Forming Taps 	• Taps do not produce chips • Precise uniformity of tapped thread limit • Excellent rigidity	• For both through & blind holes • Materials with Formability
Straight Fluted Taps Hand Taps 	• Straight flute • Strong cutting edges • Applicable for various cuttig conditions • Easy to re-grind	• For both through & blind holes (short thread depth only) • Materials where chips come out in powder form • Hard materials

By CNC simultaneious three-axis control

OSG's Thread Mills are developed for thread milling on a 3-Axis CNC controlled machine tool. Threads are produced by advancing one pitch feed per revolution in the axial direction, utilizing the planet-like rotation and revolution movements of the tool. Internal/external and right/left hand threads can all be produced with this one tool by simply changing the direction of rotation and/or feed.



Threading proces

1-2 Move to edge (maintain clearance)
2-3 Cut with helical milling
3-4 Mill the circumference of the circle
4-5 Pull away from the edge
5-6 Remove tool

The transition between the start and finish of the milling operation must be smooth and the appropriate amount of feed is essential for minimizing milling resistance. There are many different methods for using this tool, but our research has shown that this technique provides the most precise and efficient operation.

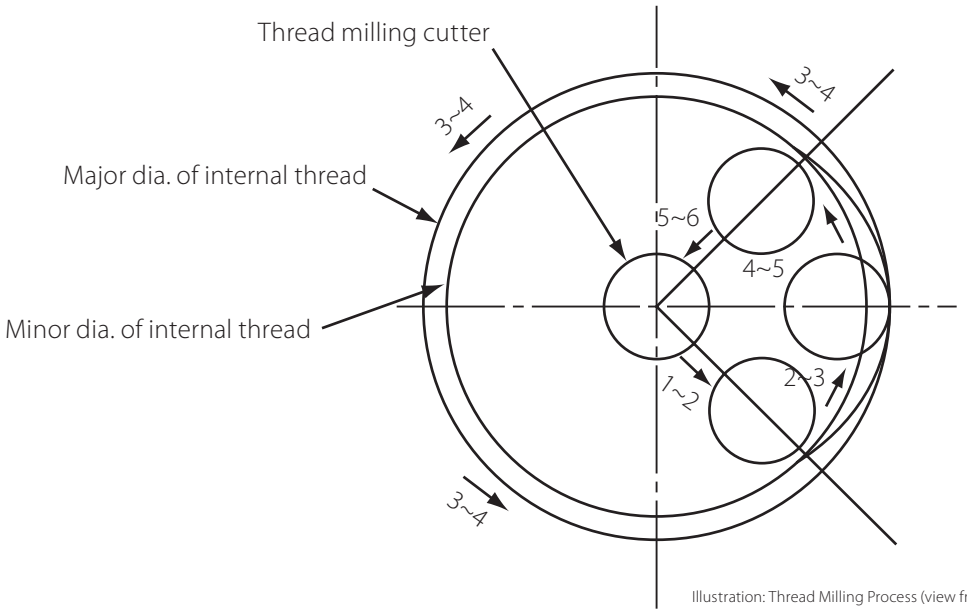


Illustration: Thread Milling Process (view from above)

TAP DRILL SIZES GUIDE

Recommended drill sizes for cutting taps

M

According to DIN 13
and DIN-ISO 965-1

Dia	P	
M 1	0,25	0,75
M 1,1	0,25	0,85
M 1,2	0,25	0,95
M 1,4	0,3	1,10
M 1,6	0,35	1,25
M 1,7	0,35	1,35
M 1,8	0,35	1,45
M 2	0,4	1,60
M 2,2	0,45	1,75
M 2,3	0,4	1,90
M 2,5	0,45	2,05
M 2,6	0,45	2,15
M 3	0,5	2,50
M 3,5	0,6	2,90
M 4	0,7	3,30
M 4,5	0,75	3,70
M 5	0,8	4,20
M 5,5	0,9	4,60
M 6	1	5,00
M 7	1	6,00
M 8	1,25	6,80
M 9	1,25	7,80
M 10	1,5	8,50
M 11	1,5	9,50
M 12	1,75	10,20
M 14	2	12,00
M 16	2	14,00
M 18	2,5	15,50
M 20	2,5	17,50
M 22	2,5	19,50
M 24	3	21,00
M 27	3	24,00
M 30	3,5	26,50
M 33	3,5	29,50
M 36	4	32,00
M 39	4	35,00
M 42	4,5	37,50
M 45	4,5	40,50
M 48	5	43,00
M 52	5	47,00
M 56	5,5	50,50
M 60	5,5	54,50
M 64	6	58,00
M 68	6	62,00

MF

According to DIN 13
and DIN-ISO 965-1

Dia	P	
M 2	0,25	1,75
M 2,2	0,25	1,95
M 2,3	0,25	2,05
M 2,5	0,35	2,15
M 3	0,25	2,75
M 3	0,35	2,65
M 3,5	0,35	3,15
M 4	0,35	3,65
M 4	0,5	3,50
M 4,5	0,5	4,00
M 5	0,35	4,65
M 5	0,5	4,50
M 5	0,75	4,20
M 6	0,5	5,50
M 6	0,75	5,25
M 7	0,5	6,50
M 7	0,75	6,25
M 8	0,5	7,50
M 8	0,75	7,25
M 8	1	7,00
M 9	0,75	8,20
M 9	1	8,00
M 10	0,5	9,50
M 10	0,75	9,25
M 10	1	9,00
M 10	1,25	8,80
M 11	1	10,00
M 12	0,5	11,50
M 12	1	11,00
M 12	1,25	10,80
M 12	1,5	10,50
M 13	1	12,00
M 14	0,75	13,20
M 14	1	13,00
M 14	1,25	12,75
M 14	1,5	12,50
M 15	1	14,00
M 15	1,5	13,50
M 16	0,75	15,20
M 16	1	15,00
M 16	1,25	14,80
M 16	1,5	14,50
M 17	1	16,00
M 18	1	17,00
M 18	1,5	16,50
M 18	2	16,00
M 20	1	19,00
M 20	1,5	18,50
M 20	2	18,00
M 22	1	21,00
M 22	1,5	20,50
M 22	2	20,00

MF

According to DIN 13
and DIN-ISO 965-1

Dia	P	
M 24	1	23,00
M 24	1,5	22,50
M 24	2	22,00
M 25	1	24,00
M 25	1,5	23,50
M 26	1,5	24,50
M 27	1	26,00
M 27	1,5	25,50
M 27	2	25,00
M 28	1,5	26,50
M 28	2	26,00
M 30	1	29,00
M 30	1,5	28,50
M 30	2	28,00
M 32	1,5	30,50
M 32	2	30,00
M 33	1,5	31,50
M 33	2	31,00
M 34	1,5	32,50
M 35	1,5	33,50
M 36	1,5	34,50
M 36	2	34,00
M 36	3	33,00
M 38	1,5	36,50
M 39	1,5	37,50
M 39	2	37,00
M 39	3	36,00
M 40	1,5	38,50
M 40	2	38,00
M 40	3	37,00
M 42	1,5	40,50
M 42	2	40,00
M 42	3	39,00
M 45	1,5	43,50
M 45	2	43,00
M 45	3	42,00
M 48	1,5	46,50
M 48	2	46,00
M 48	3	45,00
M 50	1,5	48,50
M 50	2	48,00
M 50	3	47,00
M 52	1,5	50,50
M 52	2	50,00
M 52	3	49,00
M 56	1,5	54,50
M 56	2	54,00
M 56	3	53,00
M 58	1,5	56,50
M 60	1,5	58,50
M 60	2	58,00
M 60	3	57,00

MJ

According to
DIN-ISO 5855

Dia	P	
MJ 3	0,5	2,60
MJ 4	0,7	3,40
MJ 5	0,8	4,30
MJ 6	1	5,10
MJ 8	1,25	6,90
MJ 10	1,5	8,70
MJ 12	1,75	10,50
MJ 16	2	14,30



TAP DRILL SIZES GUIDE

Recommended drill sizes for cutting taps

UN

According to ASME
B 1.1

Dia	P	
1 ⅛	8	25,40
1 ¼	8	28,60
1 ⅜	8	32,00
1 ½	8	35,00
1 ⅝	8	38,10
1 ¾	8	41,50
1 ⅞	8	44,50
2	8	47,70
2 ¼	8	54,00

UNC

According to ASME
B 1.1

Dia	P	
Nr. 1	64	1,50
Nr. 2	56	1,80
Nr. 3	48	2,00
Nr. 4	40	2,30
Nr. 5	40	2,60
Nr. 6	32	2,80
Nr. 8	32	3,40
Nr. 10	24	3,80
Nr. 12	24	4,50
¼	20	5,10
⅝	18	6,60
⅜	16	8,00
⅞	14	9,40
½	13	10,80
⅝	12	12,30
⅝	11	13,60
¾	10	16,50
⅞	9	19,50
1	8	22,30
1 ⅛	7	25,00
1 ¼	7	28,00
1 ½	6	34,00
1 ¾	5	39,50
2	4,5	45,00

UNJC

According to ASME
B 1.1 and ISO 3161

Dia	P	
Nr. 1	64	1,53
Nr. 2	56	1,81
Nr. 3	48	2,10
Nr. 4	40	2,30
Nr. 5	40	2,65
Nr. 6	32	2,85
Nr. 8	32	3,50
Nr. 10	24	3,90
Nr. 12	24	4,60
¼	20	5,25
⅝	18	6,70
⅜	16	8,10
⅞	14	9,50
½	13	11,00
⅝	12	12,30
⅝	11	13,80
¾	10	16,75

UNF

According to ASME
B 1.1

Dia	P	
Nr. 0	80	1,25
Nr. 1	72	1,55
Nr. 2	64	1,85
Nr. 3	56	2,15
Nr. 4	48	2,40
Nr. 5	44	2,70
Nr. 6	40	2,95
Nr. 8	36	3,50
Nr. 10	32	4,10
Nr. 12	28	4,60
¼	28	5,50
⅝	24	6,90
⅜	24	8,50
⅞	20	9,90
½	20	11,50
⅝	18	13,00
⅝	18	14,50
¾	16	17,50
⅞	14	20,50
1	12	23,30
1 ⅛	12	26,50
1 ¼	12	29,75
1 ⅜	12	33,00
1 ½	12	36,00

UNJF

According to ASME
B1.15 and ISO 3161

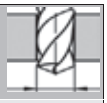
Dia	P	
Nr, 0	80	1,25
Nr, 1	72	1,55
Nr. 2	64	1,85
Nr. 3	56	2,15
Nr. 4	48	2,40
Nr. 5	44	2,70
Nr. 6	40	2,95
Nr. 8	36	3,60
Nr. 10	32	4,10
Nr. 12	28	4,70
¼	28	5,60
⅝	24	7,00
⅜	24	8,60
⅞	20	10,00
½	20	11,60
⅝	18	13,00
⅝	18	14,50

UNEF

According to ASME
B 1.1

Dia	P	
¼	32	5,55
⅝	32	7,20
⅜	32	8,80
⅞	28	10,20
½	28	11,80
⅝	24	13,20
⅝	24	14,80

NPSF

Dia	P	
1⁄16	27	6,15
⅛	27	8,4
¼	18	11,1
⅜	18	14,3
½	14	17,9
¾	14	23,3
1	11,5	29

NPT

According to ASME
B1.20.1 taper 1:16

Dia	P	D	d1	D1	Depth
1⁄16	27	6,15	5,95	6,39	10,70
⅛	27	8,40	8,31	8,74	10,80
¼	18	11,10	10,73	11,36	15,60
⅜	18	14,30	14,15	14,80	16,00
½	14	17,90	17,47	19,32	20,80
¾	14	23,30	22,79	23,67	21,30
1	11 ½	29,00	28,64	29,69	25,60
1 ¼	11 ½	37,70	37,37	38,45	26,10
1 ½	11 ½	43,70	43,44	44,52	26,10
2	11 ½	55,60	55,45	56,56	26,50
2 ½	8	66,30	66,14	67,62	36,30
3	8	82,30	81,90	83,52	38,50

TAP DRILL SIZES GUIDE

Recommended drill sizes for cutting taps

Pg
According to DIN 40430

Dia	P	
7	20	11,4
9	18	14
11	18	17,25
13,5	18	19
16	18	21,25
21	16	27
29	16	35,5
36	16	45,5
42	16	52,5
48	16	58

Tr
According to ISO

Dia	P	
8	1,5	6,6
9	2	7,2
10	2	8,2
11	3	8,25
12	3	9,25
14	3	11,25
16	4	12,25
18	4	14,25
20	4	16,25
22	5	17,25
24	5	19,25
26	5	21,25
28	5	23,25
30	6	24,25
32	6	26,25
34	6	28,25
36	6	30,25
38	7	31,5
40	7	33,5
42	7	35,5
44	7	37,5
46	8	38,5
48	8	40,5
50	8	42,5

G
According to DIN EN ISO 228

Dia	P	
1/16	28	6,80
1/8	28	8,70
1/4	19	11,80
3/8	19	15,25
1/2	14	19,00
5/8	14	21,00
3/4	14	24,50
7/8	14	28,25
1	11	30,75
1 1/8	11	35,50
1 1/4	11	39,50
1 3/8	11	41,90
1 1/2	11	45,25
1 3/4	11	51,00
2	11	57,00
2 1/4	11	63,00
2 1/2	11	72,60
3	11	85,00

BSW
According to BS 84

Dia	P	
1/16	60	1,20
3/32	48	1,90
1/8	40	2,50
5/32	32	3,20
3/16	24	3,60
7/32	24	4,60
1/4	20	5,10
5/16	18	6,50
3/8	16	7,90
7/16	14	9,20
1/2	12	10,50
9/16	12	12,00
5/8	11	13,40
3/4	10	16,40
7/8	9	19,25
1	8	22,00
1 1/8	7	24,75
1 1/4	7	27,50
1 3/8	6	30,00
1 1/2	6	33,50
1 5/8	5	35,50
1 3/4	5	39,00
1 7/8	4 1/2	41,50
2	4 1/2	44,50

BSF
According to BS 84

Dia	P	
3/16	32	4,00
7/32	28	4,60
1/4	26	5,30
5/16	22	6,80
3/8	20	8,30
7/16	18	9,70
1/2	16	11,00
9/16	16	12,70
5/8	14	14,00
3/4	12	16,80
7/8	12	19,80
1	10	22,70
1 1/8	9	25,50
1 1/4	9	28,50
1 3/8	8	31,50
1 1/2	8	34,50
1 5/8	8	38,00

Rp
According to DIN EN 10226-2

Dia	P	
1/16	28	6,55
1/8	28	8,60
1/4	19	11,50
3/8	19	15,00
1/2	14	18,50
5/8	14	20,50
3/4	14	24,00
1	11	30,25
1 1/4	11	39,00
1 1/2	11	45,00
2	11	56,50
2 1/2	11	72,20
3	11	85,00

BA
According to BS 949 part 2

Dia	P	
0	1	5,00
1	0,9	4,40
2	0,81	3,90
3	0,73	3,40
4	0,66	3,00
5	0,59	2,60
6	0,53	2,30
7	0,48	2,00
8	0,43	1,80
9	0,39	1,50
10	0,35	1,30
11	0,31	1,20
12	0,28	1,00
13	0,25	0,95
14	0,23	0,75

Rc
According to DIN EN 10226-2 taper 1/16

Dia	P	d1	D1	A	B min
1/16	28	6,30	6,49	8,31	10,00
1/8	28	8,30	8,50	8,31	10,10
1/4	19	11,00	11,35	12,37	15,00
3/8	19	14,50	14,85	12,77	15,40
1/2	14	18,10	18,49	16,83	20,50
3/4	14	23,50	23,98	18,13	21,80
1	11	29,60	30,11	21,42	26,00
1 1/4	11	38,10	38,78	23,72	28,30
1 1/2	11	44,00	44,67	23,72	28,30
2	11	55,60	56,48	28,02	32,60
2 1/2	11	71,10	72,00	31,32	37,10
3	11	83,60	84,71	34,42	40,20

TAP DRILL SIZES GUIDE

Recommended drill sizes for forming taps

M

According to DIN 13
and DIN-ISO 965-1

		 6 HX		 6 GX		 7 GX	
Dia	P	Min.	Max.	Min.	Max.	Min.	Max.
1	0,25	0,87	0,89	-	-	-	-
1,2	0,25	1,07	1,09	-	-	-	-
1,4	0,3	1,244	1,263	-	-	-	-
2	0,4	1,82	1,84	1,85	1,88	-	-
2,2	0,45	2,01	2,04	2,02	2,06	-	-
2,5	0,45	2,31	2,34	2,32	2,36	-	-
3	0,5	2,77	2,81	2,79	2,84	2,81	2,85
3,5	0,6	3,23	3,27	3,24	3,3	-	-
4	0,7	3,66	3,72	3,69	3,73	3,71	3,77
5	0,8	4,61	4,68	4,65	4,71	4,66	4,73
6	1	5,51	5,59	5,55	5,63	5,56	5,64
8	1,25	7,37	7,45	7,4	7,47	7,42	7,5
10	1,5	9,24	9,33	9,26	9,35	9,3	9,39
12	1,75	11,1	11,2	11,14	11,24	11,17	11,28
14	2	12,96	13,08	13	13,12	13,04	13,16
16	2	14,96	15,08	15	15,12	15,04	15,16
18	2,5	16,66	16,81				
20	2,5	18,66	18,81				
22	2,5	20,66	20,81				
24	3	22,39	22,56				
27	3	25,39	25,56				
30	3,5	28,09	28,28				
33	3,5	31,09	31,28				
36	4	33,8	34,01				
39	4	36,8	37,01				
42	4,5	39,52	39,73				
45	4,5	42,52	42,73				

MF

According to DIN 13
and DIN-ISO 965-1

		 6 HX	
Dia	P	Min.	Max.
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
8	1	7,50	7,56
10	1	9,50	9,56
10	1,25	9,35	9,43
12	1	11,50	11,56
12	1,25	11,35	11,43
12	1,5	11,21	11,30
14	1,5	13,25	13,34
16	1,5	15,25	15,34
18	1,5	17,25	17,34
20	1,5	19,25	19,34

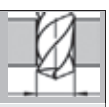
Recommended drill sizes for wire insert taps

EG M

According to DIN 8140

Dia	P	
2	0,4	2,10
2,5	0,45	2,65
3	0,5	3,15
4	0,7	4,20
5	0,8	5,25
6	1	6,30
8	1,25	8,40
10	1,5	10,50
12	1,75	12,50
16	2	16,60
20	2,5	20,70

EG UNC

Dia	P	
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
Nr. 4	40	3,10
Nr. 6	32	3,80
Nr. 8	32	4,40

EG UNF

Dia	P	
-	-	-
-	-	-
Nr. 10	32	5,10
¼	28	6,60
5⁄16	24	8,25
⅜	24	9,80
7⁄16	20	11,50
½	20	13,10



Tapping

Dimensional Accuracy		
Specific Problem	**Cause**	**Solution**
Oversize Pitch Diameter	**Incorrect Tap**	• Use proper pitch diameter limits of taps. • Use longer chamfered taps.
	Chip Packing	• Use spiral point or spiral fluted taps. • Reduce number of flutes to provide extra chip room. • Use larger hole size. • If tapping a blind hole, allow deeper holes where applicable or shorten the thread length of the parts. • Use proper lubricant.
	Galling	• Apply proper surface treatment such as steam oxide or TiN. • Use proper cutting lubricant. • Reduce tapping speed. • Use proper cutting angle in accordance with material being tapped. • Use larger hole size.
	Operating Conditions	• Apply proper tapping speed. • Correct alignment of tap and drilled hole. • Use proper tapping speed to avoid torn or rough threads. • Use lead screw tapper. • Use proper tapping machine with suitable power. • Avoid misalignment of the tap and drilled hole from loose spindle or worn holder.
	Tool Conditions	• Obtain proper indexing angle for the flutes at the cutting edge. • Grind proper cutting angle and chamfer angle. • Avoid too narrow a land width. • Remove burrs from regrinding.
Oversize Internal Diameter	**Hole Size**	• Use minimum hole size. • Avoid tapered hole. • Use proper chamfered taps.
	Galling	Galling solutions 1 through 4 under "Tool Conditions" can be applied to this specific problem.

TROUBLE SHOOTING

Tapping

Dimensional Accuracy		
Specific Problem	**Cause**	**Solution**
Undersize Pitch Diameter	**Incorrect Tap**	• Use oversize taps: a. Use for cutting materials such as copper alloy, aluminium alloy, and cast iron. b. Use for cutting tubing which will have "spring back" action after tapping. • Apply proper chamfer angle. • Increase cutting angle.
	Damaged Thread	Use proper reversing speed to avoid damaging tapped thread on the way out of the hole.
	Left-over Chips	• Increase cutting performance to avoid any left over chips in the hole. • Remove left over chips from the hole for gage checking.
Undersize Internal Diameter	**Hole Size**	Use maximum drill size.

Tool Life		
Specific Problem	**Cause**	**Solution**
Undersize Pitch Diameter	**Chamfer Too Short**	Increase chamfer length.
	Wrong Cutting Angle	Apply proper cutting angle.
	Galling	• Use thread relieved taps. • Reduce land width. • Apply surface treatment such as steam oxide or TiN. • Use proper cutting lubricant. • Reduce tapping speed. • Use larger hole size. • Obtain proper alignment between tap and work.
	Chip Packing	• Use spiral pointed or spiral fluted taps. • Use larger drill size.
Chattering on Tapped Thread	**Tool Free Cutting**	• Reduce cutting angle. • Reduce amount of thread relief.
Undersize Internal Diameter	**Hole Size**	• Avoid too narrow a land. • Do not grind the bottom of the flute.

TROUBLE SHOOTING

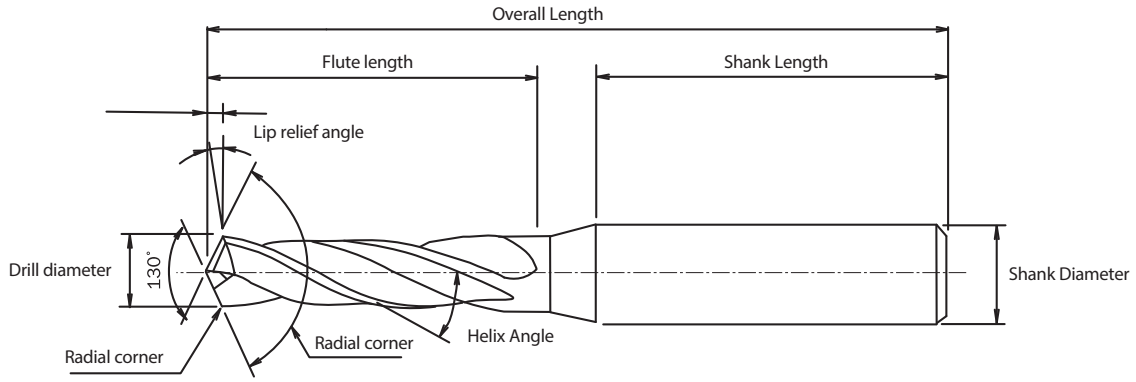
Tapping

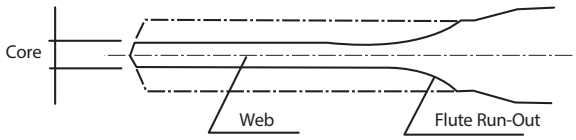
Tool Life		
Specific Problem	**Cause**	**Solution**
Breakage	**Incorrect Tap Selection**	• Avoid chip packing in the flutes or the bottom of the hole. Use spiral pointed or spiral fluted taps or fluteless taps. • Apply correct surface treatment such as steam oxide or TiN.
	Excessive Tapping Torque	• Use larger drill size. • Try to shorten thread length. • Increase cutting angle. • Use a tap with more thread relief and reduced land width. • Use spiral pointed or spiral fluted taps.
	Operating Conditions	• Reduce tapping speed. • Avoid misalignment between tap and the hole and tapered hole. • Use floating type of tapping holder. • Use tapping holder with torque adjustment. • Avoid hitting bottom of the hole with tap.
	Tool Condition	• Do not grind the bottom of the flute. • Avoid too narrow a land width. • Remove all worn sections when regrinding the flutes. • Regrind tool more frequently.
Chipping	**Incorrect Tap Selection**	• Reduce cutting angle. • Use a different kind of high-speed steel tap. • Reduce hardness of the tap. • Increase chamfer length. • Avoid chip packing in the flutes or in the bottom of the hole by using spiral fluted or spiral pointed taps.
	Operating Conditions	1• Reduce tapping speed. • Avoid misalignment between tap and hole. • Avoid sudden return of reverse in blind hole tapping. • Avoid galling. • Use large hole size.
Wear	**Incorrect Tap Selection**	• Use specially designed taps for tapping heat treated material. • Change to a type of high-speed steel tap that contains vanadium. • Apply special surface treatment such as steam oxide or TiN. • Increase chamfer length.
	Operating Conditions	• Reduce tapping speed. • Apply proper cutting lubricants. • Avoid work hardening. • Use larger hole size.
	Tool Condition	• Grind proper cutting angle. • Avoid hardness reduction from grinding process.

TECHNICAL • DRILLING

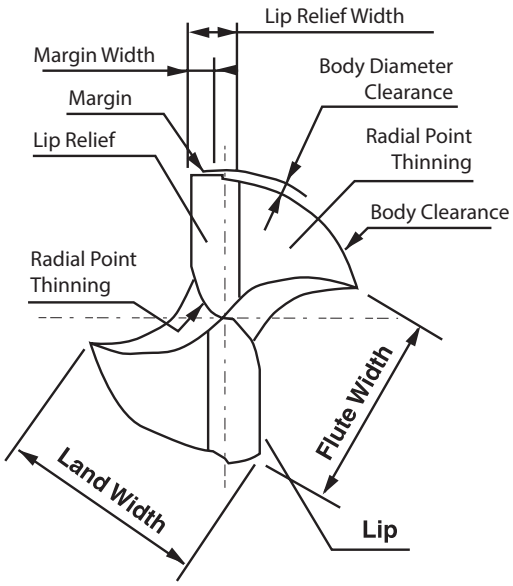


NOMENCLATURE

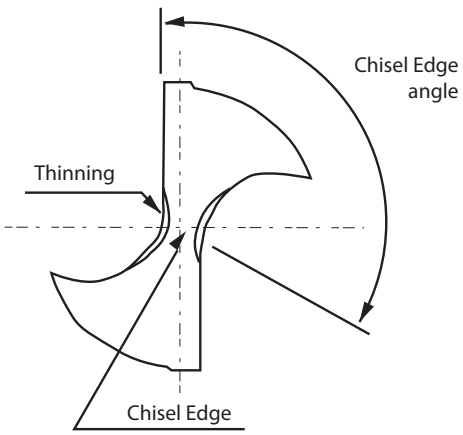




OSG Drill



Conventional Drill



DRILL CHARACTERISTICS

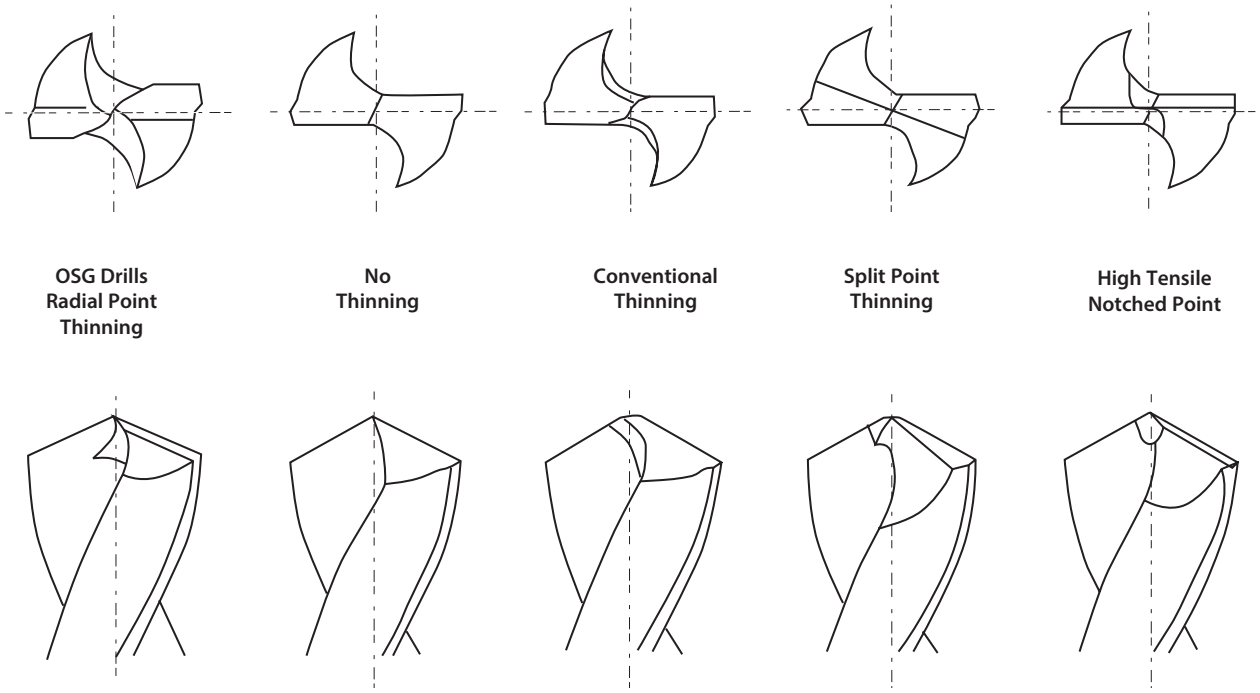
OSG drill characteristics

Unique Point Design

With OSG drills, the chisel edge in the centre section of a conventional drill is eliminated. Instead, there is a radius cutting edge. This provides a better biting action than a conventional drill, where the chisel edge is easily crushed against the harder to drill material.

OSG drills have a chip pocket for smooth chip action along the radius cutting edge. Also, the point angle is 130˚ instead of the conventional 118˚. This creates small broken chips rather than the long, stringy chips created by a conventional drill.

Point thinning



OSG Drills Radial Point Thinning

No Thinning

Conventional Thinning

Split Point Thinning

High Tensile Notched Point

CUTTING CONDITIONS

Technical | Drills

For excellent results, it is best to follow established criterion for maximizing tool efficiency. Feed per table, expressed as F (mm/min) shows the drills' cutting efficiency. Although the spindle speed significantly influences the life of HSS drills, feed rate does not. Therefore, increasing feed rate will help improve cutting efficiency. However, if feed rate is too high, chips may end up being too thick. Users should be careful to find the appropriate feed rate for their particular operation.

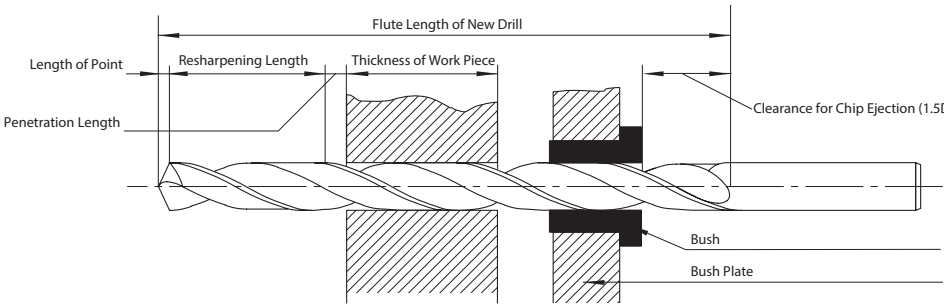
The range of appropriate feed rates for carbide alloy drills is smaller than that of HSS drills because carbide alloy drills have negative chamfered cutting edge. If a feed rate outside the recommended range is used, tool life declines considerably. Carbide alloy drills, however, have higher heat resistance than HSS tools. Also, cutting efficiency can be improved by using a higher cutting speed (i.e. increasing the number of revolutions per minute).

Similar to cutting speed, feed and cutting fluid, flute length is a critical determinant of tool life. Considering drilling depth, bush and resharpening requirements, flute length should usually be as short as possible. Unnecessarily long flute length can cause instability because of lower rigidity and possible twisting or/and deflection (depending on the holder). For most operations, suitable flute length can be calculated by using the following formula.

Formulas	
$N = \frac{1{,}000V}{\pi Dc}$ $V = \frac{\pi Dc N}{1.000}$ $F = f \cdot N$	V : **Cutting Speed** (m/min) F : **Feed/min.** (mm/rev) Dc : **Drill Dia.** (mm) N : **Speed** (min-1) π : **The ratio of the circumference of a circle** f : **Feed rate/rev.** (mm/rev)

Depth of Hole* + 1.5×Dc** + Resharpening Length + Penetration Length

*(Includes bush length and distance between bush and work piece.) **(D = Drill Diameter)



Recommended Cutting Fluid Selection Table-Based on Work Material

Tool	Coated HSS Drill						Coated Carbide Drill			Coated Carbide Drill			Diamond Coated Carbide Drill					
Type of Supply	Wet				Dry		Wet			Wet	Dry		Wet				Dry	
Type of Cutting Fluid	Non Water Soluble	Water Soluble			Dry	Semi Dry	Non Water Soluble	Water Soluble		Water Soluble	Dry	Semi Dry	Non Water Soluble	Water Soluble			Dry	Semi Dry
Work Material	JIS N (JIS N)	JIS A1 Emulsion (JIS A-1)	JIS A2 Soluble (JIS A-2)	JIS A3 Solution (JIS A-3)	Air Blow	Mist	JIS N (JIS N)	JIS A1 Emulsion (JIS A-1)	JIS A2 Soluble (JIS A-2)	JIS A3 Solution (JIS A-3)	Air Blow	Mist	JIS N (JIS N)	JIS A1 Emulsion (JIS A-1)	JIS A2 Soluble (JIS A-2)	JIS A3 Solution (JIS A-3)	Air Blow	Mist
Carbon Steel		o			o	o		o			o	o		x	x	x	x	x
Cast Iron		o	o		o	o		o	o		o	o					x	x
High Hardened Steel		o				o		o				o		x	x	x	x	x
Stainless Steel		o			x	o		o						x	x	x	x	x
Titanium Alloy		o			x			o			x			x	x	x	x	x
Heat Resistant Alloy (ex. Inconel®)		o			x			o						x	x	x	x	x
Aluminium Alloy		o	o					o	o					o	o		x	o
Copper	o						o				x		o				x	o

DIFFICULT TO MACHINE MATERIALS

Drilling

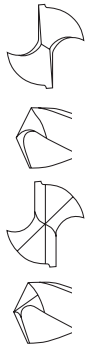
Certain materials have special characteristics (listed below), that make drilling difficult. In order to successfully drill these materials it is critical to use proper cutting conditions based on information about the material and the tool and to understand how variations of these characteristics can influence the final outcome.

Characteristics of difficult to machine materials

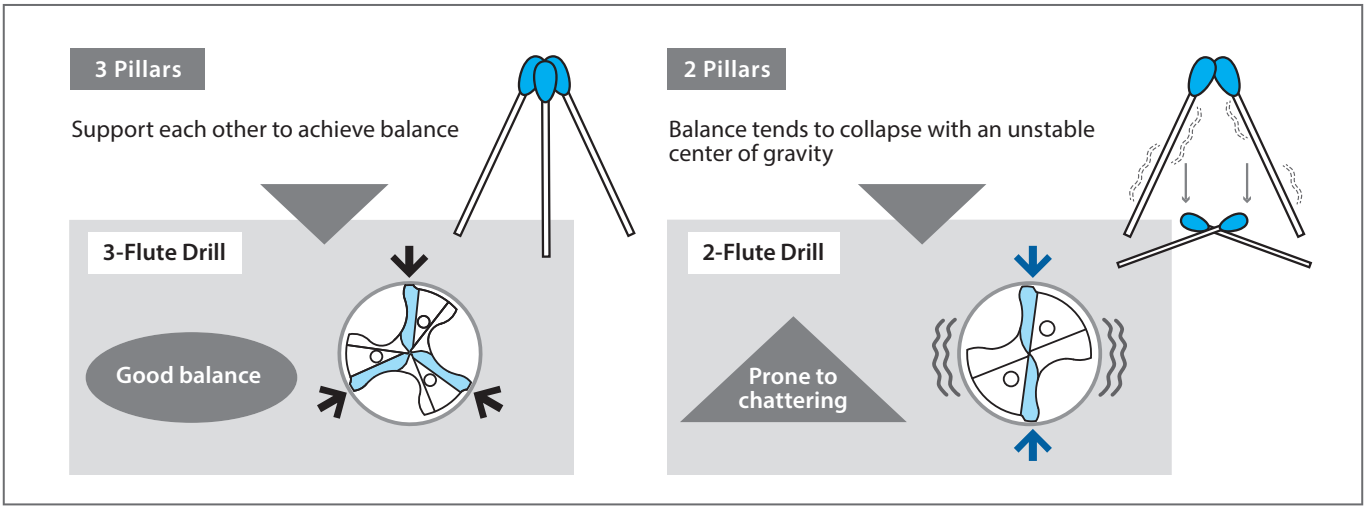
Characteristics	Effect(s)
High hardness	Chipping of the cutting edge
High tensile strength	Tool wear
Low heat conductivity	High temperature at cutting edge
High work hardening	High thrust force and torque
Contains hardened grain	Chip trouble (discharging, shape)
High ductility	Bad surface finish
High affinity	

Work Material	Characteristics	Machining recommendations	Recommended drills	
Austenitic Stainless Steel SUS304-SUS316	• High work hardening • High tensile strength at high temperatures • Low heat conductivity • High ductility. Easy to get build up at the edge. => chipping	• Use tough drill material with sharp cutting edge and coating • High feed rate • High coolant supply	ADO-SUS-3D ADO-SUS-5D EX-SUS-GDS EX-SUS-GDR	ADO-3D NEXUS-GDS NEXUS-GDR EX-SUS-GDN
Die Steel SKD11	• Made of hard carbide grain (under 0.4%C =>carbide grain is melted)	• Use high rigid HSS coated tools • Use lower cutting speed and higher feed rate	AD-2D ADO-3D	ADO-3D AD-4D ADO-5D VPH-GDS
High Manganese Steel SCMnH	• High tensile strength and high toughness • High work hardening	• Use rigid tools, machine and work clamping device		VPH-GDS
Titanium Alloy Ti-6Al-4V	• High tensile strength per Lower case • Low heat conductivity • Chemically active high affinity with tools	• Use sufficient coolant and low cutting speed to maintain low cutting temperature.	EX-SUS-GDS	ADO-SUS-3D ADO-SUS-5D
Heat Resistant Alloy Inconel-Hastelloy	• High hardness • High work hardening • Tough Difficult to machine	• Improve rigidity of tools and machines • Use an stub drill with coating and rigidity	AD-2D VPH-GDS	WH55-5D AD-4D
High Hardened Quenched and Tempered Steels	• High hardness • High shearing stress • High cutting resistance	• Use a drill made from high hardened and rigid material if the work material is over 45 HRC, use a carbide drill.	AD-2D	VPH-GDS ADO-15D/ 20D/30D
High Silicon Aluminium Alloy AC9A-A390	• High hardened grain causes large wear on tools	• Use a drill made from high hardened material • Provide sufficient coolant supply	D-GDN	
Kovar Fe-Ni-Co	• Low thermal expansion material • Tend to Build-up, but easy to machine	• Use high helix and sharp edge drill	WX-MS-GDS EX-SUS-GDS EX-SUS-GDR	NEXUS-GDS NEXUS-GDR
Co-Cr Alloy	• Better anti-rust, better rigidity • Harmonize with organism	• Easy to break chips, but recommended to use better drill on wear resistance	ADO-3D AD-4D	ADO-3D ADO-5D
Composite C-FRP - G-FRP	• Tough fibre causes extreme wear • Tend to have naps and peel off	• Use sharp and wear resistant tools • Design the tool to prevent naps and peeling	D-STAD	

Type	Design	Characteristics & applications
R Thinning		• For heavy drilling • Good chamfering • Creates small chips • Reduces thrust force
X Thinning		• Good chamfering • For drills with large web diameter • Reduces thrust force
N Thinning		• For drills with small web diameter and/or with small point angle • Large chip pocket • High strength at the point
S Thinning		• For drills with small web diameter and/or with small point angle • High strength at the point • Easy to regrind

Type	Design	Characteristics & applications
W+R W Thinning, W + R Thinning		• For heavy drilling • Prevents chipping on cutting edge • For high hardened materials • Prevents chipping that can occur when drilling in high hardened steel materials • High strength on the cutting edge • Reduces thrust force
Three-rake Thinning		• Accurate at cutting edge tolerance • Better hole size control not good for high feed rate

QUICK GUIDE FOR ADO-TRS



The collapse of balance greatly affects hole quality

		ADO-TRS	Competitor (3FL)	Competitor (2FL)
Hole Expansion Comparison	Entry	0,005mm	0,051mm	0,025mm
	Middle	0,002mm	0,039mm	0,022mm
	Exit	0,003mm	0,05mm	0,018mm
Roundness Cylindricity		16 µm 28 µm	30 µm 32 µm	52 µm 40 µm

Tool	ADO-TRS	**Cutting Speed**	90m/min (1.791min^{-1})	**Coolant**	Water Soluble 3MPa
Work Material	SCM420H	**Feed**	3FL 1,075mm/min (0.6mm/rev) / 2FL 537mm/min (0.3mm/rev)	**Machine**	Horizontal Machining Center

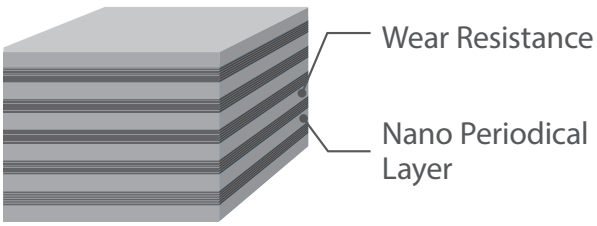
The quality of the pre-drilled hole will affect the performance of the next process such as tapping.

EgiAs Coating

EgiAs coating with high toughness and wear resistance characteristics

Constructed with extreme toughness, high wear and heat resistance characteristics to ensure stable and consistent tool life.

EgiAs

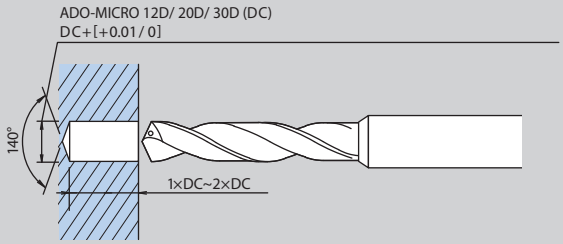


Coating Color	Coating Structure	Hardness (Hv)	Oxidation Temperature (C°)	Heat Resistance	Adhesion Strength	Wear Resistance	Welding Resistance	Toughness
Interference Color	Periodic Nano-layered	40	1.100	◎	◎	◎	◎	◎

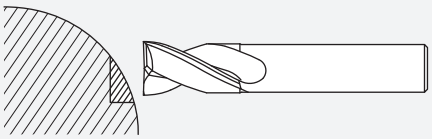
Recommended drilling method for deep-holes

1 ADO-MICRO 2D
Make a pilot hole with the ADO-MICRO 2D.

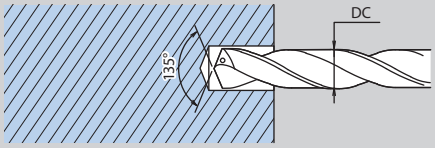
ADO-MICRO 12D/20D/30D
ADO-MICRO 2D (140°)
The ADO-MICRO 2D (140° point angle) is the recommended pilot hole drills of the ADO-MICRO 12D/20D/30D.



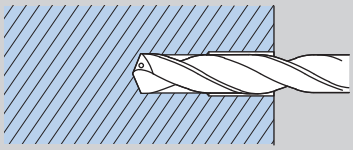
When working on a curved surface, use the FX-ZDS (end mill for counterboring) or the ADF (carbide flat drill) to counterbore a flat surface before drilling a pilot hole.



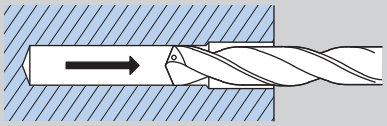
2 Insert the long drill into a pilot hole with a low revolution of 500 to 1,000 min^{-1} (n).



3 Increase the revolution to the designated speed and start drilling.



4 After drilling, move the drill away from the bottom of the hole; then reduce its speed to 500 to 1,000 min^{-1} (n) while pulling it out of the hole.



Make sure to use internal coolant supply when drilling.

For drilling applications exceeding Ø2

Carbide Drill Series
AD & ADO



Carbide Drill Series for Stainless Steel and Titanium Alloy
ADO-SUS



OPERATIONAL GUIDELINE

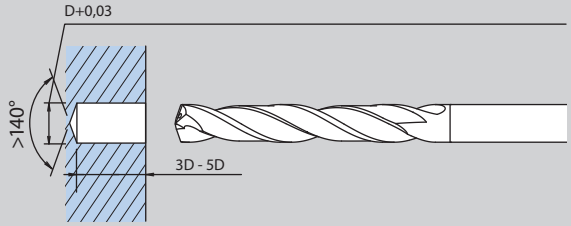
1 ADO-5D/ADO-TRS-5D

Make a pilot hole with the ADO-5D or ADO-TRS-5D.

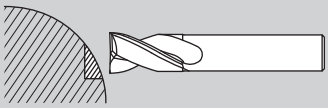
ADO-40D /ADO-50D

ADO-5D/ADO-TRS-5D (140°)

The ADO-5D and ADO-TRS-5D (140° point angle) are the recommended pilot hole drills of the ADO-40D/50D.



When working on a curved surface, use the ADF (carbide flat drill) to counterbore a flat surface before drilling a pilot hole.

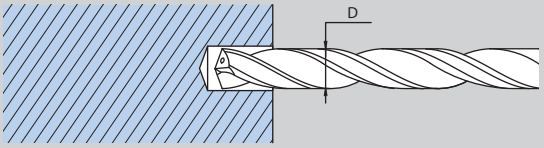


If it is difficult to process or if the straightness of the hole needed to be improved, use the coolant-through carbide drill ADO-20/30D after drilling a pilot hole, then process with the ADO-40/50D.

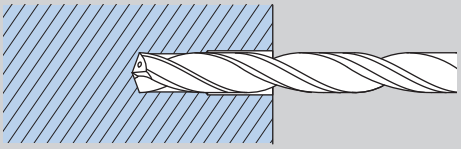
When processing with 3 tools, the ADO-40/50D may be used at a more aggressive cutting condition than those listed in the recommended cutting condition table.

2 (n)300~500min-1

Insert the long drill into the pilot hole with a low speed reverse (revolution of about 300 to 500 min-1 (n).

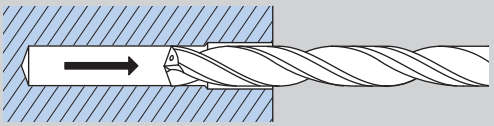


3 Increase the revolution to the designated speed and start drilling.



4 (n)300~500min-1

After drilling, move the drill away from the bottom of the hole, then reduce its speed to 300 to 500 min-1 (n) while pulling it out of the hole.



Make sure to use internal coolant supply when drilling.

Manufacturable Range of Special Sizes

Diameter range	Maximum overall length	Maximum flute length	Maximum drilling depth of hole								
			50	100	150	200	250	300	350	400	450
3	209	159			150						
~4	262	212				200					
~5	315	265					250				
~6	428	378							360		
~7	456	406								380	
~8	500	450									430
~9	500	450								420	
~10	500	450								420	
~11	500	450								420	
~12	500	450								420	
~13	500	450								410	
~14	500	450								410	
~15	500	450								410	
~16	500	450								410	

The above chart indicates the maximum overall length and maximum flute length of each range's maximum diameter.
For sizes and lengths outside of the above parameters, please consult with your OSG sales representative.

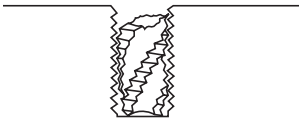
Manufacturable range

DRILLING INSTRUCTIONS

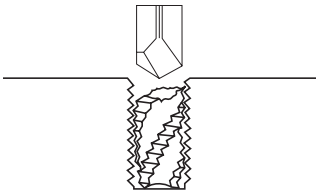
Work procedure for removing damaged tap in hole



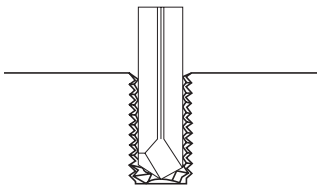
EX-H-DRL



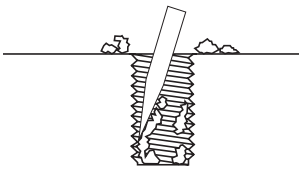
Position the drill at the centre of the damaged tap, securing both the workpiece and the drill firmly. When the head of the damaged tap is protruding, grind the damaged surface flat to make the centre of the damaged tap easier to drill.



Make an initial, centred approach by drilling lightly, then quickly withdrawing the drill. For this step, do not use lubrication.



Select an appropriate drill by consulting the table. Drill the hole at a fixed feed speed, stopping the operation occasion-ally to remove chip waste. In addition, use plenty of high quality cutting fluid.



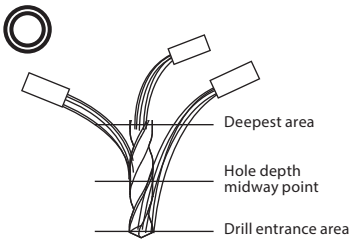
Once the hole has been cleared, the peripheral remnants of the tap can be removed with ease. Once the hole is cleaned, tapping can be resumed.

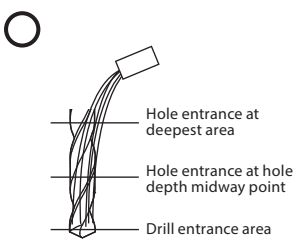
Cutting conditions and procedures to note

1. Use a drilling speed of 20-25 m/min.
2. Hand feed of 0.01mm - 0.05mm/rev. is the norm.
3. Use a rigid holder.
4. Select a high quality cutting oil and apply sufficient amounts.
5. This tool should not be used to drill soft steel, aluminium alloy equivalents, or other soft materials.
6. Resharpening should be done periodically.
7. For through hole processing of heat treated steel etc., using a cut off - positioned under the work material - to prevent breakage caused by sudden torque.

Guide for drilling with TDXL

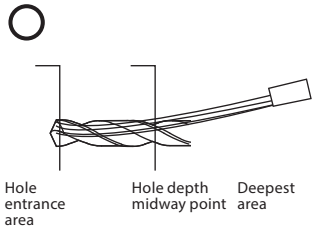
Vertical Machine



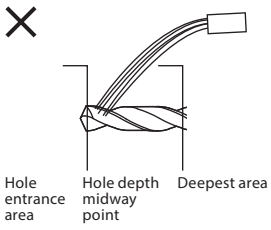


Allow the coolant to move along the drill if the discharge flow rate is low or the number of nozzles is little.

Horizontal Machine



If there are little coolant nozzles, increase the amount of coolant and its discharge pressure and allow the coolant to move along the drill so that it is applied constantly to the entrance.



If there are little coolant nozzles, the coolant that is applied to the hole entrance will stray from the hole along the way

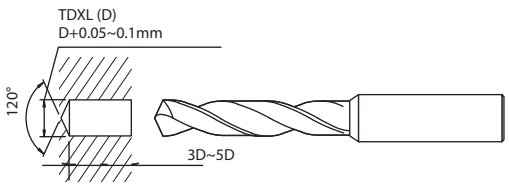
1. Make a pilot hole

Recommended drill : EX-SUS-GDS

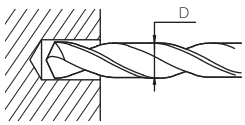
For a pilot hole, select 0.05mm to 0.1mm larger size drill than TDXL. For deep hole, we recommend to drill deeper pilot hole.

For a vertical machining center. When drilling many holes in a small area with vertical machining center. We recommend only centering by 130 degree point angle LDS to avoid chips building up in pilot holes, which can cause drill chipping or breakage. When drilling the pilot hole it is recommended to make the hole 3xD in depth, at a feed rate equal to (Drill φx 0.01) per revolution. Straightness will be less accurate than a comparable operation in a horizontal machining center.

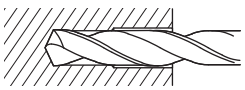
We recommended to use point angle from 120 degree and over.



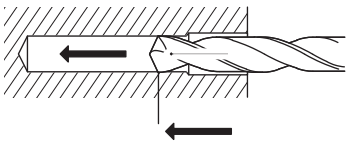
2. Insert the TDXL into a pilot hole with low revolution. (~500 min^{-1})



3. Start supplying the coolant.

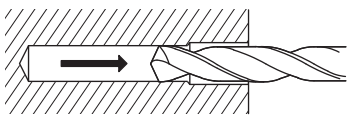


4. Increase the revolution to the designated speed and start drilling. At the start of drilling, set the feed rate to 1% of the drill dia. and increase the feed rate when the depth reaches between 3xD and 5xD.



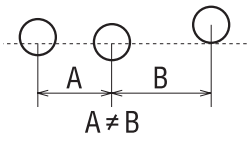
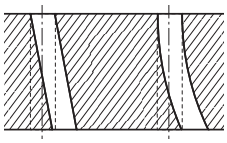
Increase feed rate to between 1 and 2%
Set it to 1% D between 3xD and 5xD

5. After drilling, move the drill away from the bottom of the hole; then reduce its speed while pulling it out of the hole.



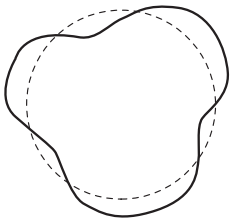
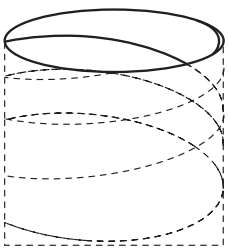
TROUBLE SHOOTING

Drilling

Dimensional Accuracy		
Specific Problem	**Cause**	**Solution**
Hole expansion	**Large run out after attachment to the machine** **Large spindle run out**	• Check holder and/or select another one • Check the spindle • Check run out after fixing to the chuck
	Non-symmetric point angle **Large lip height** **Run out of chisel edge**	• Regrind correctly • Check precision after regrinding
Irregular hole size	**Non-symmetric point angle** **Large lip height** **Run out of chisel edge** **Major margin wear**	• Regrind correctly • Check precision after regrinding
	Large run out after attachment to machine **Loose hold** **Low work holding rigidity**	• Check holder and/or select another one • Check the spindle • Check run out after fixing to the chuck
	Feed rate is too high	Decrease the feed rate
	Not enough coolant	Change method of coolant supply, or increase volume
Poor accuracy **Irregular pitch** 	**Large run out after attachment to machine** **Large spindle run out**	• Check holder and/or select another one • Check the spindle • Check run out after fixing to the chuck
	Run out when cutting	1. Increase rigidity of tools and machines 2. Increase work clamping rigidity 3. Select a thinning for low cutting resistance 4. Use centring 5. Double-check that the work piece is horizontal 6. Use a drill bush
	Poor alignment accuracy	Check alignment before operation
Bad hole perpendicularity 	**Excessive tool wear**	Regrind correctly
	Poor position accuracy	Increase position accuracy
	Non-symmetric point angle **Large lip height** **Run out of chisel edge**	• Regrind correctly • Check precision after regrinding
	Not enough drill rigidity	Use a more rigid drill
	Drilling surface is not horizontal **Poor alignment accuracy**	• The work piece must be horizontal or pre-drilled • Use centring

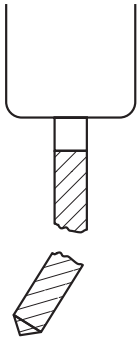
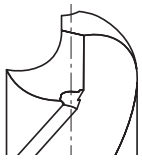
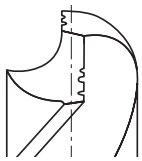
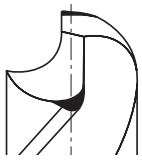
TROUBLE SHOOTING

Drilling

Dimensional Accuracy		
Specific Problem	**Cause**	**Solution**
Bad cylindrical accuracy 	**Non-symmetric point angle** **Large lip height** **Run out of chisel edge**	• Regrind correctly • Check precision after regrinding
	Large run out after attachment to machine **Large spindle run out** **Loose clamping of work material**	• Check holder and/or select another one • Check the spindle • Check work clamping after fixing to the machine
	Relief angle is too large	Regrind correctly
	Low drill rigidity	Use a more rigid drill
Poor surface finish	**Poor regrinding**	Regrind correctly
	Not suitable coolant for the material Not enough coolant	Change method of coolant supply, or increase volume Select higher quality coolant
	Large run out after attachment to machine large spindle run out	• Check holder and/or select another one • Check the spindle
	Feed rate is too high	Reduce the feed rate
	Excessive wear on cutting edge **Build up on margin is too large**	• Regrind correctly • Use a coated tool
	Chip packing	• Use the most suitable drill (consider flute form & helix angle) • Change cutting conditions (feed rate, try step feed)
Bad cylindrical shape 	**Non-symmetric point angle** **Large lip height** **Run out of chisel edge** **Large margin wear**	• Regrind correctly • Check precision after regrinding
	Feed rate is too low	Increase feed rate

TROUBLE SHOOTING

Drilling

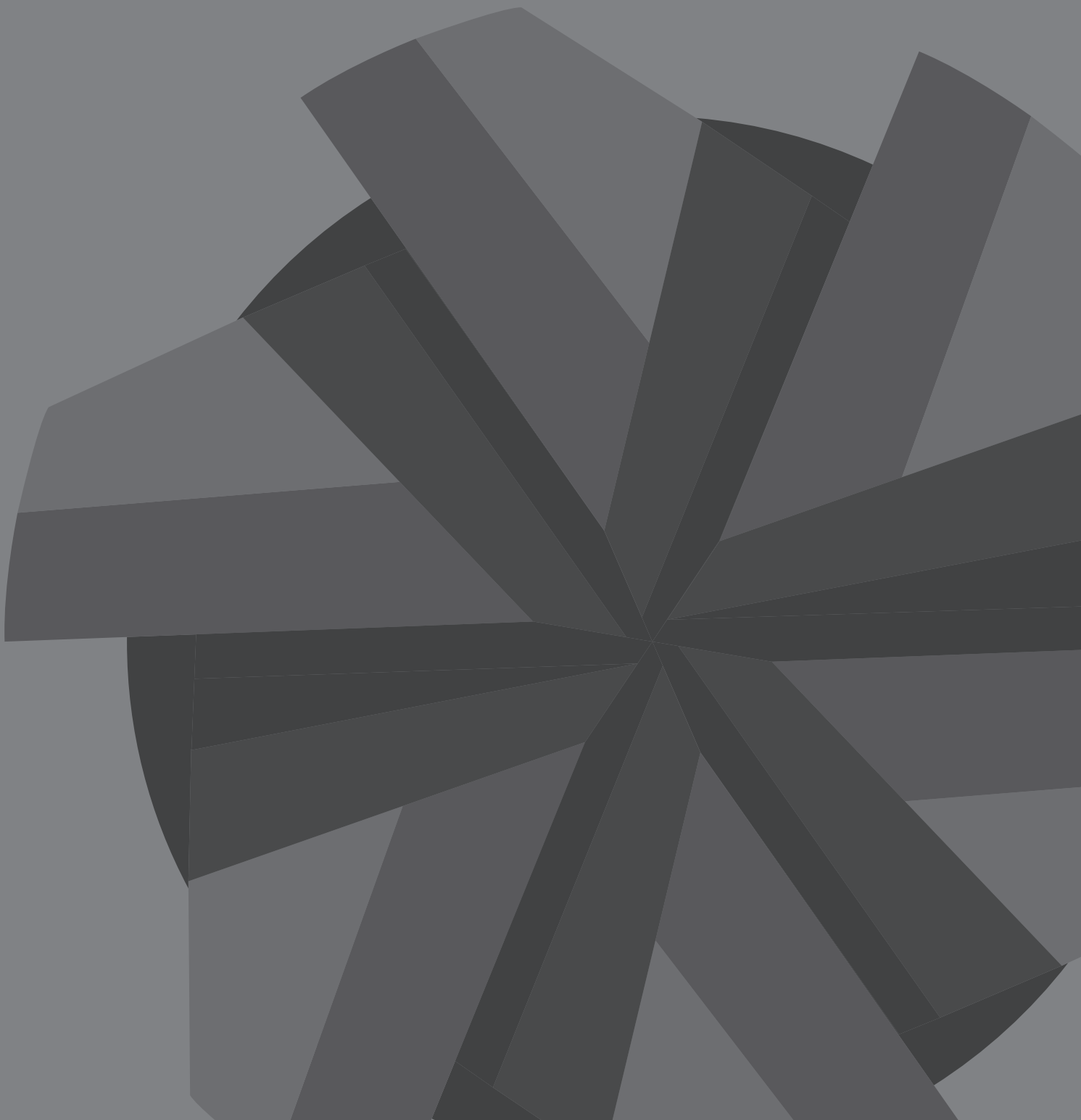
Dimensional Accuracy		
Specific Problem	**Cause**	**Solution**
Breakage 	**Deflection and recess of machine and work material**	Increase the rigidity of machine, drill and work clamping
	Relief angle is too small	Regrind precisely
	Feed rate is too high	Decrease the feed rate
	Excessive tool wear	Regrind
	Chip packing	Use the most suitable drill (consider flute form & helix angle) Change cutting conditions (feed rate, try step feed)
	Difficulty entering the material	• Use a highly rigid tool and machine • Increase work clamping rigidity • Select a thinning for low cutting resistance • Use centring • The work piece should be horizontal • Use drill bush
Chipping of corner edge 	**Inappropriate tool material**	Use the most suitable tool material
	Uneven hardness distribution on the work material	• Use the most suitable tool material • Change cutting conditions (feed rate, drilling speed) or machining method
	Drilling speed or feed rate too high	Reduce drilling speed or feed rate
	Not enough coolant	Change coolant method and increase volume
Chipping of cutting edge 	**Large run out after attachment to machine Large spindle run out**	• Check holder and/or select another one • Check the spindle • Check run out after fixing to the chuck
	Drilling speed or feed rate	Reduce drilling or feed rate
	Relief angle is too small	Regrind correctly
	Tool not suitable for work material	Use the most suitable tool material
Abnormal wear on the corner part 	**Regrinding should have occurred earlier**	Regrind sooner
	Poor alignment accuracy	Check /adjust alignment before drilling
	Drilling speed or feed rate too high	Decrease the drilling speed
	Point shape is inappropriate	Select correct point dimensions
	Tool not suitable for work material	Use the most suitable tool material
	Inappropriate coolant type	Change coolant

TROUBLE SHOOTING

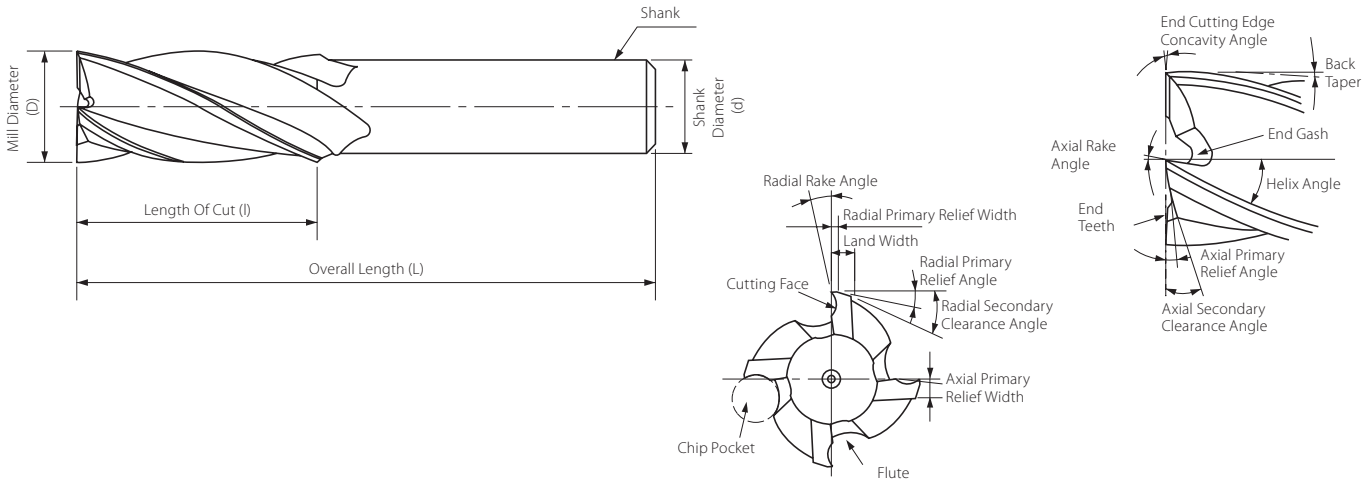
Drilling

Dimensional Accuracy		
Specific Problem	**Cause**	**Solution**
Wear, chipping and crushing of the chisel edge	**Feed rate is too high**	Decrease feed rate
	Point shape is inappropriate	Select correct point dimensions
	Tool not suitable for work material	Choose suitable tool material
	Relief angle is too small	Regrind precisely
Chipping of the margin	**Bush size is too large**	Select correct bush size
Margin build-up	**High heat generation due to large wear on the cutting edge**	Regrind correctly
	Coolant is not sufficient	Change coolant method and increase volume
	Coolant is not suitable	Change coolant
	Bad chip discharging / Ductile material	Change drills or alter cutting conditions
Tang breakage	**Shank slippage due to defect**	Eliminate the defect
	Defective inner surface of morse taper holder	Change holders or correct the surface of the morse taper holder
	Inaccurate regrinding	Regrind correctly
Chattering sounds	**Relief angle is too large**	Regrind correctly
	Low tool rigidity	Use a more rigid drill
Chips roll around the drill	**Long chips** **Chips are stuck in the flute**	Change drill and cutting conditions
One-sided wear	**Poor alignment accuracy**	Check/adjust the alignment
	Large run out after attachment to machine	Decrease run out when fixing to the chuck

TECHNICAL • MILLING

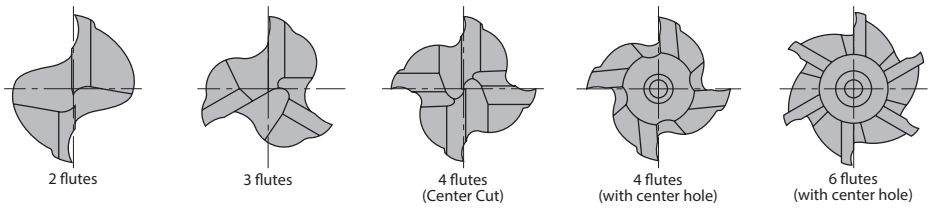


Terminology



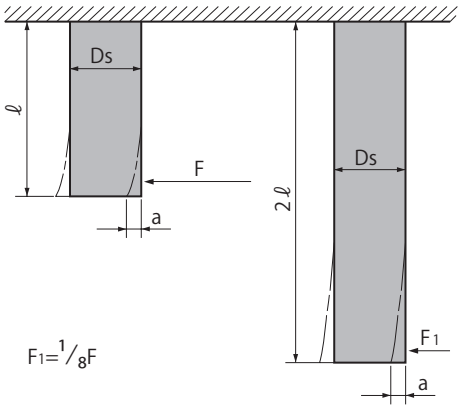
Number of flutes

The number of flutes should be determined by the work material, dimensions of the work piece and milling conditions. In general, an end mill with a small number of flutes and large chip room is used for roughing, and an end mill with a large number of flutes is used for finishing.



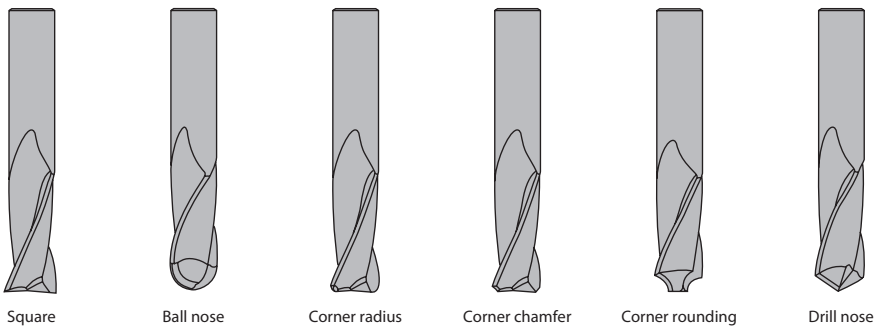
Length of cut

The shorter the end mill, the smaller the deflection and the stronger the rigidity. Because rigidity varies in proportion to length of cut by a factor to the power of 3 (for example, when the length of cut doubles, the rigidity decreases to 1/8), it is necessary to keep the length of cut as short as possible.



End profile

Stocked end profiles are typically square end ball nose and corner radius, Corner chamfer, corner rounding and drill nose end profiles can be supplied via special order.



TROUBLE SHOOTING

Milling

Dimensional Accuracy		
Specific Problem	**Cause**	**Solution**
Chip packing	**Too great cutting amount** **Not enough chip room** **Not enough coolant pressure**	• Adjust feed or speed • Use end mill with fewer flutes • Apply more coolant. Use air
Rough surface finish	**Feed too fast** **Slow speed** **Too much wear** **Chip biting** **No end tooth concavity**	• Slow down to correct feed • Use higher speed • Regrind earlier stage • Cut less amount per pass • Add margin (touch primary with oilstone)
Burr	**Too much wear on primary relief** **Incorrect conditions** **Impropoer cutting angle**	• Regrind sooner • Correct milling conditions • Change to correct cutting edge
No dimensional accuracy	**Too tough conditions** **Lack of accuracy (machine & holder)** **Not enough rigidity (machine & holder)** **Not sufficient number of flutes**	• Change to easier condition • Repair machine or holder • Change machine or holder or condition • Use end mill with geater number of flutes
No perpendicular side	**Feed too fast** **Too geat cutting amount** **Too long flute length or long overall length** **Not sufficient number of flutes**	• Slow down to correct feed • Reduce cutting amount • Use proper length tool. Hold shank deeper • Use end mill with greater number of flutes



TROUBLE SHOOTING

Milling

Dimensional Accuracy		
Specific Problem	**Cause**	**Solution**
Chipping	**Feed too fast** **Feed too fast on first cut** **Not enough rigidity of machine tool & holder** **Loose tool holder** **Loose fixture (workpiece)** **Lack of rigidity (tool)** **Teeth too sharp**	• Slow down to propoer feed • Slow down on first bite • Change rigid machine tool or holder • Tighten tool holder • Tighten workpiece fixture • Use shortest end mill available. Hold shank deeper. Try down cut. • Change to lower cutting edge, primary relief
Wear	**Speed too fast** **Hard material** **Biting chips** **Improper feed speed (too slow)** **Improper cutting angle** **Too low primary relief angle**	• Slow down, use more coolant • Use higher grade, tool material, add surface treatment • Change feed speed to change chip size or clear chips with coolant or air pressure • Increase feed speed. Try down cut • Change to correct cutting angle • Change to larger relief angle
Breakage	**Feed too fast** **Too large cutting amount** **Too long flute length or long overall length** **Too much wear**	• Slow down feed • Adjust to smaller cutting amount per teeth • Hold shank deeper, use shorter end mill • Regrind at earlier stage
Chattering	**Feed and speed too fast** **Not enough rigidity** **Too much relief angle** **Loose holder (workpiece)** **Cutting too deep** **Too long flute length or long overall length**	• Correct feed and speed • Use beter machine tool or holder or change conditions • Change to smaller relief angle. Add margin (touch primary with oilstone) • Hold workpiece tighter • Correct to smaller cutting depth • Hold shank deeper, use shorter end mill or try down cut
Short tool life (dull teeth)	**Too much cutting friction** **Tough work material** **Improper cutting angle**	• Regrind at earlier stage • Select premium tool • Change cutting angle & primary

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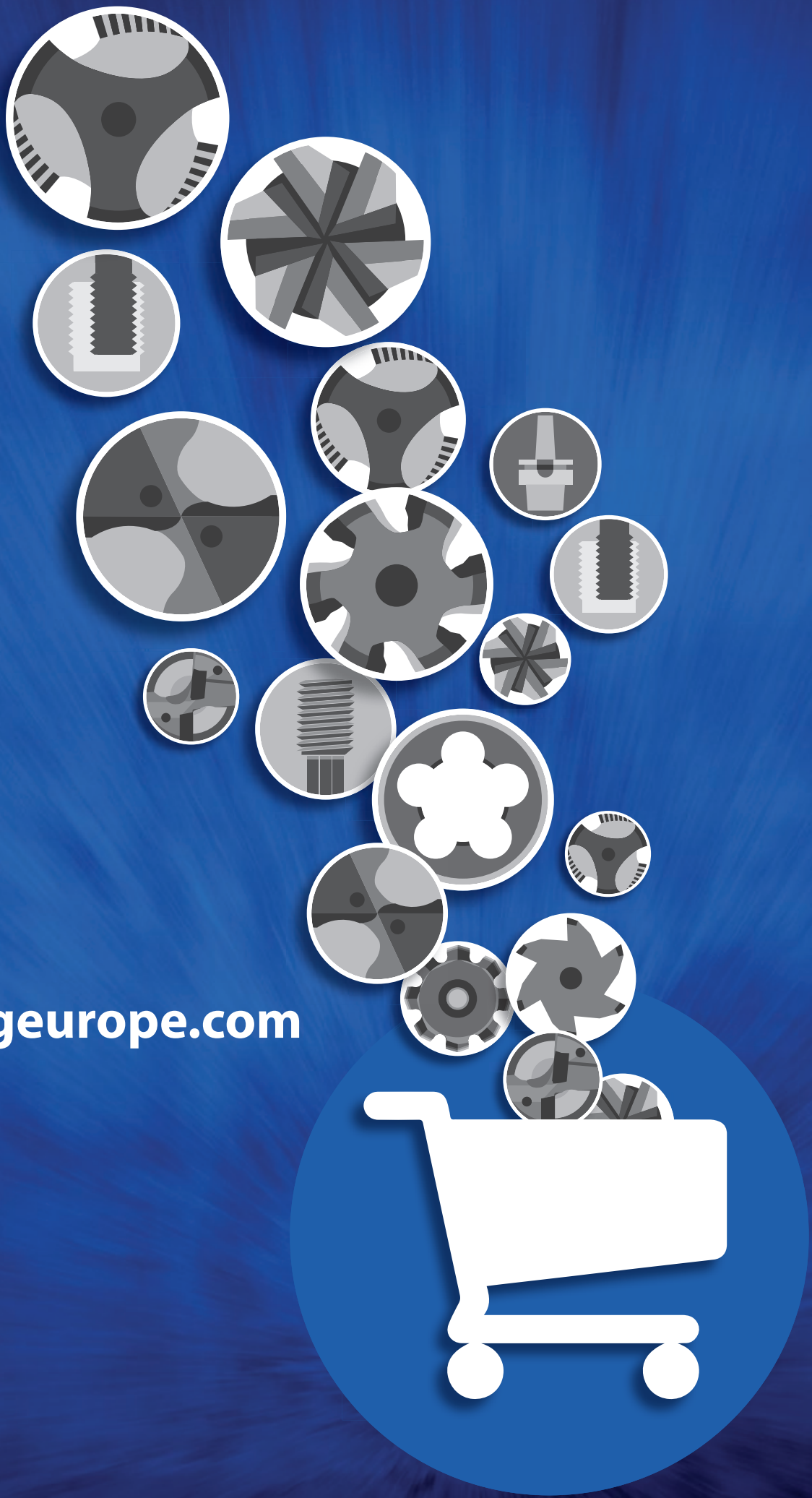
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WHO55-5D	B.422
WHO-EM-PNC (G)	A.260
WHO-EM-PNC (M)	A.256
WHR-NI-POT (M)	A.111
WHR-NI-POT (UNJC)	A.212
WHR-NI-POT (UNJF)	A.218
WHR-NI-SFT (M)	A.138
WHR-NI-SFT (UNJC)	A.215
WHR-NI-SFT (UNJF)	A.221
WH-VM-PNC (UNC-UNJC-UNF-UNJF)	A.259
WH-VM-PNC (M-MJ-MF)	A.257
WX-CRE	C.716
WX-G-ETSS	C.714
WX-HS-CRE	C.715
WXL-1,5D-DE	C.673
WXL-2D-DE	C.675
WXL-3D-DE	C.679
WXL-4D-DE	C.681
WXL-CR-EDS-6	C.690
WXL-EBD	C.692
WXL-EMS	C.683
WXL-HS-EBD	C.691
WXL-LN-EBD	C.694
WXL-LN-EDS	C.685
WXL-LN-EMS-6	C.684
WXL-PC-EBD	C.701
WX-MS-GDS	B.342
WXO-ST-PNC (M-MJ-MF)	A.258
WX-PNC (UNC-UNJC-UNF-UNJF)	A.260
WX-PNC (G)	A.261
WX-PNC (M, MF)	A.257
WX-PNC (NPT)	A.265
WX-PNC (Rc)	A.263
WX-PNC (UNC, UNJC, UNF, UNJF)	A.260
WXS-CPR	C.667
WXS-CRE	C.655
WXS-EMS	C.660
WXS-HS-CRE	C.654
WXS-HS-EBD	C.661
WXS-LN-EBD	C.662
WX-ST-PNC-3P (G)	A.261
WX-ST-PNC-3P (M, MF)	A.256
Z-OIL-POT (M)	A.106
Z-OIL-SFT (M)	A.127
Z-POT (M)	A.105
Z-POT (MF)	A.171
Z-SFT (M)	A.126
Z-SFT (MF)	A.180



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