CERATIZIT
GROUP

The Catalog

Cutting Tools – Inch Assortment

AHB
TOOLING & MACHINERY
COMPLETE METALWORKING SOLUTIONS
(800) 991-4225
www.ahbinc.com
ISO Certified
customerservice@ahbinc.com

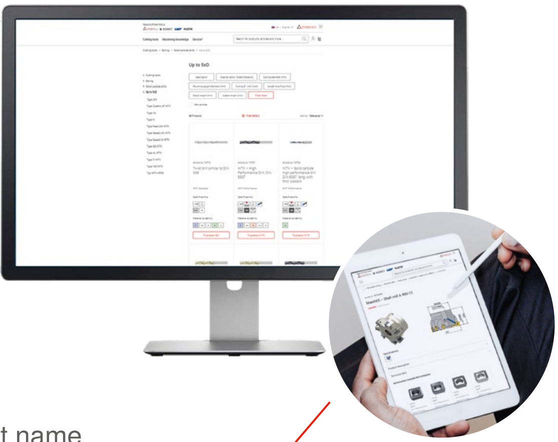
TEAM CUTTING TOOLS

CUTTING SOLUTIONS BY CERATIZIT   KOMET   WNT   KLENK

CERATIZIT is a high-technology engineering group specialised in cutting tools and hard material solutions.

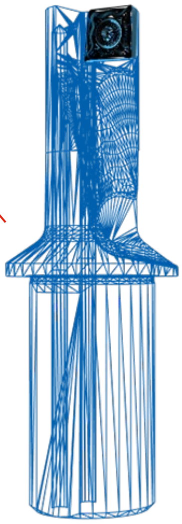
Tooling the Future

cuttingtools.ceratizit.com



SIMPLE TOOL AND ARTICLE SEARCH FUNCTION

- Intuitive search functionality based on article or product name
- Filter options for quick tool search
- Recommendation of suitable accessories on the article page
- Products are accompanied by various practical reports, guides, operating instructions and product videos



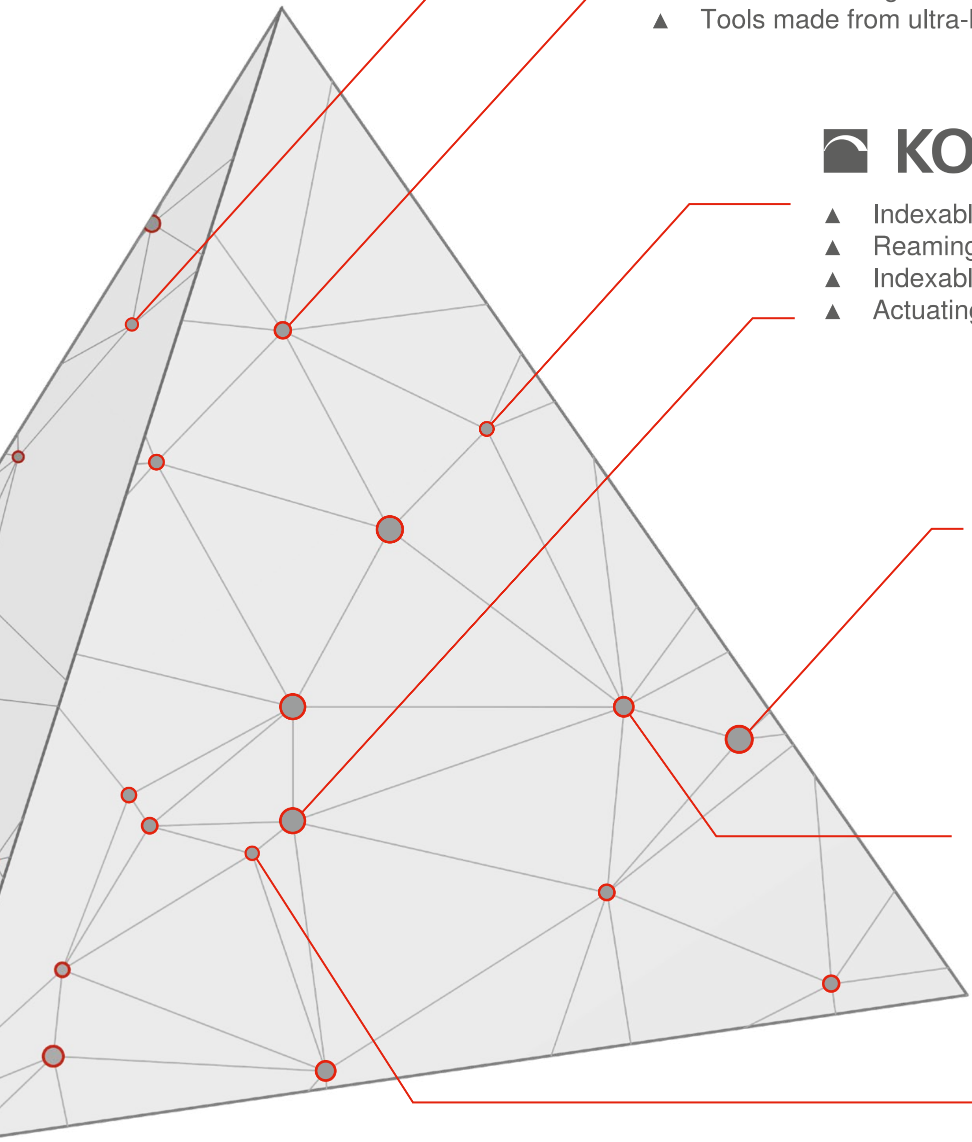
SELF-SERVICE OPTIONS

- Easily review the full tool assortment
- Locate accessories
- Free downloads of CAD and cutting data
- Download forms, brochures, and catalog supplements

Questions about how to use the online shop and frequently asked questions can be found at: cuttingtools.ceratizit.com/us/en/faq.html

FULL RANGE
PRODUCT PORTFOLIO

Everything for machining from the spindle to the cutting edge



CUTTING SOLUTIONS BY CERATIZIT

- ▲ US-made solid carbide milling cutters
- ▲ Turning tools
- ▲ Multifunction tools
- ▲ Parting and grooving tools
- ▲ Indexable milling tools
- ▲ Tools made from ultra-hard cutting materials

KOMET

- ▲ Indexable drilling tools
- ▲ Reaming and countersinking tools
- ▲ Indexable boring tools
- ▲ Actuating tools

WNT

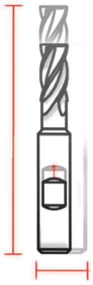
- ▲ HSS drilling
- ▲ Solid carbide drilling
- ▲ Taps and thread formers
- ▲ Circular and thread milling
- ▲ Thread turning
- ▲ Miniature turning tools
- ▲ HSS milling cutters
- ▲ Solid carbide milling cutters
- ▲ Tool clamping
- ▲ Workpiece clamping

KLENK

- ▲ Solid carbide drilling and milling for aerospace frame assembly

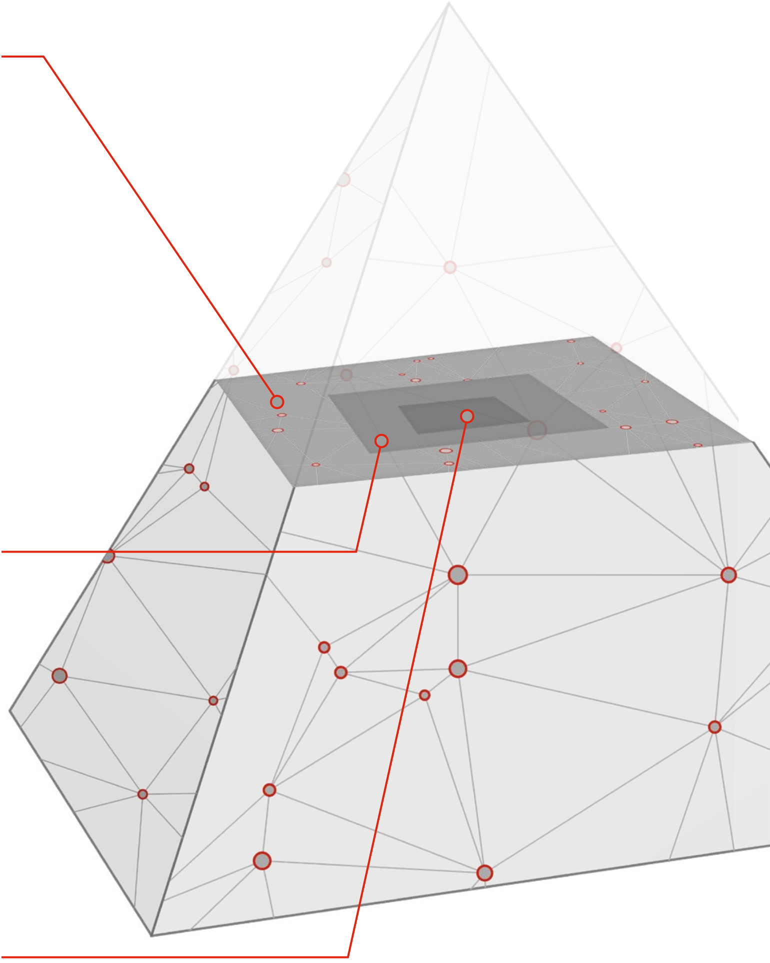
COMPREHENSIVE RANGE OF STANDARD-TOOLS

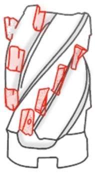
With a selection of cutting tools exclusively for machining applications, CERATIZIT has the most comprehensive product range on the market. Be it turning, drilling, milling, grooving, boring or toolholding, we offer a broad selection of innovative, state-of-the-art products for every application.



COMPLETE RANGE OF SEMI-STANDARD TOOLS

Semi-standard tool program allows you to customize our standard tools to your unique specifications for a wide variety of dimensions across many product areas.





CUSTOM & INDUSTRY-SPECIFIC TOOLS

As one of the leading tool manufacturers we develop optimal tool concepts and develop special tools that are based on the most important success factors such as efficiency, time, and quality.

INNOVATIVE ORIENTATION

Machining at the highest technological level

Team Cutting Tools can help you develop consistent, reliable process optimization through advanced technologies such as Dragonskin high-performance coating, 3D printed tools, and intelligent and customer-oriented digitalization through sensor, monitoring and assistance systems.

TOOLSCOPE

Machine monitoring solution with digital and sensory intelligence

FREETURN

Revolutionary turning process, High Dynamic Turning, with FreeTurn Tools

ACTUATING TOOLS

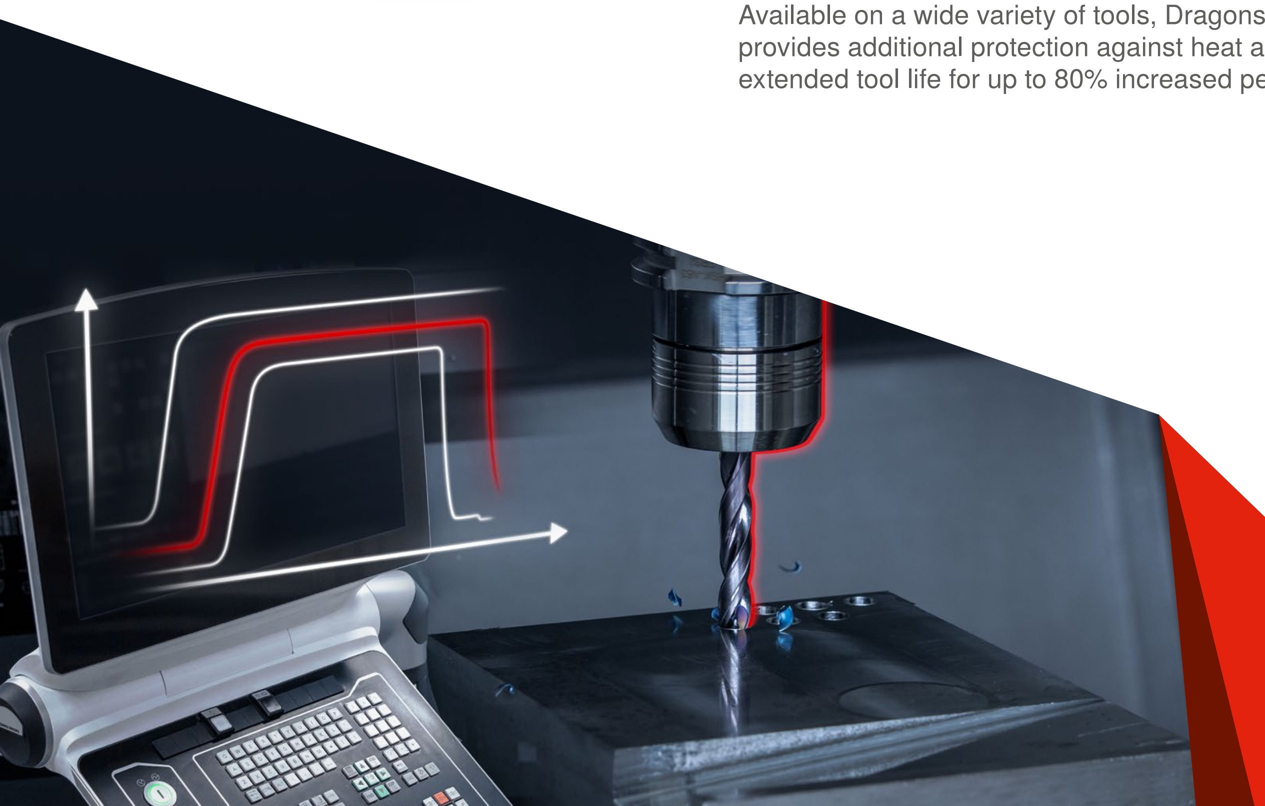
U-Axis tooling and KOMtronic is an efficient machining of turning contours on rotationally symmetrical parts

ADDITIVE MANUFACTURING

Customized 3D printed tooling solutions allow for high speed and lightweight machining

DRAGONSKIN

Available on a wide variety of tools, Dragonskin coating provides additional protection against heat and wear for extended tool life for up to 80% increased performance



HIGHEST
TECHNICAL COMPETENCY

Stay up-to-date about market requirements with technical support

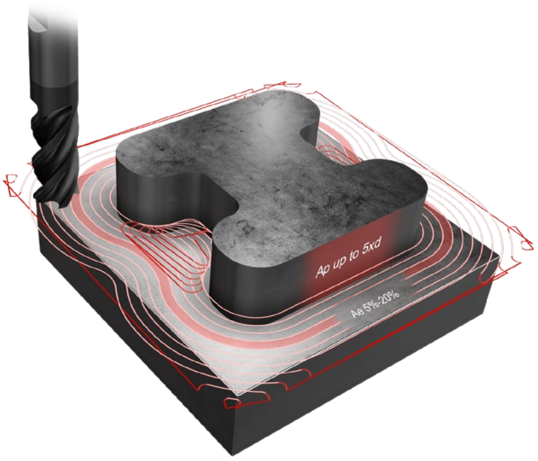
Application engineers and industry experts from Team Cutting Tools are partners in your success. From training courses online and at our Technical Centers, to on-site testing and process planning, we share our technical knowledge to help you stay current with the latest technology. Additional services such as to regrinding, reconditioning and digital access to downloadable CAD models, allow you to be more productive and efficient in an easy, flexible and environmentally friendly manner.

YOUR PERSONAL APPLICATION OR SALES ENGINEER

Manufacturing consulting and process optimization on site

TOOL DATA

Cutting data and CAD models to assist you with your tool management or for simulating a machining process



TECHNICAL COMPETENCY

We invest in both internal education and training to strengthen our internal competency. With knowledgeable field-based sales engineers, application engineers for industry segments and a dedicated technical support team, we assist customers to drive the industry forward with projects that focus on future technologies.

SUSTAINABILITY

Sustainable solutions to drive economical metal cutting include implementing lean manufacturing principles, ToolScope machine monitoring, and tool regrinding and repair services.

FAST AND EFFICIENT AVAILABILITY

EFFICIENT LOGISTICS

Well stocked inventory at our modern logistics center means fast turnaround time from order to delivery to keep your operation running smoothly.

ONLINE SOLUTIONS

Register on our website to benefit from extensive product data, downloadable files, and machining knowledge online.

CUSTOM TOOL ORDER AND DELIVERY

Contact your personal sales engineer to learn more about customized tool prices and delivery times.

DEEP
INDUSTRY KNOWLEDGE

Our experts deliver comprehensive solutions for every industry sector

With over 100 years of engineering and manufacturing experience of high-performance cutting tools, take advantage of our extensive experience in automotive, aerospace, energy technology, medical and heavy machining. Tailor made solutions help meet the specific demands of each industry sector.

PROJECT ENGINEERING

Smart solution concepts for efficient machining processes

EXPERT KNOWLEDGE

Extensive experience with high-performance cutting tools means that we provide optimal machining operations and processes for our customers.

INDUSTRY SPECIFIC TOOLS

Specific tools designed to meet the most demanding challenges in every industrial sector to provide a competitive advantage for our customers.

CUSTOM SOLUTIONS

Customized solutions to meet your specific machining challenges.

INDEPENDENT
QUALITY GUARANTEE

The CERATIZIT Group: everything from a single source, from the raw material to the finished tool

As part of the CERATIZIT group, we have exclusive raw material sourcing and many resources through the entire supply chain. From the mine to powder production, shaping, sintering, surface finishing and all the way to recycling, we ensure our customers the highest quality.

From our R&D strength, such as the development of new powder types, to our technical sales network and consulting expertise, you benefit from our vast experience and resources and a "one stop shop" for cutting tools.

WE PROVIDE YOU WITH THE IDEAL MACHINING SOLUTION

Team Cutting Tools of the CERATIZIT Group

The machining industry today is diverse and becoming increasingly complex. Trends and innovations are moving quickly, and the possibilities and offerings seem virtually unlimited. For this reason, it is important to have a reliable and competent partner on board.

Team Cutting Tools is not just a tool supplier. We are partners who can provide advice, extensive industry knowledge, and decades of experience to provide the ideal machining solution.

The Cutting Tool Solution is

FULL RANGE
PRODUCT PORTFOLIO

INNOVATIVE
ORIENTATION

HIGHEST
TECHNICAL COMPETENCY

FAST AND EFFICIENT
AVAILABILITY

DEEP
INDUSTRY KNOWLEDGE

INDEPENDENT
QUALITY GUARANTEE

Contact us

We are here to help

Customer Service & Technical Support

Customer Service
1-800-783-2280
customerservice.usa@ceratizit.com

Technical Support
1-586-834-2098
techsupport.usa@ceratizit.com

Canada Customer Service
1-905-551-1743
customerservice.canada@ceratizit.com

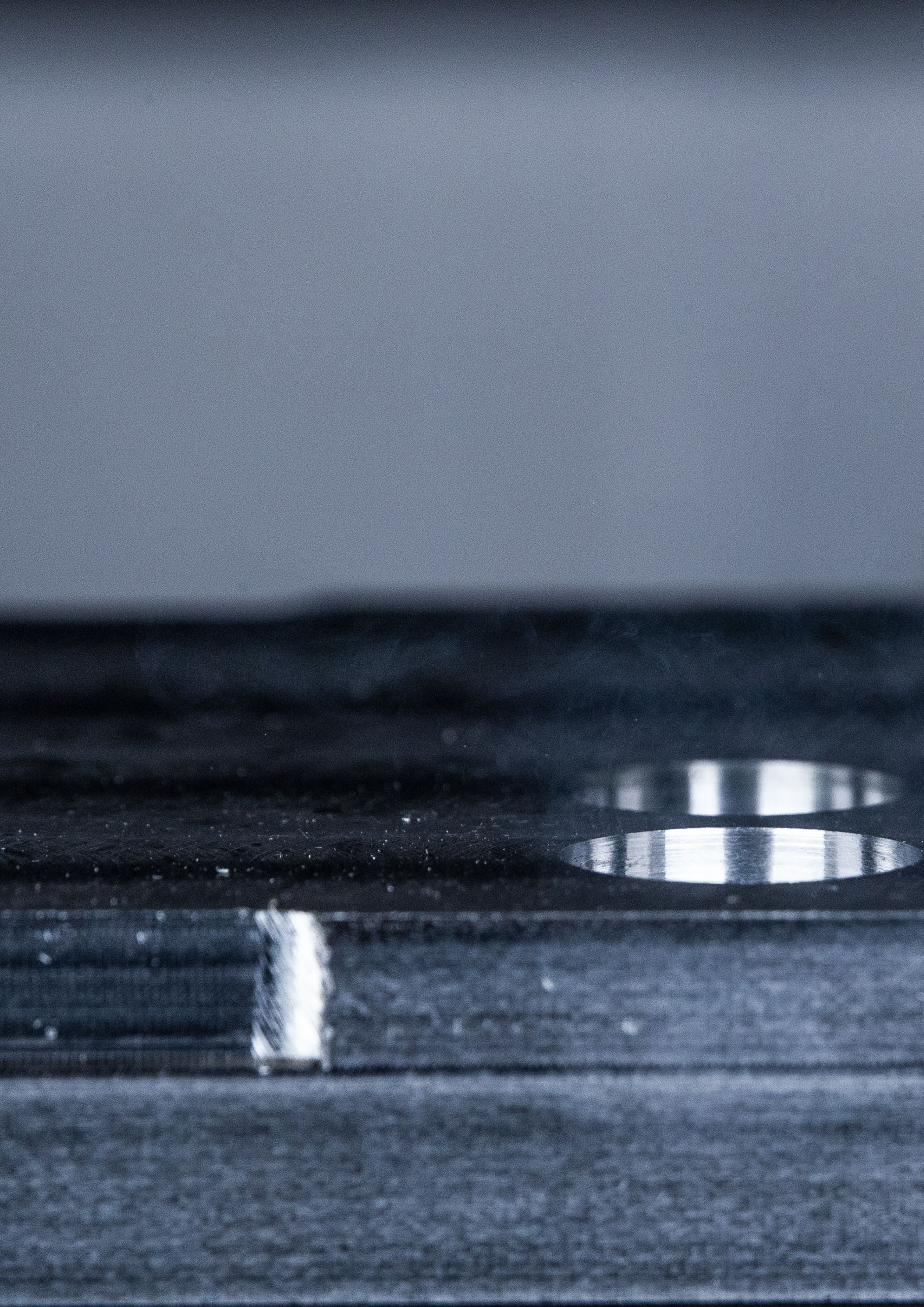
Visit us online

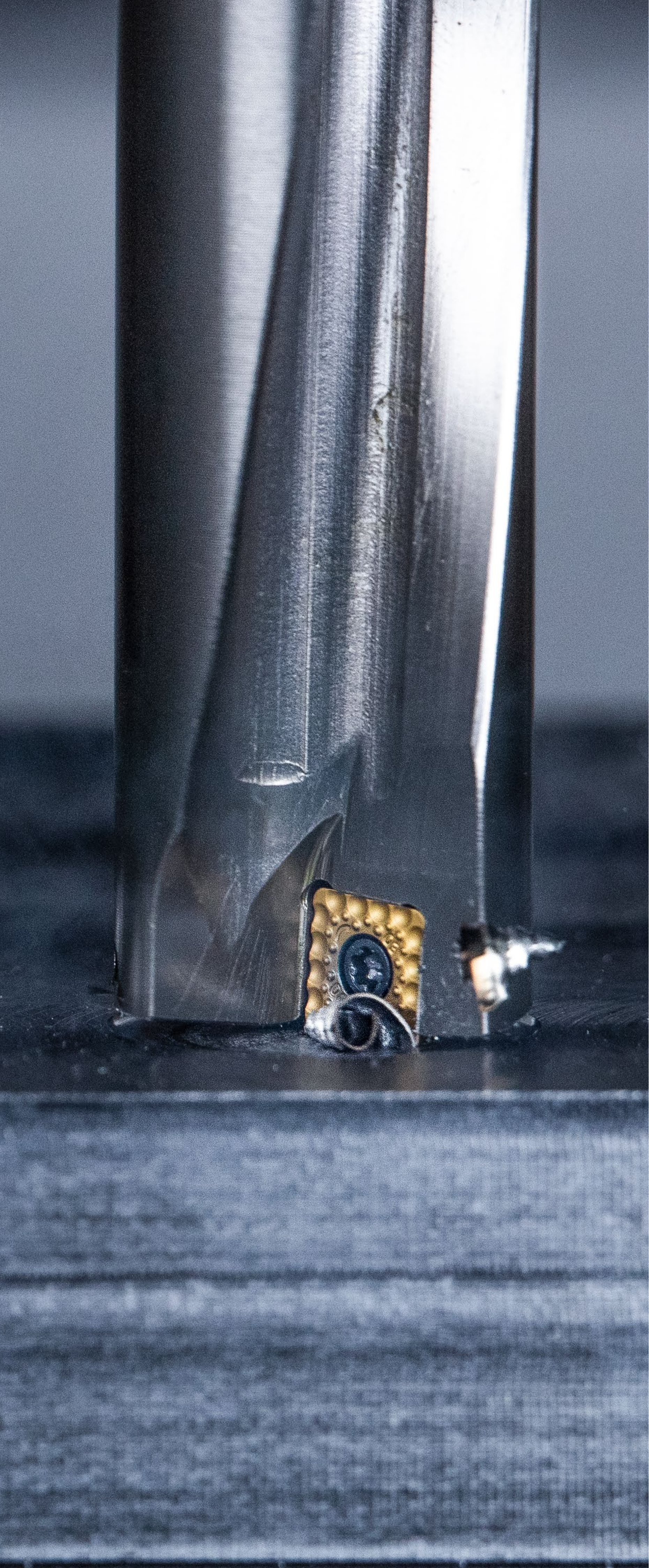
View our Online Solutions

cutting.tools/us/en/shop

Take note for future reference

Your personal application or sales engineer





List of contents

KOMET \ Performance

Premium quality tools for high performance.

The premium quality tools from the **KOMET Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

Symbol explanation

Shank

C

Cylindrical shank with clamping flat
Guarantees optimum clamping of the tool and can be clamped in every standard adapter

ABS

Drill with ABS connection
The ABS connection from Komet is a modular coupling system for rotating tools and stationary tools, and offers a number of advantages, such as improved force transmission

Coolant supply version

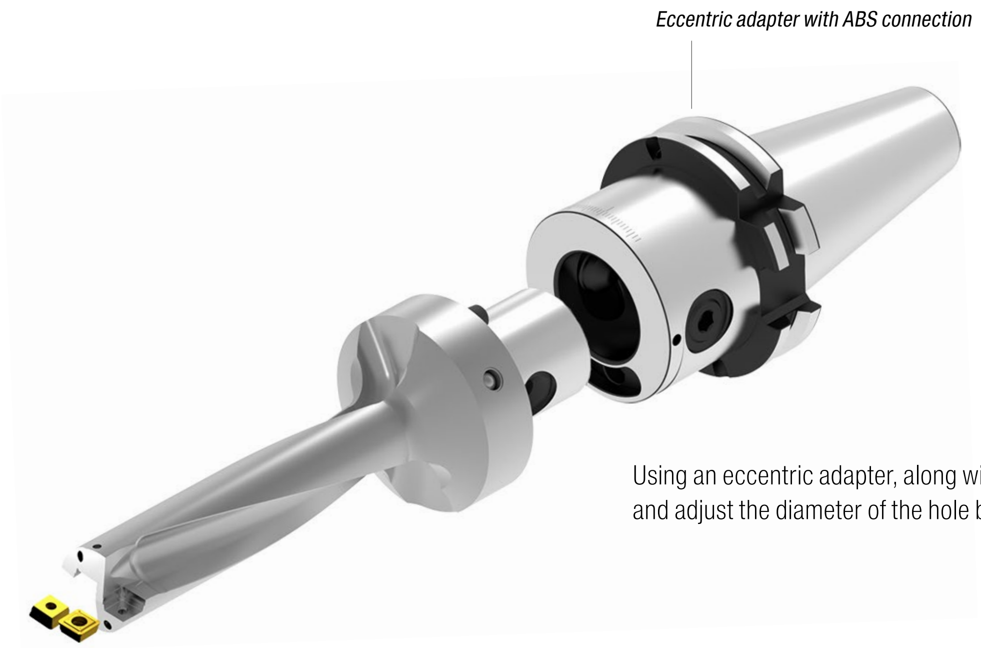
Drill with thru coolant supply
The tried-and-tested thru coolant system guarantees a reduction in heat at the cutting edges of the tool as well as improved chip removal

Application tips – Torsional vibration dampeners and eccentric adjusting devices

The modular concept of the ABS connection, will allow you to easily and quickly optimize your drilling operation. Two example of this are the torsional dampening devices and the eccentric adjusting devices.

Torsional vibration dampeners change the natural frequency of the drill assembly.
This results in:

- ▲ A significant noise reduction
- ▲ Considerably longer tool life
- ▲ Improved surface finish
- ▲ Improved process reliability



Using an eccentric adapter, along with an ABS drill, you can easily vary and adjust the diameter of the hole by +/- 0.25mm (+/- .010").

metric

Additional metric items are available in our Online-Shop at cuttingtools.ceratizit.com and in the metric main catalog.

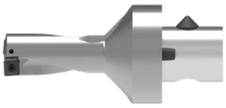
Toolfinder

KUB Pentron

- The all around tool for process-secure drilling under a wide variety of conditions
- Ideal for extreme machining situations

Boring depth	Drilling through a cross hole	Stack plate drilling	Drilling on uneven surfaces	Boring	Spot drilling an edge	Spot drilling a convex surface	Spot drilling angled surfaces	Spot drilling a pointed contour	Chain drilling	Spot drilling through a center in the pre-op
4xD	●	●	○	-	●	●	●	●	○	●
5xD	●	○	○	-	●	○	●	○	-	○
4xD	●	●	○	-	●	●	●	●	○	●
5xD	●	○	○	-	●	○	●	○	-	○

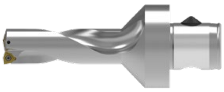
KUB Quatron



- Provides perfect drilling quality even under enormous loads
- For stable machining situations

Boring depth	Drilling through a cross hole	Stack plate drilling	Drilling on uneven surfaces	Boring	Spot drilling an edge	Spot drilling a convex surface	Spot drilling angled surfaces	Spot drilling a pointed contour	Chain drilling	Spot drilling through a center in the pre-op
2xD	●	●	●	○	○	●	●	○	●	●
3xD	●	●	●	○	○	●	●	○	●	●
2xD	●	●	●	○	○	●	●	○	●	●
3xD	●	●	●	○	○	●	●	○	●	●

KUB Trigon



- Ideal for machining under unstable conditions
- Well-suited to machining on less powerful machines
- The first choice for creating dimensionally accurate holes

Boring depth	Drilling through a cross hole	Stack plate drilling	Drilling on uneven surfaces	Boring	Spot drilling an edge	Spot drilling a convex surface	Spot drilling angled surfaces	Spot drilling a pointed contour	Chain drilling	Spot drilling through a center in the pre-op
2xD	●	-	●	●	○	●	●	○	●	○
3xD	●	-	●	●	○	●	●	○	●	○
4xD	○	-	○	-	-	○	○	-	○	○
2.5xD	●	-	●	●	○	●	●	○	●	○
4xD	○	-	○	-	-	○	○	-	○	○

MaxiDrill 900

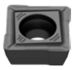
- Provides perfect drilling quality even under enormous loads
- Ideal for large drilling depths: The high feed rates increase productivity
- For stable machining situations

Boring depth	Drilling through a cross hole	Stack plate drilling	Drilling on uneven surfaces	Boring	Spot drilling an edge	Spot drilling a convex surface	Spot drilling angled surfaces	Spot drilling a pointed contour	Chain drilling	Spot drilling through a center in the pre-op
3xD	●	●	●	○	●	●	●	●	○	●
5xD	●	○	○	○	●	●	●	●	○	●

KUB Centron

- Cost-effective and process-secure drilling
- Hole depths up to 9xD in virtually all materials
- HSS or solid carbide centering tip for optimum positioning accuracy

Boring depth	Drilling through a cross hole	Stack plate drilling	Drilling on uneven surfaces	Boring	Spot drilling an edge	Spot drilling a convex surface	Spot drilling angled surfaces	Spot drilling a pointed contour	Chain drilling	Spot drilling through a center in the pre-op
4xD	○	-	●	-	-	○	-	-	○	●
6xD	○	-	●	-	-	○	-	-	○	●
9xD	○	-	●	-	-	○	-	-	○	●

Shank	Diameter Ø	Page No.	Insert type		No. of cutting edges	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metals	S Heat-resistant	H Tempered steel	O Non-metal materials	Page No.
ABS	0.562 – 1.752	6+7		SOGX	4	●	●	●	●	●	○	○	14+15
ABS	0.562 – 1.752	8+9											
C	0.562 – 1.750	10+11											
C	0.562 – 1.750	12+13											
ABS	0.562 – 2.500	16+17		SOEX	4	●	●	●	●	●	○	○	24+25
ABS	0.562 – 2.500	18+19											
C	0.562 – 1.750	20+21											
C	0.562 – 1.750	22+23											
ABS	0.562 – 3.250	26+27		WOEX	3	●	●	●	○	●	○	○	40+41
ABS	0.562 – 3.250	28+29											
ABS	0.562 – 1.750	30											
C	0.562 – 3.250	31–33											
C	0.562 – 1.750	34+35											
C	0.480 – 2.483	 metric		SONT	2 4	●	●	●	○	○			 metric
C	0.480 – 1.614												
ABS	0.812 – 2.500	36–38		WOEX	3	●	●	●	○	●	○	○	40+41
ABS	0.812 – 2.500		KUB Centron – centering tips										
ABS	0.812 – 2.500				Ø 5 – 10 mm	●	●	●	●	○		○	39

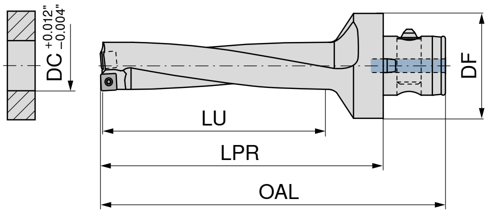
KUB Pentron – Indexable insert drill

Scope of supply:

Indexable Insert Drill incl. clamping screws

≤ 4xD

ABS



Designation	KOMET no.	DC inch	DF inch	OAL inch	LU inch	LPR inch	Insert	torque moment Nm	10 874 ...	15 874 ...
KUB-P.4D.0562.R.04.ABS50-F	U44 51430	0.562	1.969	4.685	2.362	3.465	SOGX 040204	0,38		14395
KUB-P.4D.0593.R.04.ABS50-F	U44 51510	0.593	1.969	4.921	2.520	3.701	SOGX 040204	0,38		15195
KUB-P.4D.0625.R.04.ABS50-F	U44 51590	0.625	1.969	4.921	2.520	3.701	SOGX 040204	0,38		15995
KUB-P.4D.0656.R.05.ABS50-F	U44 51670	0.656	1.969	5.118	2.677	3.898	SOGX 050204	0,62		16795
KUB-P.4D.0687.R.05.ABS50	U44 51750	0.689	1.969	5.276	2.835	4.055	SOGX 050204	0,62	17595	
KUB-P.4D.0703.R.05.ABS50-F	U44 51790	0.703	1.969	5.275	2.835	4.055	SOGX 050204	0,62		17995
KUB-P.4D.0750.R.06.ABS50-F	U44 51910	0.750	1.969	5.629	3.150	4.409	SOGX 060206	1,01		19195
KUB-P.4D.0765.R.06.ABS50-F	U44 51940	0.765	1.969	5.629	3.150	4.409	SOGX 060206	1,01		19495
KUB-P.4D.0781.R.06.ABS50-F	U44 51980	0.781	1.969	5.629	3.150	4.409	SOGX 060206	1,01		19895
KUB-P.4D.0812.R.07.ABS50-F	U44 52060	0.812	1.969	5.787	3.307	4.567	SOGX 07T208	1,01		20695
KUB-P.4D.0828.R.07.ABS50	U44 52100	0.827	1.969	5.787	3.307	4.567	SOGX 07T208	1,01	21095	
KUB-P.4D.0875.R.07.ABS50-F	U44 52220	0.875	1.969	6.102	3.622	4.882	SOGX 07T208	1,01		22295
KUB-P.4D.0906.R.07.ABS50	U44 52300	0.906	1.969	6.102	3.622	4.882	SOGX 07T208	1,01	23095	
KUB-P.4D.0937.R.08.ABS50-F	U44 52380	0.937	1.969	6.259	3.780	5.039	SOGX 080308	1,28		23895
KUB-P.4D.0985.R.08.ABS50	U44 52500	0.984	1.969	6.457	3.937	5.236	SOGX 080308	1,28	25095	
KUB-P.4D.1000.R.08.ABS50-F	U44 52540	1.000	1.969	6.614	4.094	5.394	SOGX 080308	1,28		25495
KUB-P.4D.1031.R.09.ABS50-F	U44 52620	1.031	1.969	6.811	4.252	5.591	SOGX 09T308	2,25		26295
KUB-P.4D.1062.R.09.ABS50	U44 52700	1.063	1.969	6.811	4.252	5.591	SOGX 09T308	2,25	27095	
KUB-P.4D.1109.R.09.ABS50-F	U44 52820	1.109	1.969	7.165	4.567	5.945	SOGX 09T308	2,25		28295
KUB-P.4D.1125.R.09.ABS50-F	U44 52860	1.125	1.969	7.165	4.567	5.945	SOGX 09T308	2,25		28695
KUB-P.4D.1156.R.09.ABS50-F	U44 52940	1.156	1.969	7.322	4.724	6.102	SOGX 09T308	2,25		29495
KUB-P.4D.1187.R.10.ABS63-F	U44 63020	1.187	2.480	7.913	4.882	6.417	SOGX 100408	2,8		30196
KUB-P.4D.1218.R.10.ABS63-F	U44 63090	1.218	2.480	7.913	4.882	6.417	SOGX 100408	2,8		30996
KUB-P.4D.1250.R.10.ABS63-F	U44 63180	1.250	2.480	8.071	5.039	6.575	SOGX 100408	2,8		31896
KUB-P.4D.1281.R.10.ABS63	U44 63250	1.280	2.480	8.268	5.197	6.772	SOGX 100408	2,8	32596	
KUB-P.4D.1312.R.11.ABS63-F	U44 63330	1.312	2.480	8.425	5.354	6.929	SOGX 110408	2,8		33396
KUB-P.4D.1328.R.11.ABS63-F	U44 63370	1.328	2.480	8.425	5.354	6.929	SOGX 110408	2,8		33796
KUB-P.4D.1375.R.11.ABS63-F	U44 63490	1.375	2.480	8.622	5.512	7.126	SOGX 110408	2,8		34996
KUB-P.4D.1437.R.11.ABS63	U44 63650	1.437	2.480	8.976	5.827	7.480	SOGX 110408	2,8	36596	
KUB-P.4D.1469.R.12.ABS63-F	U44 63730	1.469	2.480	9.134	5.984	7.638	SOGX 120408	6,25		37396
KUB-P.4D.1500.R.12.ABS63-F	U44 63810	1.500	2.480	9.331	6.142	7.835	SOGX 120408	6,25		38196
KUB-P.4D.1562.R.12.ABS63-F	U44 63970	1.562	2.480	9.488	6.299	7.992	SOGX 120408	6,25		39796
KUB-P.4D.1625.R.12.ABS63-F	U44 64130	1.625	2.480	9.842	6.614	8.346	SOGX 120408	6,25		41396
KUB-P.4D.1656.R.13.ABS63-F	U44 64210	1.656	2.480	10.039	6.772	8.543	SOGX 130508	6,25		42196
KUB-P.4D.1687.R.13.ABS63-F	U44 64290	1.687	2.480	10.039	6.772	8.543	SOGX 130508	6,25		42896
KUB-P.4D.1750.R.13.ABS63	U44 64450	1.752	2.480	10.394	7.087	8.898	SOGX 130508	6,25	44596	

Key

Screwdriver

Clamping screw

Spare parts DC	Key		Screwdriver		Clamping screw	
	80 950 ...		80 950 ...		10 950 ...	
0.562 - 0.625	T05 - IP	**057**			M1,8x3,8 - 05IP	**10100**
0.656 - 0.703			T06 - IP	**123**	M2,0x4,3 - 06IP	**10000**
0.750 - 0.906			T06 - IP	**123**	M2,2x5,5 - 06IP	**10700**
0.937 - 1.000			T08 - IP	**125**	M2,5x6,3 - 08IP	**10800**
1.031 - 1.156			T08 - IP	**125**	M3,0x7,6 - 08IP	**10200**
1.187 - 1.437			T15 - IP	**128**	M3,5x7,5 - 15IP	**10300**
1.469 - 1.752			T20 - IP	**129**	M4,5x10 - 20IP	**10400**

Matching holders can be found in our Online-Shop at cuttingtools.ceratizit.com and in the metric clamping technology catalog

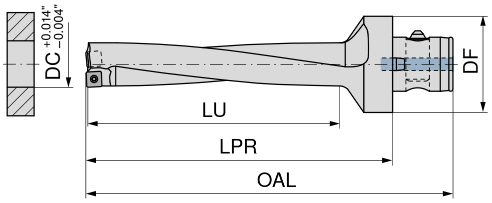
KUB Pentron – Indexable insert drill

Scope of supply:

Indexable Insert Drill incl. clamping screws

≤ 5xD

ABS



Designation	KOMET no.	DC inch	DF inch	OAL inch	LU inch	LPR inch	Insert	torque moment Nm	10 875 ...	15 875 ...
KUB-P.5D.0562.R.04.ABS50-F	U45 51430	0.562	1.969	5.275	2.953	4.055	SOGX 040204	0,38		14395
KUB-P.5D.0593.R.04.ABS50-F	U45 51510	0.593	1.969	5.551	3.150	4.331	SOGX 040204	0,38		15195
KUB-P.5D.0625.R.04.ABS50-F	U45 51590	0.625	1.969	5.551	3.150	4.331	SOGX 040204	0,38		15995
KUB-P.5D.0656.R.05.ABS50-F	U45 51670	0.656	1.969	5.787	3.346	4.567	SOGX 050204	0,62		16795
KUB-P.5D.0687.R.05.ABS50	U45 51750	0.689	1.969	5.984	3.543	4.764	SOGX 050204	0,62	17595	
KUB-P.5D.0703.R.05.ABS50-F	U45 51790	0.703	1.969	5.984	3.543	4.764	SOGX 050204	0,62		17995
KUB-P.5D.0750.R.06.ABS50-F	U45 51910	0.750	1.969	6.417	3.937	5.197	SOGX 060206	1,01		19195
KUB-P.5D.0765.R.06.ABS50-F	U45 51940	0.765	1.969	6.417	3.937	5.197	SOGX 060206	1,01		19495
KUB-P.5D.0781.R.06.ABS50-F	U45 51980	0.781	1.969	6.417	3.937	5.197	SOGX 060206	1,01		19895
KUB-P.5D.0812.R.07.ABS50-F	U45 52060	0.812	1.969	6.614	4.134	5.394	SOGX 07T208	1,01		20695
KUB-P.5D.0828.R.07.ABS50	U45 52100	0.827	1.969	6.614	4.134	5.394	SOGX 07T208	1,01	21095	
KUB-P.5D.0875.R.07.ABS50-F	U45 52220	0.875	1.969	7.007	4.528	5.787	SOGX 07T208	1,01		22295
KUB-P.5D.0906.R.07.ABS50	U45 52300	0.906	1.969	7.008	4.528	5.787	SOGX 07T208	1,01	23095	
KUB-P.5D.0937.R.08.ABS50-F	U45 52380	0.937	1.969	7.204	4.724	5.984	SOGX 080308	1,28		23895
KUB-P.5D.0985.R.08.ABS50	U45 52500	0.984	1.969	7.441	4.921	6.220	SOGX 080308	1,28	25095	
KUB-P.5D.1000.R.08.ABS50-F	U45 52540	1.000	1.969	7.637	5.118	6.417	SOGX 080308	1,28		25495
KUB-P.5D.1031.R.09.ABS50-F	U45 52620	1.031	1.969	7.874	5.315	6.654	SOGX 09T308	2,25		26295
KUB-P.5D.1062.R.09.ABS50	U45 52700	1.063	1.969	7.874	5.315	6.654	SOGX 09T308	2,25	27095	
KUB-P.5D.1109.R.09.ABS50-F	U45 52820	1.109	1.969	8.307	5.709	7.087	SOGX 09T308	2,25		28295
KUB-P.5D.1125.R.09.ABS50-F	U45 52860	1.125	1.969	8.307	5.709	7.087	SOGX 09T308	2,25		28695
KUB-P.5D.1156.R.09.ABS50-F	U45 52940	1.156	1.969	8.503	5.906	7.283	SOGX 09T308	2,25		29495
KUB-P.5D.1187.R.10.ABS63-F	U45 63020	1.187	2.480	9.134	6.102	7.638	SOGX 100408	2,8		30196
KUB-P.5D.1218.R.10.ABS63-F	U45 63090	1.218	2.480	9.134	6.102	7.638	SOGX 100408	2,8		30996
KUB-P.5D.1250.R.10.ABS63-F	U45 63180	1.250	2.480	9.331	6.299	7.835	SOGX 100408	2,8		31896
KUB-P.5D.1281.R.10.ABS63	U45 63250	1.280	2.480	9.567	6.496	8.071	SOGX 100408	2,8	32596	
KUB-P.5D.1312.R.11.ABS63-F	U45 63330	1.312	2.480	9.764	6.693	8.268	SOGX 110408	2,8		33396
KUB-P.5D.1328.R.11.ABS63-F	U45 63370	1.328	2.480	9.764	6.693	8.268	SOGX 110408	2,8		33796
KUB-P.5D.1375.R.11.ABS63-F	U45 63490	1.375	2.480	10.000	6.890	8.504	SOGX 110408	2,8		34996
KUB-P.5D.1437.R.11.ABS63	U45 63650	1.437	2.480	10.433	7.283	8.937	SOGX 110408	2,8	36596	
KUB-P.5D.1469.R.12.ABS63-F	U45 63730	1.469	2.480	10.630	7.480	9.134	SOGX 120408	6,25		37396
KUB-P.5D.1500.R.12.ABS63-F	U45 63810	1.500	2.480	10.866	7.677	9.370	SOGX 120408	6,25		38196
KUB-P.5D.1562.R.12.ABS63-F	U45 63970	1.562	2.480	11.063	7.874	9.567	SOGX 120408	6,25		39796
KUB-P.5D.1625.R.12.ABS63-F	U45 64130	1.625	2.480	11.496	8.268	10.000	SOGX 120408	6,25		41396
KUB-P.5D.1656.R.13.ABS63-F	U45 64210	1.656	2.480	11.732	8.465	10.236	SOGX 130508	6,25		42196
KUB-P.5D.1687.R.13.ABS63-F	U45 64290	1.687	2.480	11.732	8.465	10.236	SOGX 130508	6,25		42896
KUB-P.5D.1750.R.13.ABS63	U45 64450	1.752	2.480	12.165	8.858	10.669	SOGX 130508	6,25	44596	

Key

Screwdriver

Clamping screw

Spare parts DC		80 950 ...		80 950 ...		10 950 ...
0.562 - 0.625	T05 - IP	057			M1,8x3,8 - 05IP	10100
0.656 - 0.703			T06 - IP	123	M2,0x4,3 - 06IP	10000
0.750 - 0.906			T06 - IP	123	M2,2x5,5 - 06IP	10700
0.984 - 1.000			T08 - IP	125	M2,5x6,3 - 08IP	10800
1.031 - 1.156			T08 - IP	125	M3,0x7,6 - 08IP	10200
1.187 - 1.437			T15 - IP	128	M3,5x7,5 - 15IP	10300
1.469 - 1.752			T20 - IP	129	M4,5x10 - 20IP	10400

Matching holders can be found in our Online-Shop at cuttingtools.ceratizit.com and in the metric clamping technology catalog

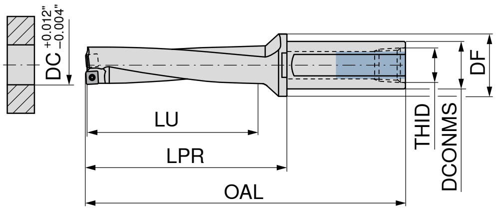
KUB Pentron – Indexable insert drill

Scope of supply:

Indexable Insert Drill incl. clamping screws

≤ 4xD

C



Designation	KOMET no.	DC inch	DCONMS inch	DF inch	OAL inch	LU inch	LPR inch	THID inch	Insert	torque moment Nm	15 874 ...
KUB-P.4D.0562.R.04.C0750-EF	U44 81430	0.562	0.750	1.180	5.163	2.362	2.913	1/8" NPT	SOGX 040204	0,38	14309
KUB-P.4D.0593.R.04.C0750-EF	U44 81510	0.593	0.750	1.180	5.400	2.520	3.150	1/8" NPT	SOGX 040204	0,38	15109
KUB-P.4D.0625.R.04.C0750-EF	U44 81590	0.625	0.750	1.180	5.400	2.520	3.150	1/8" NPT	SOGX 040204	0,38	15909
KUB-P.4D.0656.R.05.C0750-EF	U44 81670	0.656	0.750	1.180	5.596	2.677	3.346	1/8" NPT	SOGX 050204	0,62	16709
KUB-P.4D.0687.R.05.C1000-E	U44 81750	0.687	1.000	1.180	6.754	2.835	3.504	1/8" NPT	SOGX 050204	0,62	17500
KUB-P.4D.0703.R.05.C1000-EF	U44 81790	0.703	1.000	1.180	6.754	2.835	3.504	1/8" NPT	SOGX 050204	0,62	17900
KUB-P.4D.0750.R.06.C1000-EF	U44 81910	0.750	1.000	1.180	7.108	3.150	3.858	1/8" NPT	SOGX 060206	1,01	19100
KUB-P.4D.0765.R.06.C1000-EF	U44 81940	0.765	1.000	1.180	7.108	3.150	3.858	1/8" NPT	SOGX 060206	1,01	19400
KUB-P.4D.0781.R.06.C1000-EF	U44 81980	0.781	1.000	1.180	7.108	3.150	3.858	1/8" NPT	SOGX 060206	1,01	19800
KUB-P.4D.0812.R.07.C1000-EF	U44 82060	0.812	1.000	1.180	7.305	3.307	4.055	1/8" NPT	SOGX 07T208	1,01	20600
KUB-P.4D.0828.R.07.C1000-E	U44 82100	0.828	1.000	1.180	7.305	3.307	4.055	1/8" NPT	SOGX 07T208	1,01	21000
KUB-P.4D.0843.R.07.C1000-EF	U44 82140	0.843	1.000	1.180	7.974	3.465	4.724	1/8" NPT	SOGX 07T208	1,01	21400
KUB-P.4D.0875.R.07.C1000-EF	U44 82220	0.875	1.000	1.180	7.659	3.622	4.409	1/8" NPT	SOGX 07T208	1,01	22200
KUB-P.4D.0906.R.07.C1000-E	U44 82300	0.906	1.000	1.180	7.659	3.622	4.409	1/8" NPT	SOGX 07T208	1,01	23000
KUB-P.4D.0937.R.08.C1250-EF	U44 82380	0.937	1.250	1.540	7.817	3.780	4.567	1/8" NPT	SOGX 080308	1,28	23801
KUB-P.4D.0985.R.08.C1250-E	U44 82500	0.985	1.250	1.540	8.014	3.937	4.764	1/8" NPT	SOGX 080308	1,28	25001
KUB-P.4D.1000.R.08.C1250-EF	U44 82540	1.000	1.250	1.540	8.171	4.094	4.921	1/8" NPT	SOGX 080308	1,28	25401
KUB-P.4D.1031.R.09.C1250-EF	U44 82620	1.031	1.250	1.540	8.368	4.252	5.118	1/4" NPT	SOGX 09T308	2,25	26201
KUB-P.4D.1062.R.09.C1250-E	U44 82700	1.062	1.250	1.540	8.368	4.252	5.118	1/4" NPT	SOGX 09T308	2,25	27001
KUB-P.4D.1109.R.09.C1250-EF	U44 82820	1.109	1.250	1.540	8.722	4.567	5.472	1/4" NPT	SOGX 09T308	2,25	28201
KUB-P.4D.1125.R.09.C1250-EF	U44 82860	1.125	1.250	1.540	8.722	4.567	5.472	1/4" NPT	SOGX 09T308	2,25	28601
KUB-P.4D.1156.R.09.C1250-EF	U44 82940	1.156	1.250	1.540	8.880	4.724	5.630	1/4" NPT	SOGX 09T308	2,25	29401
KUB-P.4D.1187.R.10.C1500-EF	U44 83020	1.187	1.500	1.970	9.577	4.882	5.827	1/4" NPT	SOGX 100408	2,8	30102
KUB-P.4D.1218.R.10.C1500-EF	U44 83090	1.218	1.500	1.970	9.577	4.882	5.827	1/4" NPT	SOGX 100408	2,8	30902
KUB-P.4D.1250.R.10.C1500-EF	U44 83180	1.250	1.500	1.970	9.734	5.039	5.984	1/4" NPT	SOGX 100408	2,8	31802
KUB-P.4D.1281.R.10.C1500-E	U44 83250	1.281	1.500	1.970	9.931	5.197	6.181	1/4" NPT	SOGX 100408	2,8	32502
KUB-P.4D.1312.R.11.C1500-EF	U44 83330	1.312	1.500	1.970	10.089	5.354	6.339	1/4" NPT	SOGX 110408	2,8	33302
KUB-P.4D.1328.R.11.C1500-EF	U44 83370	1.328	1.500	1.970	10.089	5.354	6.339	1/4" NPT	SOGX 110408	2,8	33702
KUB-P.4D.1375.R.11.C1500-EF	U44 83490	1.375	1.500	1.970	10.285	5.512	6.535	1/4" NPT	SOGX 110408	2,8	34902
KUB-P.4D.1437.R.11.C1500-E	U44 83650	1.437	1.500	1.970	10.640	5.827	6.890	1/4" NPT	SOGX 110408	2,8	36502
KUB-P.4D.1469.R.12.C1500-EF	U44 83730	1.469	1.500	1.970	10.797	5.984	7.047	1/4" NPT	SOGX 120408	6,25	37302
KUB-P.4D.1500.R.12.C1500-EF	U44 83810	1.500	1.500	1.970	10.994	6.142	7.244	1/4" NPT	SOGX 120408	6,25	38102
KUB-P.4D.1531.R.12.C1500-EF	U44 83890	1.531	1.500	1.970	10.994	6.142	7.244	1/4" NPT	SOGX 120408	6,25	38902
KUB-P.4D.1562.R.12.C1500-EF	U44 83970	1.562	1.500	1.970	11.152	6.299	7.402	1/4" NPT	SOGX 120408	6,25	39702
KUB-P.4D.1625.R.12.C1500-EF	U44 84130	1.625	1.500	1.970	11.506	6.614	7.756	1/4" NPT	SOGX 120408	6,25	41302
KUB-P.4D.1656.R.13.C1500-EF	U44 84210	1.656	1.500	1.970	11.703	6.772	7.953	1/4" NPT	SOGX 130508	6,25	42102
KUB-P.4D.1687.R.13.C1500-EF	U44 84290	1.687	1.500	1.970	11.703	6.772	7.953	1/4" NPT	SOGX 130508	6,25	42802
KUB-P.4D.1750.R.13.C1500-EF	U44 84450	1.750	1.500	1.970	12.057	7.087	8.307	1/4" NPT	SOGX 130508	6,25	44502

Spare parts DC	 Key	80 950 ...	 Screwdriver	80 950 ...	 Clamping screw	10 950 ...
0.562 - 0.625	T05 - IP	**057**			M1,8x3,8 - 05IP	**10100**
0.656 - 0.703			T06 - IP	**123**	M2,0x4,3 - 06IP	**10000**
0.750 - 0.906			T06 - IP	**123**	M2,2x5,5 - 06IP	**10700**
0.937 - 1.000			T08 - IP	**125**	M2,5x6,3 - 08IP	**10800**
1.031 - 1.156			T08 - IP	**125**	M3,0x7,6 - 08IP	**10200**
1.187 - 1.437			T15 - IP	**128**	M3,5x7,5 - 15IP	**10300**
1.469 - 1.750			T20 - IP	**129**	M4,5x10 - 20IP	**10400**

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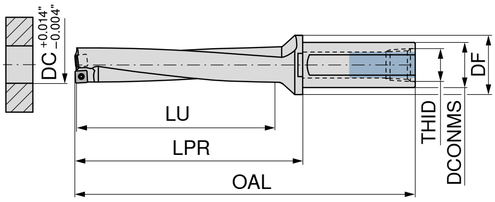
KUB Pentron – Indexable insert drill

Scope of supply:

Indexable Insert Drill incl. clamping screws

≤ 5xD

C



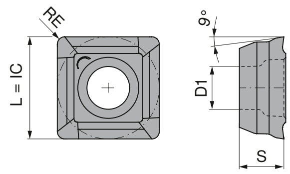
Designation	KOMET no.	DC inch	DCONMS inch	DF inch	OAL inch	LU inch	LPR inch	THID inch	Insert	torque moment Nm	15 875 ...
KUB-P.5D.0562.R.04.C0750-EF	U45 81430	0.562	0.750	1.180	5.754	2.953	3.504	1/8" NPT	SOGX 040204	0,38	14309
KUB-P.5D.0593.R.04.C0750-EF	U45 81510	0.593	0.750	1.180	6.030	3.150	3.780	1/8" NPT	SOGX 040204	0,38	15109
KUB-P.5D.0625.R.04.C0750-EF	U45 81590	0.625	0.750	1.180	6.030	3.150	3.780	1/8" NPT	SOGX 040204	0,38	15909
KUB-P.5D.0656.R.05.C0750-EF	U45 81670	0.656	0.750	1.180	6.266	3.346	4.016	1/8" NPT	SOGX 050204	0,62	16709
KUB-P.5D.0687.R.05.C1000-E	U45 81750	0.687	1.000	1.180	7.463	3.543	4.213	1/8" NPT	SOGX 050204	0,62	17500
KUB-P.5D.0703.R.05.C1000-EF	U45 81790	0.703	1.000	1.180	7.463	3.543	4.213	1/8" NPT	SOGX 050204	0,62	17900
KUB-P.5D.0750.R.06.C1000-EF	U45 81910	0.750	1.000	1.180	7.896	3.937	4.646	1/8" NPT	SOGX 060206	1,01	19100
KUB-P.5D.0765.R.06.C1000-EF	U45 81940	0.765	1.000	1.180	7.896	3.937	4.646	1/8" NPT	SOGX 060206	1,01	19400
KUB-P.5D.0781.R.06.C1000-EF	U45 81980	0.781	1.000	1.180	7.896	3.937	4.646	1/8" NPT	SOGX 060206	1,01	19800
KUB-P.5D.0812.R.07.C1000-EF	U45 82060	0.812	1.000	1.180	8.132	4.134	4.882	1/8" NPT	SOGX 07T208	1,01	20600
KUB-P.5D.0828.R.07.C1000-E	U45 82100	0.828	1.000	1.180	8.132	4.134	4.882	1/8" NPT	SOGX 07T208	1,01	21000
KUB-P.5D.0843.R.07.C1000-EF	U45 82140	0.843	1.000	1.180	8.329	4.331	5.079	1/8" NPT	SOGX 07T208	1,01	21400
KUB-P.5D.0875.R.07.C1000-EF	U45 82220	0.875	1.000	1.180	8.565	4.528	5.315	1/8" NPT	SOGX 07T208	1,01	22200
KUB-P.5D.0906.R.07.C1000-E	U45 82300	0.906	1.000	1.180	8.565	4.528	5.315	1/8" NPT	SOGX 07T208	1,01	23000
KUB-P.5D.0937.R.08.C1250-EF	U45 82380	0.937	1.250	1.540	8.762	4.724	5.512	1/8" NPT	SOGX 080308	1,28	23801
KUB-P.5D.0985.R.08.C1250-E	U45 82500	0.985	1.250	1.540	8.998	4.921	5.748	1/8" NPT	SOGX 080308	1,28	25001
KUB-P.5D.1000.R.08.C1250-EF	U45 82540	1.000	1.250	1.540	9.195	5.118	5.945	1/8" NPT	SOGX 080308	1,28	25401
KUB-P.5D.1031.R.09.C1250-EF	U45 82620	1.031	1.250	1.540	9.431	5.315	6.181	1/4" NPT	SOGX 09T308	2,25	26201
KUB-P.5D.1062.R.09.C1250-E	U45 82700	1.062	1.250	1.540	9.431	5.315	6.181	1/4" NPT	SOGX 09T308	2,25	27001
KUB-P.5D.1109.R.09.C1250-EF	U45 82820	1.109	1.250	1.540	9.864	5.709	6.614	1/4" NPT	SOGX 09T308	2,25	28201
KUB-P.5D.1125.R.09.C1250-EF	U45 82860	1.125	1.250	1.540	9.864	5.709	6.614	1/4" NPT	SOGX 09T308	2,25	28601
KUB-P.5D.1156.R.09.C1250-EF	U45 82940	1.156	1.250	1.540	10.061	5.906	6.811	1/4" NPT	SOGX 09T308	2,25	29401
KUB-P.5D.1187.R.10.C1500-EF	U45 83020	1.187	1.500	1.970	10.797	6.102	7.047	1/4" NPT	SOGX 100408	2,8	30102
KUB-P.5D.1218.R.10.C1500-EF	U45 83090	1.218	1.500	1.970	10.797	6.102	7.047	1/4" NPT	SOGX 100408	2,8	30902
KUB-P.5D.1250.R.10.C1500-EF	U45 83180	1.250	1.500	1.970	10.994	6.299	7.244	1/4" NPT	SOGX 100408	2,8	31802
KUB-P.5D.1281.R.10.C1500-E	U45 83250	1.281	1.500	1.970	11.230	6.496	7.480	1/4" NPT	SOGX 100408	2,8	32502
KUB-P.5D.1312.R.11.C1500-EF	U45 83330	1.312	1.500	1.970	11.427	6.693	7.677	1/4" NPT	SOGX 110408	2,8	33302
KUB-P.5D.1328.R.11.C1500-EF	U45 83370	1.328	1.500	1.970	11.427	6.693	7.677	1/4" NPT	SOGX 110408	2,8	33702
KUB-P.5D.1375.R.11.C1500-EF	U45 83490	1.375	1.500	1.970	11.663	6.890	7.913	1/4" NPT	SOGX 110408	2,8	34902
KUB-P.5D.1437.R.11.C1500-E	U45 83650	1.437	1.500	1.970	12.096	7.283	8.346	1/4" NPT	SOGX 110408	6,25	36502
KUB-P.5D.1469.R.12.C1500-EF	U45 83730	1.469	1.500	1.970	12.293	7.480	8.543	1/4" NPT	SOGX 120408	6,25	37302
KUB-P.5D.1500.R.12.C1500-EF	U45 83810	1.500	1.500	1.970	12.530	7.677	8.780	1/4" NPT	SOGX 120408	6,25	38102
KUB-P.5D.1531.R.12.C1500-EF	U45 83890	1.531	1.500	1.970	12.530	7.677	8.780	1/4" NPT	SOGX 120408	6,25	38902
KUB-P.5D.1562.R.12.C1500-EF	U45 83970	1.562	1.500	1.970	12.726	7.874	8.976	1/4" NPT	SOGX 120408	6,25	39702
KUB-P.5D.1625.R.12.C1500-EF	U45 84130	1.625	1.500	1.970	13.159	8.268	9.409	1/4" NPT	SOGX 120408	6,25	41302
KUB-P.5D.1656.R.13.C1500-EF	U45 84210	1.656	1.500	1.970	13.396	8.465	9.646	1/4" NPT	SOGX 130508	6,25	42102
KUB-P.5D.1687.R.13.C1500-EF	U45 84290	1.687	1.500	1.970	13.396	8.465	9.646	1/4" NPT	SOGX 130508	6,25	42802
KUB-P.5D.1750.R.13.C1500-EF	U45 84450	1.750	1.500	1.970	13.829	8.858	10.079	1/4" NPT	SOGX 130508	6,25	44502

	 Key 80 950 ...		 Screwdriver 80 950 ...		 Clamping screw 10 950 ...	
Spare parts **DC**						
0.562 - 0.625	T05 - IP	**057**			M1,8x3,8 - 05IP	**10100**
0.656 - 0.703			T06 - IP	**123**	M2,0x4,3 - 06IP	**10000**
0.750 - 0.906			T06 - IP	**123**	M2,2x5,5 - 06IP	**10700**
0.937 - 1.000			T08 - IP	**125**	M2,5x6,3 - 08IP	**10800**
1.031 - 1.156			T08 - IP	**125**	M3,0x7,6 - 08IP	**10200**
1.187 - 1.437			T15 - IP	**128**	M3,5x7,5 - 15IP	**10300**
1.469 - 1.750			T20 - IP	**129**	M4,5x10 - 20IP	**10400**

Matching holders can be found in our Online-Shop at cuttingtools.ceratizit.com and in the metric clamping technology catalog

SOGX

Designation	L inch	IC inch	D1 inch	S inch
SOGX 0402..	0.188	0.188	0.080	0.086
SOGX 0502..	0.216	0.216	0.090	0.094
SOGX 0602..	0.244	0.244	0.102	0.108
SOGX 07T2..	0.279	0.279	0.102	0.116
SOGX 0803..	0.314	0.314	0.112	0.133
SOGX 09T3..	0.350	0.350	0.133	0.153
SOGX 1004..	0.385	0.385	0.161	0.165
SOGX 1104..	0.429	0.429	0.161	0.177
SOGX 1204..	0.472	0.472	0.204	0.188
SOGX 1305..	0.519	0.519	0.204	0.204



SOGX

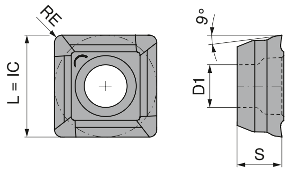
ISO	KOMET no.	RE inch	**-01** BK8425  SOGX **10 820 ...**	**-03** BK8430  SOGX **10 820 ...**	NEW **-13** BK8425  SOGX **10 820 ...**	NEW **-32** BK8425  SOGX **10 820 ...**	NEW **-34** BK8425  SOGX **10 820 ...**
040204	W80 10010.048425	0.016	**30401**				
040204	W80 10030.048430	0.016		**00403**			
040204	W80 10130.048425	0.016			**30413**		
040204	W80 10320.048425	0.016				**30432**	
040204	W80 10340.048425	0.016					**30434**
050204	W80 12010.048425	0.016	**30501**				
050204	W80 12030.048430	0.016		**00503**			
050204	W80 12130.048425	0.016			**30513**		
050204	W80 12320.048425	0.016				**30532**	
050204	W80 12340.048425	0.016					**30534**
060206	W80 18010.068425	0.024	**30601**				
060206	W80 18030.068430	0.024		**00603**			
060206	W80 18130.068425	0.024			**30613**		
060206	W80 18320.068425	0.024				**30632**	
060206	W80 18340.068425	0.024					**30634**
07T208	W80 20010.088425	0.031	**30701**				
07T208	W80 20030.088430	0.031		**00703**			
07T208	W80 20130.088425	0.031			**30713**		
07T208	W80 20320.088425	0.031				**30732**	
07T208	W80 20340.088425	0.031					**30734**
080308	W80 24010.088425	0.031	**30801**				
080308	W80 24030.088430	0.031		**00803**			
080308	W80 24130.088425	0.031			**30813**		
080308	W80 24320.088425	0.031				**30832**	
080308	W80 24340.088425	0.031					**30834**
09T308	W80 28010.088425	0.031	**30901**				
09T308	W80 28030.088430	0.031		**00903**			
09T308	W80 28130.088425	0.031			**30913**		
09T308	W80 28320.088425	0.031				**30932**	
09T308	W80 28340.088425	0.031					**30934**
100408	W80 32010.088425	0.031	**31001**				
100408	W80 32030.088430	0.031		**01003**			
100408	W80 32130.088425	0.031			**31013**		
100408	W80 32320.088425	0.031				**31032**	
100408	W80 32340.088425	0.031					**31034**
110408	W80 38010.088425	0.031	**31101**				
110408	W80 38030.088430	0.031		**01103**			
110408	W80 38130.088425	0.031			**31113**		
110408	W80 38320.088425	0.031				**31132**	
110408	W80 38340.088425	0.031					**31134**
120408	W80 42010.088425	0.031	**31201**				
120408	W80 42030.088430	0.031		**01203**			
120408	W80 42130.088425	0.031			**31213**		
120408	W80 42320.088425	0.031				**31232**	
120408	W80 42340.088425	0.031					**31234**
130508	W80 46010.088425	0.031	**31301**				
130508	W80 46030.088430	0.031		**01303**			
130508	W80 46130.088425	0.031			**31313**		
130508	W80 46320.088425	0.031				**31332**	
130508	W80 46340.088425	0.031					**31334**

P	●	●	●	●	○
M	●	●	●	●	
K	●	●	●	●	●
N	○	○	○	○	
S	●	●	●	●	
H	○	○	○	○	
O					

→ v_c Page 43–45

SOGX

Designation	L inch	IC inch	D1 inch	S inch
SOGX 0402..	0.188	0.188	0.080	0.086
SOGX 0502..	0.216	0.216	0.090	0.094
SOGX 0602..	0.244	0.244	0.102	0.108
SOGX 07T2..	0.279	0.279	0.102	0.116
SOGX 0803..	0.314	0.314	0.112	0.133
SOGX 09T3..	0.350	0.350	0.133	0.153
SOGX 1004..	0.385	0.385	0.161	0.165
SOGX 1104..	0.429	0.429	0.161	0.177
SOGX 1204..	0.472	0.472	0.204	0.188
SOGX 1305..	0.519	0.519	0.204	0.204



SOGX




ISO	KOMET no.	RE inch	-01 BK7935 SOGX 10 820 ...	-01 BK6115 SOGX 10 820 ...	-01 BK6425 SOGX 10 820 ...	-01 BK7710 SOGX 10 820 ...
040204	W80 10010.046115	0.016		**40401**		
040204	W80 10010.046425	0.016			**60401**	
040204	W80 10010.047710	0.016				**90401**
040204	W80 10010.047935	0.016	**50401**			
050204	W80 12010.046115	0.016		**40501**		
050204	W80 12010.046425	0.016			**60501**	
050204	W80 12010.047710	0.016				**90501**
050204	W80 12010.047935	0.016	**50501**			
060206	W80 18010.066115	0.024		**40601**		
060206	W80 18010.066425	0.024			**60601**	
060206	W80 18010.067710	0.024				**90601**
060206	W80 18010.067935	0.024	**50601**			
07T208	W80 20010.086115	0.031		**40701**		
07T208	W80 20010.086425	0.031			**60701**	
07T208	W80 20010.087710	0.031				**90701**
07T208	W80 20010.087935	0.031	**50701**			
080308	W80 24010.086115	0.031		**40801**		
080308	W80 24010.086425	0.031			**60801**	
080308	W80 24010.087710	0.031				**90801**
080308	W80 24010.087935	0.031	**50801**			
09T308	W80 28010.086115	0.031		**40901**		
09T308	W80 28010.086425	0.031			**60901**	
09T308	W80 28010.087710	0.031				**90901**
09T308	W80 28010.087935	0.031	**50901**			
100408	W80 32010.086115	0.031		**41001**		
100408	W80 32010.086425	0.031			**61001**	
100408	W80 32010.087710	0.031				**91001**
100408	W80 32010.087935	0.031	**51001**			
110408	W80 38010.086115	0.031		**41101**		
110408	W80 38010.086425	0.031			**61101**	
110408	W80 38010.087710	0.031				**91101**
110408	W80 38010.087935	0.031	**51101**			
120408	W80 42010.086115	0.031		**41201**		
120408	W80 42010.086425	0.031			**61201**	
120408	W80 42010.087710	0.031				**91201**
120408	W80 42010.087935	0.031	**51201**			
130508	W80 46010.086115	0.031		**41301**		
130508	W80 46010.086425	0.031			**61301**	
130508	W80 46010.087710	0.031				**91301**
130508	W80 46010.087935	0.031	**51301**			
P			●	●	●	
M			●	●	●	
K			●	●	●	
N			○			●
S			●			○
H				○		
O			○			○

→ v_c Page 43–45

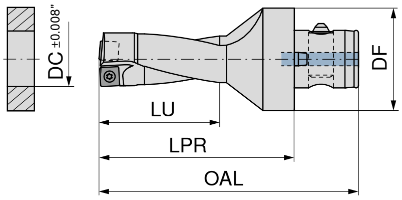
BK6115 -01 is exclusively recommended for use on the peripheral cutting edge!

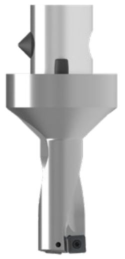
KUB Quatron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 2xD

ABS





Designation	KOMET no.	DC inch	DF inch	OAL inch	LU inch	LPR inch	Insert	torque moment Nm	10 879 ...	15 879 ...
KUB-Q.2D.0562.R.05.ABS50-F	U10 71432	0.562	1.969	3.779	1.181	2.559	SOEX 050204	0,62		**14395**
KUB-Q.2D.0593.R.05.ABS50-F	U10 71510	0.593	1.969	3.858	1.260	2.638	SOEX 050204	0,62		**15195**
KUB-Q.2D.0625.R.05.ABS50-F	U10 71590	0.625	1.969	3.858	1.260	2.638	SOEX 050204	0,62		**15995**
KUB-Q.2D.0656.R.05.ABS50-F	U10 71670	0.656	1.969	3.937	1.339	2.717	SOEX 050204	0,62		**16795**
KUB-Q.2D.0687.R.05.ABS50	U10 71750	0.689	1.969	4.016	1.417	2.795	SOEX 050204	0,62	**17595**	
KUB-Q.2D.0703.R.06.ABS50-F	U10 71790	0.703	1.969	4.015	1.417	2.795	SOEX 060306	1,01		**17995**
KUB-Q.2D.0718.R.06.ABS50-F	U10 71820	0.718	1.969	4.094	1.496	2.874	SOEX 060306	1,01		**18295**
KUB-Q.2D.0750.R.06.ABS50-F	U10 71910	0.750	1.969	4.173	1.575	2.953	SOEX 060306	1,01		**19195**
KUB-Q.2D.0765.R.06.ABS50-F	U10 71940	0.765	1.969	4.173	1.575	2.953	SOEX 060306	1,01		**19495**
KUB-Q.2D.0781.R.06.ABS50-F	U10 71980	0.781	1.969	4.173	1.575	2.953	SOEX 060306	1,01		**19895**
KUB-Q.2D.0812.R.06.ABS50-F	U10 72060	0.812	1.969	4.251	1.654	3.031	SOEX 060306	1,01		**20695**
KUB-Q.2D.0828.R.06.ABS50	U10 72100	0.827	1.969	4.252	1.654	3.032	SOEX 060306	1,01	**21095**	
KUB-Q.2D.0843.R.06.ABS50-F	U10 72140	0.843	1.969	4.330	1.732	3.110	SOEX 060306	1,01		**21495**
KUB-Q.2D.0875.R.07.ABS50-F	U10 72220	0.875	1.969	4.409	1.811	3.189	SOEX 07T308	1,01		**22295**
KUB-Q.2D.0906.R.07.ABS50	U10 72300	0.906	1.969	4.409	1.811	3.189	SOEX 07T308	1,01	**23095**	
KUB-Q.2D.0937.R.07.ABS50-F	U10 72380	0.937	1.969	4.488	1.890	3.268	SOEX 07T308	1,01		**23895**
KUB-Q.2D.0968.R.07.ABS50-F	U10 72460	0.968	1.969	4.566	1.969	3.346	SOEX 07T308	1,01		**24695**
KUB-Q.2D.0985.R.07.ABS50	U10 72500	0.984	1.969	4.567	1.969	3.346	SOEX 07T308	1,01	**25095**	
KUB-Q.2D.1000.R.07.ABS50-F	U10 72540	1.000	1.969	4.645	2.047	3.425	SOEX 07T308	1,01		**25495**
KUB-Q.2D.1031.R.07.ABS50-F	U10 72620	1.031	1.969	4.724	2.126	3.504	SOEX 07T308	1,01		**26295**
KUB-Q.2D.1062.R.07.ABS50	U10 72700	1.063	1.969	4.724	2.126	3.504	SOEX 07T308	1,01	**27095**	
KUB-Q.2D.1109.R.09.ABS50-F	U10 72820	1.109	1.969	4.881	2.283	3.661	SOEX 090408	2,25		**28295**
KUB-Q.2D.1125.R.09.ABS50-F	U10 72860	1.125	1.969	4.881	2.283	3.661	SOEX 090408	2,25		**28695**
KUB-Q.2D.1156.R.09.ABS50-F	U10 72940	1.156	1.969	4.960	2.323	3.740	SOEX 090408	2,25		**29495**
KUB-Q.2D.1187.R.09.ABS50-F	U10 73020	1.187	1.969	5.235	2.441	4.015	SOEX 090408	2,25		**30195**
KUB-Q.2D.1218.R.09.ABS50-F	U10 73090	1.218	1.969	5.236	2.441	4.016	SOEX 090408	2,25		**30995**
KUB-Q.2D.1250.R.09.ABS50-F	U10 73180	1.250	1.969	4.314	2.520	3.094	SOEX 090408	2,25		**31895**
KUB-Q.2D.1281.R.09.ABS50-F	U10 73250	1.281	1.969	5.393	2.598	4.173	SOEX 090408	2,25		**32595**
KUB-Q.2D.1312.R.12.ABS50-F	U10 73330	1.312	1.969	5.471	2.677	4.251	SOEX 120508	6,25		**33395**
KUB-Q.2D.1328.R.12.ABS50-F	U10 73370	1.328	1.969	5.471	2.677	4.251	SOEX 120508	6,25		**33795**
KUB-Q.2D.1375.R.12.ABS50-F	U10 73490	1.375	1.969	5.550	2.756	4.330	SOEX 120508	6,25		**34995**
KUB-Q.2D.1406.R.12.ABS50-F	U10 73570	1.406	1.969	5.629	2.835	4.409	SOEX 120508	6,25		**35795**
KUB-Q.2D.1437.R.12.ABS50-F	U10 73650	1.437	1.969	6.101	2.913	4.881	SOEX 120508	6,25		**36595**
KUB-Q.2D.1469.R.12.ABS50-F	U10 73730	1.469	1.969	6.180	2.992	4.960	SOEX 120508	6,25		**37395**
KUB-Q.2D.1500.R.12.ABS50-F	U10 73810	1.500	1.969	6.259	3.071	5.039	SOEX 120508	6,25		**38195**
KUB-Q.2D.1531.R.12.ABS50-F	U10 73890	1.531	1.969	6.259	3.071	5.039	SOEX 120508	6,25		**38995**
KUB-Q.2D.1562.R.12.ABS50-F	U10 73970	1.562	1.969	6.338	3.150	5.118	SOEX 120508	6,25		**39795**
KUB-Q.2D.1625.R.12.ABS50-F	U10 74130	1.625	1.969	6.495	3.307	5.275	SOEX 120508	6,25		**41395**
KUB-Q.2D.1656.R.12.ABS50-F	U10 74210	1.656	1.969	6.574	3.386	5.354	SOEX 120508	6,25		**42195**
KUB-Q.2D.1687.R.12.ABS50-F	U10 74290	1.687	1.969	6.574	3.386	5.354	SOEX 120508	6,25		**42895**
KUB-Q.2D.1750.R.12.ABS50-F	U10 74450	1.750	1.969	6.653	3.465	5.433	SOEX 120508	6,25		**44595**

Screwdriver

Clamping screw

Spare parts **DC**	80 950 ...	10 950 ...
0.562 - 0.689	**123**	**10000**
0.703 - 0.843	**123**	**10700**
0.875 - 1.063	**125**	**10800**
1.109 - 1.281	**128**	**10300**
1.312 - 1.750	**129**	**10400**

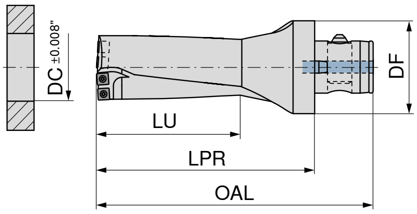
KUB Quatron – Indexable insert drill

Scope of supply:

Indexable Drill incl. clamping screws

≤ 2xD

ABS



Designation	KOMET no.	DC inch	DF inch	OAL inch	LU inch	LPR inch	Insert	torque moment Nm	10 879 ...	15 879 ...
KUB-Q.2D.1781.R.07.ABS63-F	U10 84520	1.781	2.480	7.283	3.622	5.787	SOEX 07T308	1,01		**45296**
KUB-Q.2D.1812.R.07.ABS63	U10 84600	1.811	2.480	7.283	3.622	5.787	SOEX 07T308	1,01	**46096**	
KUB-Q.2D.1875.R.07.ABS63-F	U10 84760	1.875	2.480	7.441	3.780	5.945	SOEX 07T308	1,01		**47696**
KUB-Q.2D.1937.R.07.ABS63-F	U10 84920	1.937	2.480	7.598	3.937	6.102	SOEX 07T308	1,01		**49296**
KUB-Q.2D.1975.R.07.ABS63-F	U10 85020	1.975	2.480	7.677	4.016	6.181	SOEX 07T308	1,01		**50296**
KUB-Q.2D.2000.R.07.ABS63-F	U10 85080	2.000	2.480	7.677	4.016	6.181	SOEX 07T308	1,01		**50896**
KUB-Q.2D.2062.R.09.ABS63-F	U10 85240	2.062	2.480	7.835	4.173	6.339	SOEX 090408	2,25		**52496**
KUB-Q.2D.2125.R.09.ABS63	U10 85400	2.126	2.480	7.913	4.252	6.417	SOEX 090408	2,25	**54096**	
KUB-Q.2D.2165.R.09.ABS80	U10 95500	2.165	3.150	8.189	4.331	6.496	SOEX 090408	2,25	**55098**	
KUB-Q.2D.2203.R.09.ABS80	U10 95600	2.205	3.150	8.268	4.409	6.575	SOEX 090408	2,25	**56098**	
KUB-Q.2D.2250.R.09.ABS80-F	U10 95720	2.250	3.150	8.425	4.567	6.732	SOEX 090408	2,25		**57298**
KUB-Q.2D.2281.R.09.ABS80-F	U10 95790	2.281	3.150	8.425	4.567	6.732	SOEX 090408	2,25		**57998**
KUB-Q.2D.2375.R.09.ABS80-F	U10 96030	2.375	3.150	8.662	4.803	6.969	SOEX 090408	2,25		**60398**
KUB-Q.2D.2437.R.09.ABS80-F	U10 96190	2.437	3.150	8.740	4.882	7.047	SOEX 090408	2,25		**61998**
KUB-Q.2D.2500.R.09.ABS80-F	U10 96350	2.500	3.150	8.898	5.039	7.205	SOEX 090408	2,25		**63598**

Screwdriver

Clamping screw

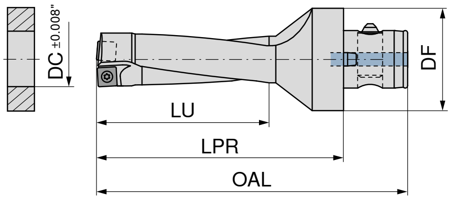
Spare parts **DC**	80 950 ...	10 950 ...
1.781 - 2.000	**125**	**10800**
2.062 - 2.500	**128**	**10300**

KUB Quatron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 3xD

ABS



Designation	KOMET no.	DC inch	DF inch	OAL inch	LU inch	LPR inch	Insert	torque moment Nm	10 880 ...	15 880 ...
KUB-Q.3D.0562.R.05.ABS50-F	U11 51432	0.562	1.969	4.370	1.772	3.150	SOEX 050204	0,62		**14395**
KUB-Q.3D.0593.R.05.ABS50-F	U11 51510	0.593	1.969	4.488	1.890	3.268	SOEX 050204	0,62		**15195**
KUB-Q.3D.0625.R.05.ABS50-F	U11 51590	0.625	1.969	4.488	1.890	3.268	SOEX 050204	0,62		**15995**
KUB-Q.3D.0656.R.05.ABS50-F	U11 51670	0.656	1.969	4.606	2.008	3.386	SOEX 050204	0,62		**16795**
KUB-Q.3D.0687.R.05.ABS50	U11 51750	0.689	1.969	4.724	2.126	3.504	SOEX 050204	0,62	**17595**	
KUB-Q.3D.0703.R.06.ABS50-F	U11 51790	0.703	1.969	4.724	2.126	3.504	SOEX 060306	1,01		**17995**
KUB-Q.3D.0718.R.06.ABS50-F	U11 51820	0.718	1.969	4.842	2.244	3.622	SOEX 060306	1,01		**18295**
KUB-Q.3D.0750.R.06.ABS50-F	U11 51910	0.750	1.969	4.960	2.362	3.740	SOEX 060306	1,01		**19195**
KUB-Q.3D.0765.R.06.ABS50-F	U11 51940	0.765	1.969	4.960	2.362	3.740	SOEX 060306	1,01		**19495**
KUB-Q.3D.0781.R.06.ABS50-F	U11 51980	0.781	1.969	4.960	2.362	3.740	SOEX 060306	1,01		**19895**
KUB-Q.3D.0812.R.06.ABS50-F	U11 52060	0.812	1.969	5.078	2.480	3.858	SOEX 060306	1,01		**20695**
KUB-Q.3D.0828.R.06.ABS50	U11 52100	0.827	1.969	5.079	2.480	3.858	SOEX 060306	1,01	**21095**	
KUB-Q.3D.0843.R.06.ABS50-F	U11 52140	0.843	1.969	5.196	2.598	3.976	SOEX 060306	1,01		**21495**
KUB-Q.3D.0875.R.07.ABS50-F	U11 52220	0.875	1.969	5.314	2.717	4.094	SOEX 07T308	1,01		**22295**
KUB-Q.3D.0906.R.07.ABS50	U11 52300	0.906	1.969	5.315	2.717	4.094	SOEX 07T308	1,01	**23095**	
KUB-Q.3D.0937.R.07.ABS50-F	U11 52380	0.937	1.969	5.433	2.835	4.213	SOEX 07T308	1,01		**23895**
KUB-Q.3D.0968.R.07.ABS50-F	U11 52460	0.968	1.969	5.551	2.953	4.331	SOEX 07T308	1,01		**24695**
KUB-Q.3D.0985.R.07.ABS50	U11 52500	0.984	1.969	5.551	2.953	4.331	SOEX 07T308	1,01	**25095**	
KUB-Q.3D.1000.R.07.ABS50-F	U11 52540	1.000	1.969	5.669	3.071	4.449	SOEX 07T308	1,01		**25495**
KUB-Q.3D.1031.R.07.ABS50-F	U11 52620	1.031	1.969	5.787	3.189	4.567	SOEX 07T308	1,01		**26295**
KUB-Q.3D.1062.R.07.ABS50	U11 52700	1.063	1.969	5.787	3.189	4.567	SOEX 07T308	1,01	**27095**	
KUB-Q.3D.1109.R.09.ABS50-F	U11 52820	1.109	1.969	6.023	3.425	4.803	SOEX 090408	2,25		**28295**
KUB-Q.3D.1125.R.09.ABS50-F	U11 52860	1.125	1.969	6.023	3.425	4.803	SOEX 090408	2,25		**28695**
KUB-Q.3D.1156.R.09.ABS50-F	U11 52940	1.156	1.969	6.141	3.543	4.921	SOEX 090408	2,25		**29495**
KUB-Q.3D.1187.R.09.ABS50-F	U11 53020	1.187	1.969	6.456	3.661	5.236	SOEX 090408	2,25		**30195**
KUB-Q.3D.1218.R.09.ABS50-F	U11 53090	1.218	1.969	6.456	3.661	5.236	SOEX 090408	2,25		**30995**
KUB-Q.3D.1250.R.09.ABS50-F	U11 53180	1.250	1.969	6.574	3.780	5.354	SOEX 090408	2,25		**31895**
KUB-Q.3D.1281.R.09.ABS50-F	U11 53250	1.281	1.969	6.692	3.898	5.472	SOEX 090408	2,25		**32595**
KUB-Q.3D.1312.R.12.ABS50-F	U11 53330	1.312	1.969	6.811	4.016	5.591	SOEX 120508	6,25		**33395**
KUB-Q.3D.1328.R.12.ABS50-F	U11 53370	1.328	1.969	6.811	4.016	5.591	SOEX 120508	6,25		**33795**
KUB-Q.3D.1375.R.12.ABS50-F	U11 53490	1.375	1.969	6.929	4.134	5.709	SOEX 120508	6,25		**34995**
KUB-Q.3D.1406.R.12.ABS50-F	U11 53570	1.406	1.969	7.047	4.252	5.827	SOEX 120508	6,25		**35795**
KUB-Q.3D.1437.R.12.ABS50-F	U11 53650	1.437	1.969	7.559	4.370	6.339	SOEX 120508	6,25		**36595**
KUB-Q.3D.1469.R.12.ABS50-F	U11 53730	1.469	1.969	7.677	4.488	6.457	SOEX 120508	6,25		**37395**
KUB-Q.3D.1500.R.12.ABS50-F	U11 53810	1.500	1.969	7.795	4.606	6.575	SOEX 120508	6,25		**38195**
KUB-Q.3D.1531.R.12.ABS50-F	U11 53890	1.531	1.969	7.795	4.606	6.575	SOEX 120508	6,25		**38995**
KUB-Q.3D.1562.R.12.ABS50-F	U11 53970	1.562	1.969	7.913	4.724	6.693	SOEX 120508	6,25		**39795**
KUB-Q.3D.1625.R.12.ABS50-F	U11 54130	1.625	1.969	8.149	4.961	6.929	SOEX 120508	6,25		**41395**
KUB-Q.3D.1656.R.12.ABS50-F	U11 54210	1.656	1.969	8.267	5.079	7.047	SOEX 120508	6,25		**42195**
KUB-Q.3D.1687.R.12.ABS50-F	U11 54290	1.687	1.969	8.267	5.079	7.047	SOEX 120508	6,25		**42895**
KUB-Q.3D.1750.R.12.ABS50-F	U11 54450	1.750	1.969	8.385	5.197	7.165	SOEX 120508	6,25		**44595**


Screwdriver


Clamping screw

Spare parts

DC	80 950 ...	10 950 ...
0.562 - 0.689	**123**	**10000**
0.703 - 0.843	**123**	**10700**
0.875 - 1.063	**125**	**10800**
1.109 - 1.281	**128**	**10300**
1.312 - 1.750	**129**	**10400**

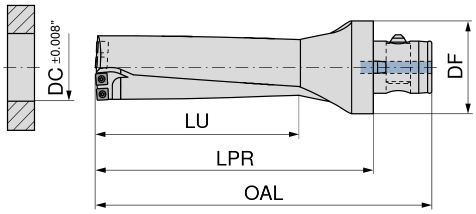
KUB Quatron – Indexable insert drill

Scope of supply:

Indexable Drill incl. clamping screws

≤ 3xD

ABS



Designation	KOMET no.	DC inch	DF inch	OAL inch	LU inch	LPR inch	Insert	torque moment Nm	10 880 ...	15 880 ...
KUB-Q.3D.1781.R.07.ABS63-F	U12 34520	1.781	2.480	9.094	5.433	7.598	SOEX 07T308	1,01		**45296**
KUB-Q.3D.1812.R.07.ABS63	U12 34600	1.811	2.480	9.094	5.433	7.598	SOEX 07T308	1,01	**46096**	
KUB-Q.3D.1875.R.07.ABS63-F	U12 34760	1.875	2.480	9.331	5.669	7.835	SOEX 07T308	1,01		**47696**
KUB-Q.3D.1937.R.07.ABS63-F	U12 34920	1.937	2.480	9.567	5.906	8.071	SOEX 07T308	1,01		**49296**
KUB-Q.3D.1975.R.07.ABS63-F	U12 35020	1.975	2.480	9.685	6.024	8.189	SOEX 07T308	1,01		**50296**
KUB-Q.3D.2000.R.07.ABS63-F	U12 35080	2.000	2.480	9.685	6.024	8.189	SOEX 07T308	1,01		**50896**
KUB-Q.3D.2062.R.09.ABS63-F	U12 35240	2.062	2.480	9.921	6.260	8.425	SOEX 090408	2,25		**52496**
KUB-Q.3D.2125.R.09.ABS63	U12 35400	2.126	2.480	10.039	6.378	8.543	SOEX 090408	2,25	**54096**	
KUB-Q.3D.2165.R.09.ABS80	U12 45500	2.165	3.150	10.354	6.496	8.661	SOEX 090408	2,25	**55098**	
KUB-Q.3D.2203.R.09.ABS80	U12 45600	2.205	3.150	10.472	6.614	8.780	SOEX 090408	2,25	**56098**	
KUB-Q.3D.2250.R.09.ABS80-F	U12 45720	2.250	3.150	10.709	6.850	9.016	SOEX 090408	2,25		**57298**
KUB-Q.3D.2281.R.09.ABS80-F	U12 45790	2.281	3.150	10.709	6.850	9.016	SOEX 090408	2,25		**57998**
KUB-Q.3D.2375.R.09.ABS80-F	U12 46030	2.375	3.150	11.063	7.205	9.370	SOEX 090408	2,25		**60398**
KUB-Q.3D.2437.R.09.ABS80-F	U12 46190	2.437	3.150	11.181	7.323	9.488	SOEX 090408	2,25		**61998**
KUB-Q.3D.2500.R.09.ABS80-F	U12 46350	2.500	3.150	11.417	7.559	9.724	SOEX 090408	2,25		**63598**


Screwdriver


Clamping screw

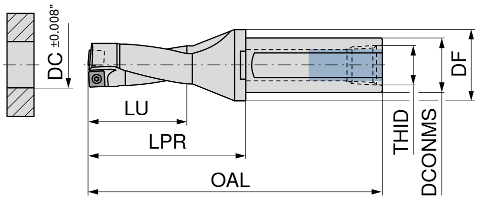
Spare parts **DC**	80 950 ...	10 950 ...
1.781 - 2.000	**125**	**10800**
2.062 - 2.500	**128**	**10300**

KUB Quatron – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 2xD

C



Designation	KOMET no.	DC inch	DCONMS inch	DF inch	OAL inch	LU inch	LPR inch	THID inch	Insert	torque moment Nm	15 879 ...
KUB-Q.2D.0562.R.05.C0750-EF	U11 21435	0.562	0.750	1.180	4.376	1.181	2.126	1/8'' NPT	SOEX 050204	0,62	14309
KUB-Q.2D.0593.R.05.C0750-EF	U11 21513	0.593	0.750	1.180	4.455	1.260	2.205	1/8'' NPT	SOEX 050204	0,62	15109
KUB-Q.2D.0625.R.05.C0750-EF	U11 21593	0.625	0.750	1.180	4.455	1.260	2.205	1/8'' NPT	SOEX 050204	0,62	15909
KUB-Q.2D.0656.R.05.C0750-EF	U11 21673	0.656	0.750	1.180	4.534	1.339	2.284	1/8'' NPT	SOEX 050204	0,62	16709
KUB-Q.2D.0687.R.05.C0750-E	U11 21753	0.687	0.750	1.180	4.612	1.417	2.362	1/8'' NPT	SOEX 050204	0,62	17509
KUB-Q.2D.0703.R.06.C1000-EF	U11 31793	0.703	1.000	1.180	5.612	1.417	2.362	1/8'' NPT	SOEX 060306	1,01	17900
KUB-Q.2D.0718.R.06.C1000-EF	U11 31823	0.718	1.000	1.180	5.691	1.496	2.441	1/8'' NPT	SOEX 060306	1,01	18200
KUB-Q.2D.0750.R.06.C1000-EF	U11 31913	0.750	1.000	1.180	5.770	1.575	2.520	1/8'' NPT	SOEX 060306	1,01	19100
KUB-Q.2D.0765.R.06.C1000-EF	U11 31943	0.765	1.000	1.180	5.770	1.575	2.520	1/8'' NPT	SOEX 060306	1,01	19400
KUB-Q.2D.0781.R.06.C1000-EF	U11 31983	0.781	1.000	1.180	5.770	1.575	2.520	1/8'' NPT	SOEX 060306	1,01	19800
KUB-Q.2D.0812.R.06.C1000-EF	U11 32063	0.812	1.000	1.180	5.849	1.654	2.599	1/8'' NPT	SOEX 060306	1,01	20600
KUB-Q.2D.0828.R.06.C1000-E	U11 32103	0.828	1.000	1.180	5.927	1.732	2.677	1/8'' NPT	SOEX 060306	1,01	21000
KUB-Q.2D.0843.R.06.C1000-EF	U11 32143	0.843	1.000	1.180	5.927	1.732	2.677	1/8'' NPT	SOEX 060306	1,01	21400
KUB-Q.2D.0875.R.07.C1000-EF	U11 32223	0.875	1.000	1.180	6.006	1.811	2.756	1/8'' NPT	SOEX 07T308	1,01	22200
KUB-Q.2D.0906.R.07.C1000-E	U11 32303	0.906	1.000	1.180	6.085	1.890	2.835	1/8'' NPT	SOEX 07T308	1,01	23000
KUB-Q.2D.0937.R.07.C1000-EF	U11 32382	0.937	1.000	1.180	6.085	1.890	2.835	1/8'' NPT	SOEX 07T308	1,01	23800
KUB-Q.2D.0937.R.07.C1250-EF	U11 42383	0.937	1.250	1.540	6.085	1.890	2.835	1/4'' NPT	SOEX 07T308	1,01	23801
KUB-Q.2D.0968.R.07.C1250-EF	U11 42463	0.968	1.250	1.540	6.164	1.969	2.914	1/4'' NPT	SOEX 07T308	1,01	24601
KUB-Q.2D.0968.R.07.C1000-EF	U11 32462	0.968	1.000	1.180	6.164	1.969	2.914	1/8'' NPT	SOEX 07T308	1,01	24600
KUB-Q.2D.0985.R.07.C1250-E	U11 42503	0.985	1.250	1.540	6.164	1.969	2.914	1/4'' NPT	SOEX 07T308	1,01	25001
KUB-Q.2D.0985.R.07.C1000-E	U11 32502	0.985	1.000	1.180	6.164	1.969	2.914	1/8'' NPT	SOEX 07T308	1,01	25000
KUB-Q.2D.1000.R.07.C1250-EF	U11 42543	1.000	1.250	1.540	6.242	2.047	2.992	1/4'' NPT	SOEX 07T308	1,01	25401
KUB-Q.2D.1000.R.07.C1000-EF	U11 32542	1.000	1.000	1.180	6.242	2.047	2.992	1/8'' NPT	SOEX 07T308	1,01	25400
KUB-Q.2D.1031.R.07.C1250-EF	U11 42622	1.031	1.250	1.540	6.321	2.126	3.071	1/4'' NPT	SOEX 07T308	1,01	26201
KUB-Q.2D.1062.R.07.C1250-E	U11 42702	1.062	1.250	1.540	6.321	2.126	3.071	1/4'' NPT	SOEX 07T308	1,01	27001
KUB-Q.2D.1109.R.09.C1250-EF	U11 42822	1.109	1.250	1.540	6.478	2.283	3.228	1/4'' NPT	SOEX 090408	2,25	28201
KUB-Q.2D.1125.R.09.C1250-EF	U11 42862	1.125	1.250	1.540	6.478	2.283	3.228	1/4'' NPT	SOEX 090408	2,25	28601
KUB-Q.2D.1156.R.09.C1250-EF	U11 42942	1.156	1.250	1.540	6.557	2.323	3.307	1/4'' NPT	SOEX 090408	2,25	29401
KUB-Q.2D.1187.R.09.C1250-EF	U11 43022	1.187	1.250	1.540	6.832	2.441	3.582	1/4'' NPT	SOEX 090408	2,25	30101
KUB-Q.2D.1218.R.09.C1250-EF	U11 43092	1.218	1.250	1.540	6.832	2.441	3.582	1/4'' NPT	SOEX 090408	2,25	30901
KUB-Q.2D.1250.R.09.C1250-EF	U11 43182	1.250	1.250	1.540	6.911	2.520	3.661	1/4'' NPT	SOEX 090408	2,25	31801
KUB-Q.2D.1281.R.09.C1250-E	U11 43252	1.281	1.250	1.540	6.990	2.598	3.740	1/4'' NPT	SOEX 090408	2,25	32501
KUB-Q.2D.1312.R.12.C1250-EF	U11 43332	1.312	1.250	1.540	7.068	2.677	3.818	1/4'' NPT	SOEX 120508	6,25	33301
KUB-Q.2D.1328.R.12.C1250-EF	U11 43372	1.328	1.250	1.540	7.068	2.677	3.818	1/4'' NPT	SOEX 120508	6,25	33701
KUB-Q.2D.1375.R.12.C1250-EF	U11 43492	1.375	1.250	1.540	7.147	2.756	3.897	1/4'' NPT	SOEX 120508	6,25	34901
KUB-Q.2D.1406.R.12.C1250-EF	U11 43572	1.406	1.250	1.540	7.226	2.835	3.976	1/4'' NPT	SOEX 120508	6,25	35701
KUB-Q.2D.1437.R.12.C1250-E	U11 43652	1.437	1.250	1.540	7.698	2.913	4.448	1/4'' NPT	SOEX 120508	6,25	36501
KUB-Q.2D.1469.R.12.C1250-EF	U11 43732	1.469	1.250	1.540	7.777	2.992	4.527	1/4'' NPT	SOEX 120508	6,25	37301
KUB-Q.2D.1500.R.12.C1250-EF	U11 43812	1.500	1.250	1.540	7.856	3.071	4.606	1/4'' NPT	SOEX 120508	6,25	38101
KUB-Q.2D.1531.R.12.C1250-EF	U11 43892	1.531	1.250	1.540	7.856	3.071	4.606	1/4'' NPT	SOEX 120508	6,25	38901
KUB-Q.2D.1562.R.12.C1250-EF	U11 43972	1.562	1.250	1.540	7.935	3.150	4.685	1/4'' NPT	SOEX 120508	6,25	39701
KUB-Q.2D.1625.R.12.C1250-EF	U11 44132	1.625	1.250	1.540	8.092	3.307	4.842	1/4'' NPT	SOEX 120508	6,25	41301
KUB-Q.2D.1656.R.12.C1250-EF	U11 44212	1.656	1.250	1.540	8.171	3.386	4.921	1/4'' NPT	SOEX 120508	6,25	42101
KUB-Q.2D.1687.R.12.C1250-EF	U11 44292	1.687	1.250	1.540	8.171	3.386	4.921	1/4'' NPT	SOEX 120508	6,25	42801
KUB-Q.2D.1750.R.12.C1250-EF	U11 44452	1.750	1.250	1.540	8.250	3.465	5.000	1/4'' NPT	SOEX 120508	6,25	44501

Spare parts DC	 Screwdriver 80 950 ...	 Clamping screw 10 950 ...
0.562 - 0.687	123	10000
0.703	129	10400
0.718 - 0.843	123	10700
0.875 - 1.062	125	10800
1.109 - 1.281	128	10300
1.312 - 1.750	129	10400

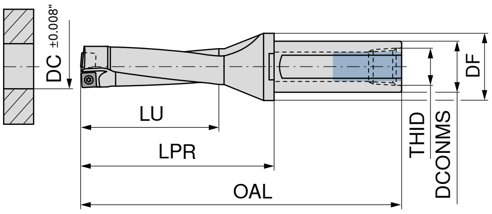
KUB Quatron – Indexable insert drill

Scope of supply:

Indexable Insert Drill incl. clamping screws

≤ 3xD

C



Designation	KOMET no.	DC inch	DCONMS inch	DF inch	OAL inch	LU inch	LPR inch	THID inch	Insert	torque moment Nm	15 880 ...
KUB-Q.3D.0562.R.05.C0750-EF	U12 01434	0.562	0.750	1.180	4.967	1.772	2.717	1/8" NPT	SOEX 050204	0,62	**14309**
KUB-Q.3D.0593.R.05.C0750-EF	U12 01512	0.593	0.750	1.180	5.085	1.890	2.835	1/8" NPT	SOEX 050204	0,62	**15109**
KUB-Q.3D.0625.R.05.C0750-EF	U12 01592	0.625	0.750	1.180	5.085	1.890	2.835	1/8" NPT	SOEX 050204	0,62	**15909**
KUB-Q.3D.0656.R.05.C0750-EF	U12 01672	0.656	0.750	1.180	5.203	2.008	2.953	1/8" NPT	SOEX 050204	0,62	**16709**
KUB-Q.3D.0687.R.05.C0750-E	U12 01752	0.687	0.750	1.180	5.321	2.126	3.071	1/8" NPT	SOEX 050204	0,62	**17509**
KUB-Q.3D.0703.R.06.C1000-EF	U12 11792	0.703	1.000	1.180	6.321	2.126	3.071	1/8" NPT	SOEX 060306	1,01	**17900**
KUB-Q.3D.0718.R.06.C1000-EF	U12 11822	0.718	1.000	1.180	6.439	2.244	3.189	1/8" NPT	SOEX 060306	1,01	**18200**
KUB-Q.3D.0750.R.06.C1000-EF	U12 11912	0.750	1.000	1.180	6.557	2.362	3.307	1/8" NPT	SOEX 060306	1,01	**19100**
KUB-Q.3D.0765.R.06.C1000-EF	U12 11942	0.765	1.000	1.180	6.557	2.362	3.307	1/8" NPT	SOEX 060306	1,01	**19400**
KUB-Q.3D.0781.R.06.C1000-EF	U12 11982	0.781	1.000	1.180	6.557	2.362	3.307	1/8" NPT	SOEX 060306	1,01	**19800**
KUB-Q.3D.0812.R.06.C1000-EF	U12 12062	0.812	1.000	1.180	6.675	2.480	3.425	1/8" NPT	SOEX 060306	1,01	**20600**
KUB-Q.3D.0828.R.06.C1000-E	U12 12102	0.828	1.000	1.180	6.793	2.598	3.543	1/8" NPT	SOEX 060306	1,01	**21000**
KUB-Q.3D.0843.R.06.C1000-EF	U12 12142	0.843	1.000	1.180	6.793	2.598	3.543	1/8" NPT	SOEX 060306	1,01	**21400**
KUB-Q.3D.0875.R.07.C1000-EF	U12 12222	0.875	1.000	1.180	6.912	2.717	3.662	1/8" NPT	SOEX 07T308	1,01	**22200**
KUB-Q.3D.0906.R.07.C1000-E	U12 12302	0.906	1.000	1.180	7.030	2.835	3.780	1/8" NPT	SOEX 07T308	1,01	**23000**
KUB-Q.3D.0937.R.07.C1000-EF	U12 12382	0.937	1.000	1.180	7.030	2.835	3.780	1/8" NPT	SOEX 07T308	1,01	**23800**
KUB-Q.3D.0937.R.07.C1250-EF	U12 22382	0.937	1.250	1.540	7.030	2.835	3.780	1/4" NPT	SOEX 07T308	1,01	**23801**
KUB-Q.3D.0968.R.07.C1000-EF	U12 12462	0.968	1.000	1.180	7.148	2.953	3.898	1/8" NPT	SOEX 07T308	1,01	**24600**
KUB-Q.3D.0968.R.07.C1250-EF	U12 22462	0.968	1.250	1.540	7.148	2.953	3.898	1/4" NPT	SOEX 07T308	1,01	**24601**
KUB-Q.3D.0985.R.07.C1250-E	U12 22502	0.985	1.250	1.540	7.266	3.071	4.016	1/4" NPT	SOEX 07T308	1,01	**25001**
KUB-Q.3D.0985.R.07.C1000-E	U12 12502	0.985	1.000	1.180	7.148	2.953	3.898	1/8" NPT	SOEX 07T308	1,01	**25000**
KUB-Q.3D.1000.R.07.C1250-EF	U12 22542	1.000	1.250	1.540	7.266	3.071	4.016	1/4" NPT	SOEX 07T308	1,01	**25401**
KUB-Q.3D.1000.R.07.C1000-EF	U12 12542	1.000	1.000	1.180	7.266	3.071	4.016	1/8" NPT	SOEX 07T308	1,01	**25400**
KUB-Q.3D.1031.R.07.C1250-EF	U12 22622	1.031	1.250	1.540	7.384	3.189	4.134	1/4" NPT	SOEX 07T308	1,01	**26201**
KUB-Q.3D.1062.R.07.C1250-E	U12 22702	1.062	1.250	1.540	7.384	3.189	4.134	1/4" NPT	SOEX 07T308	1,01	**27001**
KUB-Q.3D.1109.R.09.C1250-EF	U12 22822	1.109	1.250	1.540	7.620	3.425	4.370	1/4" NPT	SOEX 090408	6,25	**28201**
KUB-Q.3D.1125.R.09.C1250-EF	U12 22862	1.125	1.250	1.540	7.620	3.425	4.370	1/4" NPT	SOEX 090408	6,25	**28601**
KUB-Q.3D.1156.R.09.C1250-EF	U12 22942	1.156	1.250	1.540	7.738	3.543	4.488	1/4" NPT	SOEX 090408	6,25	**29401**
KUB-Q.3D.1187.R.09.C1250-EF	U12 23022	1.187	1.250	1.540	8.053	3.661	4.803	1/4" NPT	SOEX 090408	6,25	**30101**
KUB-Q.3D.1218.R.09.C1250-EF	U12 23092	1.218	1.250	1.540	8.053	3.661	4.803	1/4" NPT	SOEX 090408	6,25	**30901**
KUB-Q.3D.1250.R.09.C1250-EF	U12 23182	1.250	1.250	1.540	8.171	3.780	4.921	1/4" NPT	SOEX 090408	6,25	**31801**
KUB-Q.3D.1281.R.09.C1250-E	U12 23252	1.281	1.250	1.540	8.289	3.898	5.039	1/4" NPT	SOEX 090408	6,25	**32501**
KUB-Q.3D.1312.R.12.C1250-EF	U12 23332	1.312	1.250	1.540	8.407	4.016	5.157	1/4" NPT	SOEX 120508	6,25	**33301**
KUB-Q.3D.1328.R.12.C1250-EF	U12 23372	1.328	1.250	1.540	8.407	4.016	5.157	1/4" NPT	SOEX 120508	6,25	**33701**
KUB-Q.3D.1375.R.12.C1250-EF	U12 23492	1.375	1.250	1.540	8.526	4.134	5.276	1/4" NPT	SOEX 120508	6,25	**34901**
KUB-Q.3D.1406.R.12.C1250-EF	U12 23572	1.406	1.250	1.540	8.644	4.252	5.394	1/4" NPT	SOEX 120508	6,25	**35701**
KUB-Q.3D.1437.R.12.C1250-E	U12 23652	1.437	1.250	1.540	9.156	4.370	5.906	1/4" NPT	SOEX 120508	6,25	**36501**
KUB-Q.3D.1469.R.12.C1250-EF	U12 23732	1.469	1.250	1.540	9.274	4.488	6.024	1/4" NPT	SOEX 120508	6,25	**37301**
KUB-Q.3D.1500.R.12.C1250-EF	U12 23812	1.500	1.250	1.540	9.392	4.606	6.142	1/4" NPT	SOEX 120508	6,25	**38101**
KUB-Q.3D.1531.R.12.C1250-EF	U12 23892	1.531	1.250	1.540	9.392	4.606	6.142	1/4" NPT	SOEX 120508	6,25	**38901**
KUB-Q.3D.1562.R.12.C1250-EF	U12 23972	1.562	1.250	1.540	9.510	4.724	6.260	1/4" NPT	SOEX 120508	6,25	**39701**
KUB-Q.3D.1625.R.12.C1250-EF	U12 24132	1.625	1.250	1.540	9.746	4.961	6.496	1/4" NPT	SOEX 120508	6,25	**41301**
KUB-Q.3D.1656.R.12.C1250-EF	U12 24212	1.656	1.250	1.540	9.864	5.079	6.614	1/4" NPT	SOEX 120508	6,25	**42101**
KUB-Q.3D.1687.R.12.C1250-EF	U12 24292	1.687	1.250	1.540	9.864	5.079	6.614	1/4" NPT	SOEX 120508	6,25	**42801**
KUB-Q.3D.1750.R.12.C1250-EF	U12 24452	1.750	1.250	1.540	9.982	5.197	6.732	1/4" NPT	SOEX 120508	6,25	**44501**

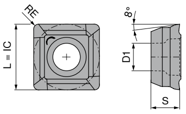

Screwdriver


Clamping screw

Spare parts DC	80 950 ...	10 950 ...
0.562 - 0.687	123	10000
0.703 - 0.843	123	10700
0.875 - 1.062	125	10800
1.109 - 1.281	128	10300
1.312 - 1.750	129	10400

SOEX

Designation	L inch	IC inch	D1 inch	S inch
SOEX 0502..	0.218	0.218	0.090	0.093
SOEX 0603..	0.250	0.250	0.104	0.125
SOEX 07T3..	0.312	0.312	0.112	0.140
SOEX 0904..	0.374	0.374	0.161	0.172
SOEX 1205..	0.500	0.500	0.204	0.203



SOEX

ISO	KOMET no.	RE inch	NEW -01 BK8425  SOEX 10 822 ...	NEW -13 BK8425  SOEX 10 822 ...	NEW -03 BK8430  SOEX 10 822 ...	NEW -01 BK6115  SOEX 10 822 ...	NEW -01 BK6420  SOEX 10 822 ...
050204	W83 13000.016115	0.016				**40501**	
050204	W83 13010.046420	0.016					**45501**
050204	W83 13010.048425	0.016	**30501**				
050204	W83 13030.048430	0.016			**00503**		
050204	W83 13130.048425	0.016		**30513**			
060306	W83 18000.096115	0.024				**40601**	
060306	W83 18010.066420	0.024					**45601**
060306	W83 18010.068425	0.024	**30601**				
060306	W83 18030.068430	0.024			**00603**		
060306	W83 18130.068425	0.024		**30613**			
07T308	W83 23000.016115	0.031				**40701**	
07T308	W83 23010.086420	0.031					**45701**
07T308	W83 23010.088425	0.031	**30701**				
07T308	W83 23030.088430	0.031			**00703**		
07T308	W83 23130.088425	0.031		**30713**			
090408	W83 32000.156115	0.031				**40901**	
090408	W83 32010.086420	0.031					**45901**
090408	W83 32010.088425	0.031	**30901**				
090408	W83 32030.088430	0.031			**00903**		
090408	W83 32130.088425	0.031		**30913**			
120508	W83 44000.186115	0.031				**41201**	
120508	W83 44010.086420	0.031					**46201**
120508	W83 44010.088425	0.031	**31201**				
120508	W83 44030.088430	0.031			**01203**		
120508	W83 44130.088425	0.031		**31213**			
P			●	●	●	●	●
M			●	●	●	●	●
K			●	●	●	●	○
N			○	○	○		
S			●	●	●		
H			○	○	○	○	
O							

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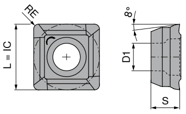
SOEX

Designation	L inch	IC inch	D1 inch	S inch
SOEX 0502..	0.218	0.218	0.090	0.093
SOEX 0603..	0.250	0.250	0.104	0.125
SOEX 07T3..	0.312	0.312	0.112	0.140
SOEX 0904..	0.374	0.374	0.161	0.172
SOEX 1205..	0.500	0.500	0.204	0.203



SOEX

			NEW	NEW	NEW	NEW	NEW
			-01 BK7615	**-01** BK7935	**-21** BK7935	**-13** BK7935	**-21** BK7710
							
			SOEX	SOEX	SOEX	SOEX	SOEX
			10 822 ...	**10 822 ...**	**10 822 ...**	**10 822 ...**	**10 822 ...**
ISO	KOMET no.	RE inch					
050204	W83 13010.047615	0.016	**05501**				
050204	W83 13010.047935	0.016		**50501**			
050204	W83 13130.047935	0.016				**50513**	
050204	W83 13210.047710	0.016					**90521**
050204	W83 13210.047935	0.016			**50521**		
060306	W83 18010.067615	0.024	**05601**				
060306	W83 18010.067935	0.024		**50601**			
060306	W83 18130.067935	0.024				**50613**	
060306	W83 18210.067710	0.024					**90621**
060306	W83 18210.067935	0.024			**51621**		
07T308	W83 23010.087615	0.031	**05701**				
07T308	W83 23010.087935	0.031		**50701**			
07T308	W83 23130.087935	0.031				**50713**	
07T308	W83 23210.087710	0.031					**90721**
07T308	W83 23210.087935	0.031			**50721**		
090408	W83 32010.087615	0.031	**05901**				
090408	W83 32010.087935	0.031		**50901**			
090408	W83 32130.087935	0.031				**50913**	
090408	W83 32210.087710	0.031					**90921**
090408	W83 32210.087935	0.031			**50921**		
120508	W83 44010.087615	0.031	**06201**				
120508	W83 44010.087935	0.031		**51201**			
120508	W83 44130.087935	0.031				**51213**	
120508	W83 44210.087710	0.031					**91221**
120508	W83 44210.087935	0.031			**51221**		
P				●	●	●	
M				●	●	●	
K			●	●	●	●	
N				○	○	○	●
S				●	●	●	○
H							
O				○	○	○	○

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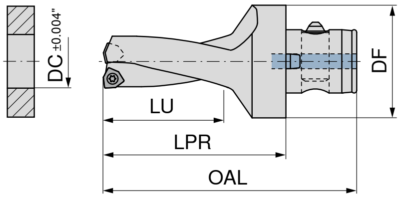
KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 2xD

ABS



NEW

Designation	KOMET no.	DC inch	DF inch	OAL inch	LU inch	LPR inch	Insert	torque moment Nm	15 892 ...
KUB-T-U.2D.0562.R.03.ABS50-F	V40 11430	0.562	1.969	3.780	1.181	2.559	WOEX 030204	0,62	**14395**
KUB-T-U.2D.0593.R.03.ABS50-F	V40 11510	0.593	1.969	3.858	1.260	2.638	WOEX 030204	0,62	**15195**
KUB-T-U.2D.0625.R.03.ABS50-F	V40 11590	0.625	1.969	3.858	1.260	2.638	WOEX 030204	0,62	**15995**
KUB-T-U.2D.0687.R.03.ABS50-F	V40 11750	0.687	1.969	4.016	1.417	2.795	WOEX 030204	0,62	**17595**
KUB-T-U.2D.0703.R.03.ABS50-F	V40 11790	0.703	1.969	4.016	1.417	2.559	WOEX 030204	0,62	**17995**
KUB-T-U.2D.0750.R.03.ABS50-F	V40 11910	0.750	1.969	4.173	1.575	2.638	WOEX 030204	0,62	**19195**
KUB-T-U.2D.0781.R.03.ABS50-F	V40 11980	0.781	1.969	4.173	1.575	2.638	WOEX 030204	0,62	**19895**
KUB-T-U.2D.0812.R.04.ABS50-F	V40 12060	0.812	1.969	4.252	1.654	2.795	WOEX 040304	1,01	**20695**
KUB-T-U.2D.0828.R.04.ABS50-F	V40 12100	0.828	1.969	4.252	1.654	2.795	WOEX 040304	1,01	**21095**
KUB-T-U.2D.0875.R.04.ABS50-F	V40 12220	0.875	1.969	4.409	1.811	2.953	WOEX 040304	1,01	**22295**
KUB-T-U.2D.0937.R.04.ABS50-F	V40 12380	0.937	1.969	4.488	1.890	2.953	WOEX 040304	1,01	**23895**
KUB-T-U.2D.1000.R.05.ABS50-F	V40 12540	1.000	1.969	4.646	2.047	3.031	WOEX 05T304	1,28	**25495**
KUB-T-U.2D.1031.R.05.ABS50-F	V40 12620	1.031	1.969	4.724	2.126	3.031	WOEX 05T304	1,28	**26295**
KUB-T-U.2D.1062.R.05.ABS50-F	V40 12700	1.062	1.969	4.724	2.126	3.189	WOEX 05T304	1,28	**27095**
KUB-T-U.2D.1109.R.05.ABS50-F	V40 12820	1.109	1.969	4.882	2.283	3.268	WOEX 05T304	1,28	**28295**
KUB-T-U.2D.1125.R.05.ABS50-F	V40 12860	1.125	1.969	4.882	2.283	3.425	WOEX 05T304	1,28	**28695**
KUB-T-U.2D.1156.R.05.ABS50-F	V40 12940	1.156	1.969	4.961	2.362	3.504	WOEX 05T304	1,28	**29495**
KUB-T-U.2D.1187.R.05.ABS50-F	V40 13010	1.187	1.969	5.236	2.441	3.504	WOEX 05T304	1,28	**30195**
KUB-T-U.2D.1218.R.05.ABS50-F	V40 13090	1.218	1.969	5.236	2.441	3.661	WOEX 05T304	1,28	**30995**
KUB-T-U.2D.1250.R.05.ABS50-F	V40 13180	1.250	1.969	5.315	2.520	3.661	WOEX 05T304	1,28	**31895**
KUB-T-U.2D.1281.R.05.ABS50-F	V40 13250	1.281	1.969	5.394	2.598	3.740	WOEX 05T304	1,28	**32595**
KUB-T-U.2D.1312.R.05.ABS50-F	V40 13330	1.312	1.969	5.472	2.677	4.016	WOEX 05T304	1,28	**33395**
KUB-T-U.2D.1328.R.05.ABS50-F	V40 13370	1.328	1.969	5.472	2.677	4.016	WOEX 05T304	1,28	**33795**
KUB-T-U.2D.1375.R.05.ABS50-F	V40 13490	1.375	1.969	5.551	2.756	4.094	WOEX 05T304	1,28	**34995**
KUB-T-U.2D.1406.R.05.ABS50-F	V40 13570	1.406	1.969	5.630	2.835	4.173	WOEX 05T304	1,28	**35795**
KUB-T-U.2D.1437.R.05.ABS50-F	V40 13650	1.437	1.969	6.102	2.913	4.252	WOEX 05T304	1,28	**36595**
KUB-T-U.2D.1469.R.06.ABS50-F	V40 13730	1.469	1.969	6.181	2.992	4.252	WOEX 06T304	2,8	**37395**
KUB-T-U.2D.1500.R.06.ABS50-F	V40 13810	1.500	1.969	6.260	3.071	4.331	WOEX 06T304	2,8	**38195**
KUB-T-U.2D.1531.R.06.ABS50-F	V40 13890	1.531	1.969	6.260	3.071	4.409	WOEX 06T304	2,8	**38995**
KUB-T-U.2D.1562.R.06.ABS50-F	V40 13970	1.562	1.969	6.339	3.150	4.882	WOEX 06T304	2,8	**39795**
KUB-T-U.2D.1625.R.06.ABS50-F	V40 14130	1.625	1.969	6.496	3.307	4.961	WOEX 06T304	2,8	**41395**
KUB-T-U.2D.1656.R.06.ABS50-F	V40 14210	1.656	1.969	6.575	3.386	5.039	WOEX 06T304	2,8	**42195**
KUB-T-U.2D.1687.R.06.ABS50-F	V40 14280	1.687	1.969	6.575	3.386	5.039	WOEX 06T304	2,8	**42895**
KUB-T-U.2D.1750.R.06.ABS50-F	V40 14450	1.750	1.969	6.689	3.500	5.118	WOEX 06T304	2,8	**44595**


Screwdriver


Clamping screw

Spare parts **DC**	Screwdriver 80 950 ...	Clamping screw 10 950 ...
0.562 - 0.781	**123**	**10000**
0.812 - 0.937	**123**	**10700**
1.000 - 1.437	**125**	**10500**
1.469 - 1.750	**127**	**10600**

Matching holders can be found in our Online-Shop at cuttingtools.ceratizit.com and in the metric clamping technology catalog

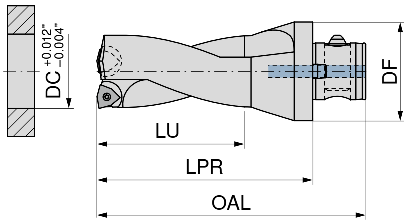
KUB Trigon – Indexable insert drill

Scope of supply:

with indexable insert (10 897 ...) incl. fixing screw, cylindrical pin and clamping screw
with indexable insert (10 898 ...) incl. fixing screw, cylindrical pin and clamping screw

≤ 2xD

ABS



Designation	KOMET no.	DC inch	DF inch	OAL inch	LU inch	LPR inch	Insert	torque moment Nm	10 892 ...	15 892 ...
KUB-T.2D.1781.R.08.ABS63-F	V13 34520	1.781	2.480	7.224	3.562	5.728	WOEX 080404	4,3		**45296**
KUB-T.2D.1812.R.08.ABS63	V13 34600	1.811	2.480	7.283	3.622	5.787	WOEX 080404	4,3	**46096**	
KUB-T.2D.1875.R.08.ABS63-F	V13 34760	1.875	2.480	7.412	3.750	5.916	WOEX 080404	4,3		**47696**
KUB-T.2D.1937.R.08.ABS63-F	V13 34920	1.937	2.480	7.536	3.874	6.040	WOEX 080404	4,3		**49296**
KUB-T.2D.1975.R.08.ABS63-F	V13 35020	1.975	2.480	7.612	3.950	6.116	WOEX 080404	4,3		**50296**
KUB-T.2D.2000.R.08.ABS63-F	V13 35080	2.000	2.480	7.662	4.000	6.166	WOEX 080404	4,3		**50896**
KUB-T.2D.2062.R.08.ABS63-F	V13 35240	2.062	2.480	7.786	4.124	6.290	WOEX 080404	4,3		**52496**
KUB-T.2D.2125.R.08.ABS63	V13 35400	2.126	2.480	7.913	4.252	6.417	WOEX 080404	4,3	**54096**	
KUB-T.2D.2165.R.10.ABS80	V14 35500	2.165	3.150	8.189	4.331	6.496	WOEX 100504	4,3	**55098**	
KUB-T.2D.2203.R.10.ABS80	V14 35600	2.205	3.150	8.268	4.409	6.575	WOEX 100504	4,3	**56098**	
KUB-T.2D.2250.R.10.ABS80-F	V14 35720	2.250	3.150	8.359	4.500	6.666	WOEX 100504	4,3		**57298**
KUB-T.2D.2281.R.10.ABS80-F	V14 35790	2.281	3.150	8.421	4.562	6.728	WOEX 100504	4,3		**57998**
KUB-T.2D.2375.R.10.ABS80-F	V14 36030	2.375	3.150	8.609	4.750	6.916	WOEX 100504	4,3		**60398**
KUB-T.2D.2437.R.10.ABS80-F	V14 36190	2.437	3.150	8.733	4.874	7.040	WOEX 100504	4,3		**61998**
KUB-T.2D.2500.R.10.ABS80-F	V14 36350	2.500	3.150	8.859	5.000	7.166	WOEX 100504	4,3		**63598**
KUB-T.2D.2593.R.10.ABS80-F	V14 36590	2.593	3.150	9.045	5.186	7.352	WOEX 100504	4,3		**65998**
KUB-T.2D.2625.R.10.ABS80-F	V14 36670	2.625	3.150	9.109	5.250	7.416	WOEX 100504	4,3		**66798**
KUB-T.2D.2656.R.10.ABS80-F	V14 36750	2.656	3.150	9.171	5.312	7.478	WOEX 100504	4,3		**67598**
KUB-T.2D.2750.R.12.ABS80-F	V14 36990	2.750	3.150	9.753	5.500	8.060	WOEX 120608	6,25		**69998**
KUB-T.2D.2875.R.12.ABS80	V14 37300	2.874	3.150	10.000	5.748	8.307	WOEX 120608	6,25	**73098**	
KUB-T.2D.3000.R.12.ABS80-F	V14 37620	3.000	3.150	10.253	6.000	8.560	WOEX 120608	6,25		**76298**
KUB-T.2D.3250.R.12.ABS80-F	V14 38260	3.250	3.150	10.753	6.500	9.060	WOEX 120608	6,25		**82698**

Spare parts **DC**	 Cylindrical pin **10 950 ...**	 Indexable insert, internal **10 897 ...**	 Indexable insert, external **10 898 ...**	 Screwdriver **80 950 ...**	 Clamping screw **10 950 ...**	 Fixing screw **10 950 ...**
1.781 - 2.126	**17200**	**14800**	**14800**	**120**	**12700**	**17000**
2.165 - 2.656	**17200**	**25300**	**25300**	**120**	**12700**	**17000**
2.750 - 3.250	**17300**	**36000**	**36000**	**121**	**17400**	**17100**

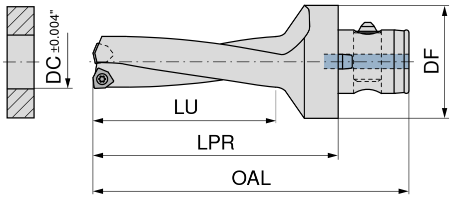
Matching holders can be found in our Online-Shop at cuttingtools.ceratizit.com and in the metric clamping technology catalog

KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 3xD

ABS



NEW

Designation	KOMET no.	DC inch	DF inch	OAL inch	LU inch	LPR inch	Insert	torque moment Nm	15 893 ...
KUB-T-U.3D.0562.R.03.ABS50-F	V40 21430	0.562	1.969	4.370	1.772	5.276	WOEX 030204	0,62	14395
KUB-T-U.3D.0593.R.03.ABS50-F	V40 21510	0.593	1.969	4.488	1.890	5.354	WOEX 030204	0,62	15195
KUB-T-U.3D.0625.R.03.ABS50-F	V40 21590	0.625	1.969	4.488	1.890	5.354	WOEX 030204	0,62	15995
KUB-T-U.3D.0656.R.03.ABS50-F	V40 21670	0.656	1.969	4.606	2.008	5.469	WOEX 030204	0,62	16795
KUB-T-U.3D.0687.R.03.ABS50-F	V40 21750	0.687	1.969	4.724	2.126	3.150	WOEX 030204	0,62	17595
KUB-T-U.3D.0703.R.03.ABS50-F	V40 21790	0.703	1.969	4.724	2.126	3.268	WOEX 030204	0,62	17995
KUB-T-U.3D.0750.R.03.ABS50-F	V40 21910	0.750	1.969	4.961	2.362	3.268	WOEX 030204	0,62	19195
KUB-T-U.3D.0765.R.03.ABS50-F	V40 21940	0.765	1.969	4.961	2.362	3.386	WOEX 030204	0,62	19495
KUB-T-U.3D.0781.R.03.ABS50-F	V40 21980	0.781	1.969	4.961	2.362	3.504	WOEX 030204	0,62	19895
KUB-T-U.3D.0812.R.04.ABS50-F	V40 22060	0.812	1.969	5.079	2.480	3.504	WOEX 040304	1,01	20695
KUB-T-U.3D.0828.R.04.ABS50-F	V40 22100	0.828	1.969	5.079	2.480	3.740	WOEX 040304	1,01	21095
KUB-T-U.3D.0875.R.04.ABS50-F	V40 22220	0.875	1.969	5.315	2.717	3.740	WOEX 040304	1,01	22295
KUB-T-U.3D.0937.R.04.ABS50-F	V40 22380	0.937	1.969	5.433	2.835	3.740	WOEX 040304	1,01	23895
KUB-T-U.3D.0985.R.04.ABS50-F	V40 22500	0.985	1.969	5.551	2.953	3.858	WOEX 040304	1,01	25095
KUB-T-U.3D.1000.R.05.ABS50-F	V40 22540	1.000	1.969	5.669	3.071	3.858	WOEX 05T304	1,28	25495
KUB-T-U.3D.1031.R.05.ABS50-F	V40 22620	1.031	1.969	5.787	3.189	4.094	WOEX 05T304	1,28	26295
KUB-T-U.3D.1062.R.05.ABS50-F	V40 22700	1.062	1.969	5.787	3.189	4.213	WOEX 05T304	1,28	27095
KUB-T-U.3D.1109.R.05.ABS50-F	V40 22820	1.109	1.969	6.024	3.425	4.331	WOEX 05T304	1,28	28295
KUB-T-U.3D.1125.R.05.ABS50-F	V40 22860	1.125	1.969	6.024	3.425	4.449	WOEX 05T304	1,28	28695
KUB-T-U.3D.1156.R.05.ABS50-F	V40 22940	1.156	1.969	6.142	3.543	4.567	WOEX 05T304	1,28	29495
KUB-T-U.3D.1187.R.05.ABS50-F	V40 23010	1.187	1.969	6.457	3.661	4.567	WOEX 05T304	1,28	30195
KUB-T-U.3D.1218.R.05.ABS50-F	V40 23090	1.218	1.969	6.457	3.661	4.803	WOEX 05T304	1,28	30995
KUB-T-U.3D.1250.R.05.ABS50-F	V40 23180	1.250	1.969	6.575	3.780	4.803	WOEX 05T304	1,28	31895
KUB-T-U.3D.1281.R.05.ABS50-F	V40 23250	1.281	1.969	6.693	3.898	4.921	WOEX 05T304	1,28	32595
KUB-T-U.3D.1312.R.05.ABS50-F	V40 23330	1.312	1.969	6.811	4.016	5.236	WOEX 05T304	1,28	33395
KUB-T-U.3D.1328.R.05.ABS50-F	V40 23370	1.328	1.969	6.811	4.016	5.236	WOEX 05T304	1,28	33795
KUB-T-U.3D.1375.R.05.ABS50-F	V40 23490	1.375	1.969	6.929	4.134	5.354	WOEX 05T304	1,28	34995
KUB-T-U.3D.1406.R.05.ABS50-F	V40 23570	1.406	1.969	7.047	4.252	5.472	WOEX 05T304	1,28	35795
KUB-T-U.3D.1437.R.05.ABS50-F	V40 23650	1.437	1.969	7.559	4.370	5.591	WOEX 05T304	1,28	36595
KUB-T-U.3D.1469.R.06.ABS50-F	V40 23730	1.469	1.969	7.677	4.488	5.591	WOEX 06T304	2,8	37395
KUB-T-U.3D.1500.R.06.ABS50-F	V40 23810	1.500	1.969	7.795	4.606	5.709	WOEX 06T304	2,8	38195
KUB-T-U.3D.1531.R.06.ABS50-F	V40 23890	1.531	1.969	7.795	4.606	5.827	WOEX 06T304	2,8	38995
KUB-T-U.3D.1562.R.06.ABS50-F	V40 23970	1.562	1.969	7.913	4.724	6.339	WOEX 06T304	2,8	39795
KUB-T-U.3D.1625.R.06.ABS50-F	V40 24130	1.625	1.969	8.150	4.961	6.457	WOEX 06T304	2,8	41395
KUB-T-U.3D.1656.R.06.ABS50-F	V40 24210	1.656	1.969	8.268	5.079	6.575	WOEX 06T304	2,8	42195
KUB-T-U.3D.1687.R.06.ABS50-F	V40 24280	1.687	1.969	8.268	5.079	6.575	WOEX 06T304	2,8	42895
KUB-T-U.3D.1750.R.06.ABS50-F	V40 24450	1.750	1.969	8.439	5.250	6.693	WOEX 06T304	2,8	44595

Spare parts DC	Screwdriver 80 950 ...	Clamping screw 10 950 ...
0.562 - 0.781	123	10000
0.812 - 0.985	123	10700
1.000 - 1.437	125	10500
1.469 - 1.750	127	10600

Matching holders can be found in our Online-Shop at cuttingtools.ceratizit.com and in the metric clamping technology catalog

KUB Trigon – Indexable insert drill

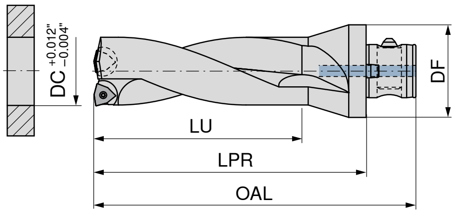
▲ Tightening torque refers to clamping screw

Scope of supply:

with indexable insert (10 897 ...) incl. fixing screw, cylindrical pin and clamping screw
with indexable insert (10 898 ...) incl. fixing screw, cylindrical pin and clamping screw

≤ 3xD

ABS



Designation	KOMET no.	DC inch	DF inch	OAL inch	LU inch	LPR inch	Insert	torque moment Nm	**10 893 ...**	**15 893 ...**
KUB-T.3D.1781.R.08.ABS63-F	V13 74520	1.781	2.480	9.005	5.343	7.509	WOEX 080404	4,3		**45296**
KUB-T.3D.1812.R.08.ABS63	V13 74600	1.811	2.480	9.094	5.433	7.598	WOEX 080404	4,3	**46096**	
KUB-T.3D.1875.R.08.ABS63-F	V13 74760	1.875	2.480	9.287	5.625	7.791	WOEX 080404	4,3		**47696**
KUB-T.3D.1937.R.08.ABS63-F	V13 74920	1.937	2.480	9.473	5.811	7.977	WOEX 080404	4,3		**49296**
KUB-T.3D.1975.R.08.ABS63-F	V13 75020	1.975	2.480	9.587	5.925	8.091	WOEX 080404	4,3		**50296**
KUB-T.3D.2000.R.08.ABS63-F	V13 75080	2.000	2.480	9.662	6.000	8.166	WOEX 080404	4,3		**50896**
KUB-T.3D.2062.R.08.ABS63-F	V13 75240	2.062	2.480	10.028	6.186	8.532	WOEX 080404	4,3		**52496**
KUB-T.3D.2125.R.08.ABS63	V13 75400	2.126	2.480	10.039	6.378	8.543	WOEX 080404	4,3	**54096**	
KUB-T.3D.2165.R.10.ABS80	V14 75500	2.165	3.150	10.354	6.496	8.661	WOEX 100504	4,3	**55098**	
KUB-T.3D.2203.R.10.ABS80	V14 75600	2.205	3.150	10.472	6.614	8.780	WOEX 100504	4,3	**56098**	
KUB-T.3D.2250.R.10.ABS80-F	V14 75720	2.250	3.150	10.609	6.750	8.916	WOEX 100504	4,3		**57298**
KUB-T.3D.2281.R.10.ABS80-F	V14 75790	2.281	3.150	10.702	6.843	9.009	WOEX 100504	4,3		**57998**
KUB-T.3D.2375.R.10.ABS80-F	V14 76030	2.375	3.150	10.984	7.125	9.291	WOEX 100504	4,3		**60398**
KUB-T.3D.2437.R.10.ABS80-F	V14 76190	2.437	3.150	11.170	7.311	9.477	WOEX 100504	4,3		**61998**
KUB-T.3D.2500.R.10.ABS80-F	V14 76350	2.500	3.150	11.359	7.500	9.666	WOEX 100504	4,3		**63598**
KUB-T.3D.2593.R.10.ABS80-F	V14 76590	2.593	3.150	11.638	7.779	9.945	WOEX 100504	4,3		**65998**
KUB-T.3D.2625.R.10.ABS80-F	V14 76670	2.625	3.150	11.734	7.875	10.041	WOEX 100504	4,3		**66798**
KUB-T.3D.2656.R.10.ABS80-F	V14 76750	2.656	3.150	11.827	7.968	10.134	WOEX 100504	4,3		**67598**
KUB-T.3D.2750.R.12.ABS80-F	V14 76990	2.750	3.150	12.503	8.250	10.810	WOEX 120608	6,25		**69998**
KUB-T.3D.2875.R.12.ABS80	V14 77300	2.874	3.150	12.874	8.622	11.181	WOEX 120608	6,25	**73098**	
KUB-T.3D.3000.R.12.ABS80-F	V14 77620	3.000	3.150	13.253	9.000	11.560	WOEX 120608	6,25		**76298**
KUB-T.3D.3250.R.12.ABS80-F	V14 78260	3.250	3.150	14.003	9.750	12.310	WOEX 120608	6,25		**82698**

	 Cylindrical pin	 Indexable insert, internal	 Indexable insert, external	 Screwdriver	 Clamping screw	 Fixing screw
Spare parts **DC**	**10 950 ...**	**10 897 ...**	**10 898 ...**	**80 950 ...**	**10 950 ...**	**10 950 ...**
1.781 - 2.126	**17200**	**14800**	**14800**	**120**	**12700**	**17000**
2.165 - 2.656	**17200**	**25300**	**25300**	**120**	**12700**	**17000**
2.750 - 3.250	**17300**	**36000**	**36000**	**121**	**17400**	**17100**

Matching holders can be found in our Online-Shop at cuttingtools.ceratizit.com and in the metric clamping technology catalog

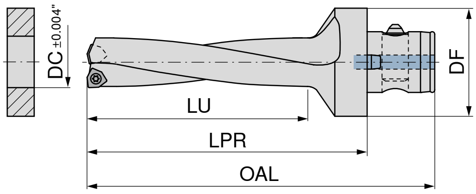
KUB Trigon – Indexable insert drill

Scope of supply:

Indexable Insert Drill incl. clamping screws

≤ 4xD

ABS



Designation	KOMET no.	DC inch	DF inch	OAL inch	LU inch	LPR inch	Insert	torque moment Nm	10 894 ...	15 894 ...
KUB-T.4D.0562.R.03.ABS50-F	V30 91431	0.562	1.969	4.955	2.358	3.735	WOEX 030204	0,62		14395
KUB-T.4D.0593.R.03.ABS50-F	V30 91511	0.593	1.969	5.112	2.514	3.892	WOEX 030204	0,62		15195
KUB-T.4D.0625.R.03.ABS50-F	V30 91591	0.625	1.969	5.114	2.516	3.894	WOEX 030204	0,62		15995
KUB-T.4D.0656.R.03.ABS50-F	V30 91671	0.656	1.969	5.269	2.671	4.049	WOEX 030204	0,62		16795
KUB-T.4D.0687.R.03.ABS50-F	V30 91751	0.687	1.969	5.425	2.827	4.205	WOEX 030204	0,62		17595
KUB-T.4D.0703.R.03.ABS50-F	V30 91791	0.703	1.969	5.425	2.828	4.205	WOEX 030204	0,62		17995
KUB-T.4D.0750.R.03.ABS50-F	V30 91911	0.750	1.969	5.740	3.142	4.520	WOEX 030204	0,62		19195
KUB-T.4D.0765.R.03.ABS50-F	V30 91941	0.765	1.969	5.752	3.154	4.532	WOEX 030204	0,62		19495
KUB-T.4D.0781.R.03.ABS50-F	V30 91981	0.781	1.969	5.753	3.155	4.533	WOEX 030204	0,62		19895
KUB-T.4D.0812.R.04.ABS50-F	V30 92061	0.812	1.969	5.909	3.311	4.689	WOEX 040304	1,01		20695
KUB-T.4D.0828.R.04.ABS50	V30 92101	0.827	1.969	5.906	3.307	4.685	WOEX 040304	1,01	21095	
KUB-T.4D.0875.R.04.ABS50-F	V30 92221	0.875	1.969	6.224	3.626	5.004	WOEX 040304	1,01		22295
KUB-T.4D.0937.R.04.ABS50-F	V30 92381	0.937	1.969	6.377	3.779	5.157	WOEX 040304	1,01		23895
KUB-T.4D.0985.R.05.ABS50	V30 92501	0.984	1.969	6.535	3.937	5.315	WOEX 05T304	1,28	25095	
KUB-T.4D.1000.R.05.ABS50-F	V30 92541	1.000	1.969	6.692	4.094	5.472	WOEX 05T304	1,28		25495
KUB-T.4D.1031.R.05.ABS50-F	V30 92621	1.031	1.969	6.848	4.250	5.628	WOEX 05T304	1,28		26295
KUB-T.4D.1062.R.05.ABS50	V30 92701	1.063	1.969	6.850	4.252	5.630	WOEX 05T304	1,28	27095	
KUB-T.4D.1109.R.05.ABS50-F	V30 92821	1.109	1.969	7.160	4.562	5.940	WOEX 05T304	1,28		28295
KUB-T.4D.1125.R.05.ABS50-F	V30 92861	1.125	1.969	7.161	4.563	5.941	WOEX 05T304	1,28		28695
KUB-T.4D.1156.R.05.ABS50-F	V30 92941	1.156	1.969	7.316	4.718	6.096	WOEX 05T304	1,28		29495
KUB-T.4D.1187.R.05.ABS50-F	V30 93021	1.187	1.969	7.685	4.874	6.465	WOEX 05T304	1,28		30195
KUB-T.4D.1218.R.05.ABS50-F	V30 93091	1.218	1.969	7.699	4.888	6.479	WOEX 05T304	1,28		30995
KUB-T.4D.1250.R.05.ABS50-F	V30 93181	1.250	1.969	7.842	5.031	6.622	WOEX 05T304	1,28		31895
KUB-T.4D.1281.R.05.ABS50-F	V30 93251	1.281	1.969	8.014	5.203	6.794	WOEX 05T304	1,28		32595
KUB-T.4D.1312.R.05.ABS50-F	V30 93331	1.312	1.969	8.161	5.350	6.941	WOEX 05T304	1,28		33395
KUB-T.4D.1328.R.05.ABS50-F	V30 93371	1.328	1.969	8.170	5.359	6.950	WOEX 05T304	1,28		33795
KUB-T.4D.1375.R.05.ABS50-F	V30 93491	1.375	1.969	8.327	5.516	7.107	WOEX 05T304	1,28		34995
KUB-T.4D.1406.R.05.ABS50-F	V30 93571	1.406	1.969	8.482	5.671	7.262	WOEX 05T304	1,28		35795
KUB-T.4D.1437.R.05.ABS50-F	V30 93651	1.437	1.969	8.638	5.827	7.418	WOEX 05T304	1,28		36595
KUB-T.4D.1469.R.06.ABS50-F	V30 93731	1.469	1.969	9.175	5.986	7.955	WOEX 06T304	2,8		37395
KUB-T.4D.1500.R.06.ABS50-F	V30 93811	1.500	1.969	9.331	6.142	8.111	WOEX 06T304	2,8		38195
KUB-T.4D.1531.R.06.ABS50-F	V30 93891	1.531	1.969	9.329	6.140	8.109	WOEX 06T304	2,8		38995
KUB-T.4D.1562.R.06.ABS50-F	V30 93971	1.562	1.969	9.484	6.295	8.264	WOEX 06T304	2,8		39795
KUB-T.4D.1625.R.06.ABS50-F	V30 94131	1.625	1.969	9.799	6.610	8.579	WOEX 06T304	2,8		41395
KUB-T.4D.1656.R.06.ABS50-F	V30 94211	1.656	1.969	9.955	6.766	8.735	WOEX 06T304	2,8		42195
KUB-T.4D.1687.R.06.ABS50-F	V30 94291	1.687	1.969	9.953	6.764	8.733	WOEX 06T304	2,8		42895
KUB-T.4D.1750.R.06.ABS50-F	V30 94451	1.750	1.969	10.268	7.079	9.048	WOEX 06T304	2,8		44595

Screwdriver

Clamping screw

Spare parts

DC	80 950 ...	10 950 ...
0.562 - 0.781	123	10000
0.812 - 0.937	123	10700
0.984 - 1.437	125	10500
1.469 - 1.750	127	10600

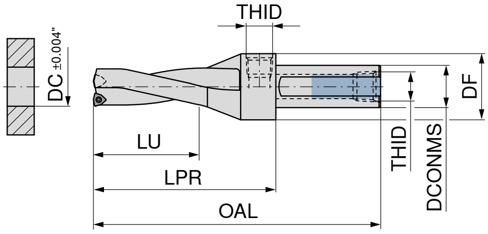
Matching holders can be found in our Online-Shop at cuttingtools.ceratizit.com and in the metric clamping technology catalog

KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 2.5xD

C



Designation	KOMET no.	DC inch	DCONMS inch	DF inch	OAL inch	LU inch	LPR inch	THID inch	Insert	torque moment Nm	15 896 ...
KUB-T.2,5D.0562.R.03.C0750-EF	V57 41432	0.562	0.750	1.130	5.125	1.405	2.875	1/8" NPT	WOEX 030204	0,62	**14309**
KUB-T.2,5D.0593.R.03.C0750-EF	V57 41510	0.593	0.750	1.130	5.125	1.483	2.875	1/8" NPT	WOEX 030204	0,62	**15109**
KUB-T.2,5D.0625.R.03.C0750-EF	V57 41590	0.625	0.750	1.130	5.125	1.563	2.875	1/8" NPT	WOEX 030204	0,62	**15909**
KUB-T.2,5D.0687.R.03.C0750-E	V57 41750	0.687	0.750	1.130	5.375	1.718	3.125	1/8" NPT	WOEX 030204	0,62	**17509**
KUB-T.2,5D.0703.R.03.C0750-EF	V57 41790	0.703	0.750	1.130	5.375	1.758	3.125	1/8" NPT	WOEX 030204	0,62	**17909**
KUB-T.2,5D.0750.R.03.C0750-EF	V57 41910	0.750	0.750	1.130	5.375	1.875	3.125	1/8" NPT	WOEX 030204	0,62	**19109**


Screwdriver


Clamping screw

Spare parts **DC**	80 950 ...	10 950 ...
0.562 - 0.750	**123**	**10000**

Matching holders can be found in our Online-Shop at cuttingtools.ceratizit.com and in the metric clamping technology catalog

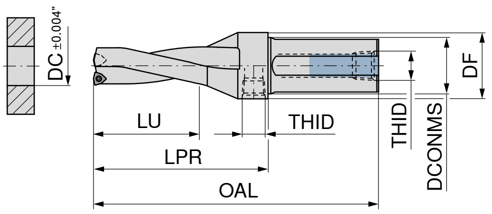
KUB Trigon – Indexable insert drill

Scope of supply:

Indexable Insert Drill incl. clamping screws

≤ 2.5xD

C



Designation	KOMET no.	DC	DCONMS	DF	OAL	LU	LPR	THID	Insert	torque moment	15 896 ...
		inch	inch	inch	inch	inch	inch	inch		Nm	
KUB-T.2,5D.0562.R.03.C1250-EF	V57 51434	0.562	1.250	1.575	6.125	1.405	2.875	1/8" NPT	WOEX 030204	0,62	**14301**
KUB-T.2,5D.0593.R.03.C1250-EF	V57 51512	0.593	1.250	1.575	6.125	1.483	2.875	1/8" NPT	WOEX 030204	0,62	**15101**
KUB-T.2,5D.0625.R.03.C1250-EF	V57 51592	0.625	1.250	1.575	6.125	1.563	2.875	1/8" NPT	WOEX 030204	0,62	**15901**
KUB-T.2,5D.0656.R.03.C1250-EF	V57 51672	0.656	1.250	1.575	6.375	1.718	3.125	1/8" NPT	WOEX 030204	0,62	**16701**
KUB-T.2,5D.0687.R.03.C1250-E	V57 51752	0.687	1.250	1.575	6.375	1.718	3.125	1/8" NPT	WOEX 030204	0,62	**17501**
KUB-T.2,5D.0703.R.03.C1250-EF	V57 51792	0.703	1.250	1.575	6.375	1.758	3.125	1/8" NPT	WOEX 030204	0,62	**17901**
KUB-T.2,5D.0750.R.03.C1250-EF	V57 51912	0.750	1.250	1.575	6.375	1.625	3.125	1/8" NPT	WOEX 030204	0,62	**19101**
KUB-T.2,5D.0765.R.03.C1250-EF	V57 51942	0.765	1.250	1.575	6.375	1.625	3.125	1/8" NPT	WOEX 030204	0,62	**19401**
KUB-T.2,5D.0781.R.03.C1250-EF	V57 51982	0.781	1.250	1.575	6.375	1.625	3.125	1/8" NPT	WOEX 030204	0,62	**19801**
KUB-T.2,5D.0812.R.04.C1250-EF	V57 52062	0.812	1.250	1.575	6.375	1.625	3.125	1/8" NPT	WOEX 040304	1,01	**20601**
KUB-T.2,5D.0828.R.04.C1250-E	V57 52102	0.828	1.250	1.575	6.875	2.000	3.625	1/8" NPT	WOEX 040304	1,01	**21001**
KUB-T.2,5D.0843.R.04.C1250-EF	V57 52142	0.843	1.250	1.575	6.875	2.000	3.625	1/8" NPT	WOEX 040304	1,01	**21401**
KUB-T.2,5D.0875.R.04.C1250-EF	V57 52222	0.875	1.250	1.575	6.875	2.000	3.625	1/8" NPT	WOEX 040304	1,01	**22201**
KUB-T.2,5D.0906.R.04.C1250-E	V57 52302	0.906	1.250	1.575	6.875	2.000	3.625	1/8" NPT	WOEX 040304	1,01	**23001**
KUB-T.2,5D.0937.R.04.C1250-EF	V57 52382	0.937	1.250	1.575	6.875	2.000	3.625	1/8" NPT	WOEX 040304	1,01	**23801**
KUB-T.2,5D.0985.R.05.C1250-E	V57 52502	0.985	1.250	1.575	6.875	2.000	3.625	1/8" NPT	WOEX 05T304	1,28	**25001**
KUB-T.2,5D.1000.R.05.C1250-EF	V57 52542	1.000	1.250	1.575	6.875	2.000	3.625	1/8" NPT	WOEX 05T304	1,28	**25401**
KUB-T.2,5D.1031.R.05.C1250-EF	V57 52622	1.031	1.250	1.575	7.562	2.750	4.312	1/8" NPT	WOEX 05T304	1,28	**26201**
KUB-T.2,5D.1062.R.05.C1250-E	V57 52702	1.062	1.250	1.575	7.562	2.750	4.312	1/8" NPT	WOEX 05T304	1,28	**27001**
KUB-T.2,5D.1109.R.05.C1250-EF	V57 52822	1.109	1.250	1.575	7.562	2.750	4.312	1/8" NPT	WOEX 05T304	1,28	**28201**
KUB-T.2,5D.1125.R.05.C1250-EF	V57 52862	1.125	1.250	1.575	7.562	2.750	4.312	1/8" NPT	WOEX 05T304	1,28	**28601**
KUB-T.2,5D.1156.R.05.C1250-EF	V57 52942	1.156	1.250	1.575	8.250	3.250	5.000	1/8" NPT	WOEX 05T304	1,28	**29401**
KUB-T.2,5D.1187.R.05.C1250-EF	V57 53022	1.187	1.250	1.575	8.250	3.250	5.000	1/8" NPT	WOEX 05T304	1,28	**30101**
KUB-T.2,5D.1218.R.05.C1250-EF	V57 53092	1.218	1.250	1.575	8.250	3.250	5.000	1/8" NPT	WOEX 05T304	1,28	**30901**
KUB-T.2,5D.1250.R.05.C1250-EF	V57 53182	1.250	1.250	1.575	8.250	3.250	5.000	1/8" NPT	WOEX 05T304	1,28	**31801**
KUB-T.2,5D.1281.R.05.C1250-E	V57 53252	1.281	1.250	1.575	8.250	3.250	5.000	1/8" NPT	WOEX 05T304	1,28	**32501**
KUB-T.2,5D.1312.R.05.C1250-EF	V57 53332	1.312	1.250	1.575	8.250	3.250	5.000	1/8" NPT	WOEX 05T304	1,28	**33301**
KUB-T.2,5D.1328.R.05.C1250-EF	V57 53372	1.328	1.250	1.575	8.250	3.250	5.000	1/8" NPT	WOEX 05T304	1,28	**33701**
KUB-T.2,5D.1375.R.05.C1250-EF	V57 53492	1.375	1.250	1.575	8.250	3.250	5.000	1/8" NPT	WOEX 05T304	1,28	**34901**
KUB-T.2,5D.1406.R.05.C1250-EF	V57 53572	1.406	1.250	1.575	8.250	3.250	5.000	1/8" NPT	WOEX 05T304	1,28	**35701**
KUB-T.2,5D.1437.R.05.C1250-E	V57 53652	1.437	1.250	1.575	8.250	3.250	5.000	1/8" NPT	WOEX 05T304	1,28	**36501**
KUB-T.2,5D.1469.R.06.C1250-EF	V57 53732	1.469	1.250	1.575	8.368	3.500	5.118	1/8" NPT	WOEX 06T304	2,8	**37301**
KUB-T.2,5D.1500.R.06.C1250-EF	V57 53812	1.500	1.250	1.575	8.368	3.500	5.118	1/8" NPT	WOEX 06T304	2,8	**38101**
KUB-T.2,5D.1531.R.06.C1250-EF	V57 53892	1.531	1.250	1.575	8.368	3.500	5.118	1/8" NPT	WOEX 06T304	2,8	**38911**
KUB-T.2,5D.1562.R.06.C1250-EF	V57 53972	1.562	1.250	1.575	8.368	3.500	5.118	1/8" NPT	WOEX 06T304	2,8	**39701**
KUB-T.2,5D.1625.R.06.C1250-EF	V57 54132	1.625	1.250	1.575	8.368	3.500	5.118	1/8" NPT	WOEX 06T304	2,8	**41301**
KUB-T.2,5D.1656.R.06.C1500-EF	V57 54212	1.656	1.500	1.970	10.709	4.000	5.709	1/4" NPT	WOEX 06T304	2,8	**42102**
KUB-T.2,5D.1687.R.06.C1500-EF	V57 54262	1.687	1.500	1.970	10.709	4.000	5.709	1/4" NPT	WOEX 06T304	2,8	**42802**
KUB-T.2,5D.1750.R.06.C1500-EF	V57 54452	1.750	1.500	1.970	10.709	4.000	5.709	1/4" NPT	WOEX 06T304	2,8	**44502**

Screwdriver

Clamping screw

Spare parts **DC**	80 950 ...	10 950 ...
0.562 - 0.781	**123**	**10000**
0.812 - 0.937	**123**	**10700**
0.985 - 1.437	**125**	**10500**
1.469 - 1.750	**127**	**10600**

Matching holders can be found in our Online-Shop at cuttingtools.ceratizit.com and in the metric clamping technology catalog

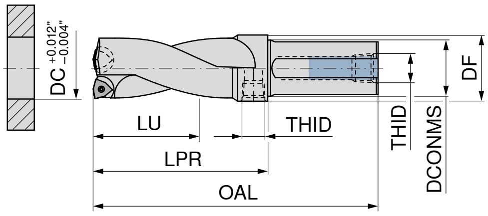
KUB Trigon – Indexable insert drill

Scope of supply:

with indexable insert (10 897 ...) incl. fixing screw, cylindrical pin and clamping screw
with indexable insert (10 898 ...) incl. fixing screw, cylindrical pin and clamping screw

≤ 2.5xD

C



Designation	KOMET no.	DC inch	DCONMS inch	DF inch	OAL inch	LU inch	LPR inch	THID inch	Insert	torque moment Nm	15 896 ...
KUB-T.2,5D.1812.R.08.C1500-E	V57 34602	1.812	1.500	1.969	10.709	4.000	5.709	1/4" NPT	WOEX 080404	4,3	**46002**
KUB-T.2,5D.1875.R.08.C1500-EF	V57 34762	1.875	1.500	1.969	10.709	4.000	5.709	1/4" NPT	WOEX 080404	4,3	**47602**
KUB-T.2,5D.1937.R.08.C1500-EF	V57 34922	1.937	1.500	1.969	11.890	5.000	6.890	1/4" NPT	WOEX 080404	4,3	**49202**
KUB-T.2,5D.2000.R.08.C1500-EF	V57 35082	2.000	1.500	1.969	11.890	5.000	6.890	1/4" NPT	WOEX 080404	4,3	**50802**
KUB-T.2,5D.2125.R.08.C1500-E	V57 35402	2.125	1.500	2.067	11.890	5.000	6.890	1/4" NPT	WOEX 080404	4,3	**54002**
KUB-T.2,5D.2250.R.10.C2000-EF	V57 35722	2.250	2.000	2.362	11.890	5.000	6.890	1/4" NPT	WOEX 100504	4,3	**57204**
KUB-T.2,5D.2375.R.10.C2000-EF	V57 36032	2.375	2.000	2.362	11.890	5.000	6.890	1/4" NPT	WOEX 100504	4,3	**60304**
KUB-T.2,5D.2500.R.10.C2000-EF	V57 36352	2.500	2.000	2.492	11.890	5.000	6.890	1/4" NPT	WOEX 100504	4,3	**63504**
KUB-T.2,5D.2750.R.12.C2000-EF	V57 36992	2.750	2.000	2.657	13.268	6.000	8.267	1/4" NPT	WOEX 120608	6,25	**69904**
KUB-T.2,5D.3000.R.12.C2000-EF	V57 37622	3.000	2.000	2.933	13.268	6.000	8.267	1/4" NPT	WOEX 120608	6,25	**76204**
KUB-T.2,5D.3250.R.12.C2000-EF	V57 38262	3.250	2.000	3.130	13.268	6.000	8.267	1/4" NPT	WOEX 120608	6,25	**82604**

Spare parts **DC**	 Cylindrical pin **10 950 ...**	 Indexable insert, internal **10 897 ...**	 Indexable insert, external **10 898 ...**	 Screwdriver **80 950 ...**	 Clamping screw **10 950 ...**	 Fixing screw **10 950 ...**
1.812 - 2.125	**17200**	**14800**	**14800**	**120**	**12700**	**17000**
2.250 - 2.500	**17200**	**25300**	**25300**	**120**	**12700**	**17000**
2.750 - 3.250	**17300**	**36000**	**36000**	**121**	**17400**	**17100**

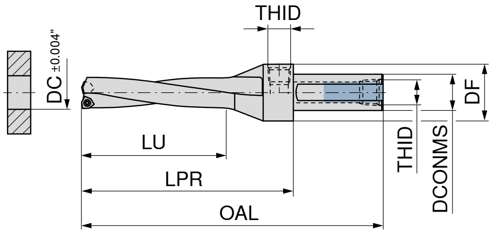
Matching holders can be found in our Online-Shop at cuttingtools.ceratizit.com and in the metric clamping technology catalog

KUB Trigon – Indexable insert drill

Scope of supply:
Indexable Insert Drill incl. clamping screws

≤ 4xD

C



Designation	KOMET no.	DC inch	DCONMS inch	DF inch	OAL inch	LU inch	LPR inch	THID inch	Insert	torque moment Nm	15 894 ...
KUB-T.4D.0562.R.03.C0750-EF	V57 61432	0.562	0.750	1.130	5.875	2.248	3.625	1/8" NPT	WOEX 030204	0,62	**14309**
KUB-T.4D.0593.R.03.C0750-EF	V57 61510	0.593	0.750	1.130	6.000	2.372	3.750	1/8" NPT	WOEX 030204	0,62	**15109**
KUB-T.4D.0625.R.03.C0750-EF	V57 61590	0.625	0.750	1.130	6.128	2.500	3.878	1/8" NPT	WOEX 030204	0,62	**15909**
KUB-T.4D.0687.R.03.C0750-E	V57 61750	0.687	0.750	1.130	6.376	2.748	4.126	1/8" NPT	WOEX 030204	0,62	**17509**
KUB-T.4D.0703.R.03.C0750-EF	V57 61790	0.703	0.750	1.130	6.439	2.812	4.189	1/8" NPT	WOEX 030204	0,62	**17909**
KUB-T.4D.0750.R.03.C0750-EF	V57 61910	0.750	0.750	1.130	6.628	3.000	4.378	1/8" NPT	WOEX 030204	0,62	**19109**

Screwdriver

Clamping screw

Spare parts **DC**	Screwdriver **80 950 ...**	Clamping screw **10 950 ...**
0.562 - 0.750	**123**	**10000**

Matching holders can be found in our Online-Shop at cuttingtools.ceratizit.com and in the metric clamping technology catalog

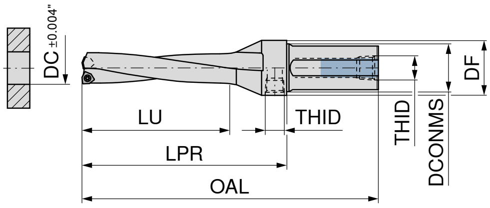
KUB Trigon – Indexable insert drill

Scope of supply:

Indexable Insert Drill incl. clamping screws

≤ 4xD

C



Designation	KOMET no.	DC	DCONMS	DF	OAL	LU	LPR	THID	Insert	torque moment	15 894 ...
		inch	inch	inch	inch	inch	inch	inch		Nm	
KUB-T.4D.0562.R.03.C1250-EF	V57 71434	0.562	1.250	1.575	6.875	2.248	3.625	1/8" NPT	WOEX 030204	0,62	**14301**
KUB-T.4D.0593.R.03.C1250-EF	V57 71512	0.593	1.250	1.575	7.000	2.372	3.750	1/8" NPT	WOEX 030204	0,62	**15101**
KUB-T.4D.0625.R.03.C1250-EF	V57 71592	0.625	1.250	1.575	7.128	2.500	3.878	1/8" NPT	WOEX 030204	0,62	**15901**
KUB-T.4D.0656.R.03.C1250-EF	V57 71672	0.656	1.250	1.575	7.252	2.624	4.002	1/8" NPT	WOEX 030204	0,62	**16701**
KUB-T.4D.0687.R.03.C1250-E	V57 71752	0.687	1.250	1.575	7.376	2.748	4.126	1/8" NPT	WOEX 030204	0,62	**17501**
KUB-T.4D.0703.R.03.C1250-EF	V57 71792	0.703	1.250	1.575	7.439	2.812	4.189	1/8" NPT	WOEX 030204	0,62	**17901**
KUB-T.4D.0750.R.03.C1250-EF	V57 71912	0.750	1.250	1.575	7.628	3.000	4.378	1/8" NPT	WOEX 030204	0,62	**19101**
KUB-T.4D.0765.R.03.C1250-EF	V57 71942	0.765	1.250	1.575	7.688	3.060	4.438	1/8" NPT	WOEX 030204	0,62	**19401**
KUB-T.4D.0781.R.03.C1250-EF	V57 71982	0.781	1.250	1.575	7.752	3.124	4.502	1/8" NPT	WOEX 030204	0,62	**19801**
KUB-T.4D.0812.R.04.C1250-EF	V57 72062	0.812	1.250	1.575	7.876	3.248	4.626	1/8" NPT	WOEX 040304	1,01	**20601**
KUB-T.4D.0828.R.04.C1250-E	V57 72102	0.828	1.250	1.575	7.940	3.312	4.690	1/8" NPT	WOEX 040304	1,01	**21001**
KUB-T.4D.0843.R.04.C1250-EF	V57 72142	0.843	1.250	1.575	8.000	3.372	4.750	1/8" NPT	WOEX 040304	1,01	**21401**
KUB-T.4D.0875.R.04.C1250-EF	V57 72222	0.875	1.250	1.575	8.128	3.500	4.878	1/8" NPT	WOEX 040304	1,01	**22201**
KUB-T.4D.0906.R.04.C1250-E	V57 72302	0.906	1.250	1.575	8.252	3.624	5.002	1/8" NPT	WOEX 040304	1,01	**23001**
KUB-T.4D.0937.R.04.C1250-EF	V57 72382	0.937	1.250	1.575	8.376	3.748	5.126	1/8" NPT	WOEX 040304	1,01	**23801**
KUB-T.4D.0985.R.05.C1250-E	V57 72502	0.985	1.250	1.575	8.568	3.940	5.318	1/8" NPT	WOEX 05T304	1,28	**25001**
KUB-T.4D.1000.R.05.C1250-EF	V57 72542	1.000	1.250	1.575	8.628	4.000	5.378	1/8" NPT	WOEX 05T304	1,28	**25401**
KUB-T.4D.1031.R.05.C1250-EF	V57 72622	1.031	1.250	1.575	8.752	4.124	5.502	1/8" NPT	WOEX 05T304	1,28	**26201**
KUB-T.4D.1062.R.05.C1250-E	V57 72702	1.062	1.250	1.575	8.876	4.248	5.626	1/8" NPT	WOEX 05T304	1,28	**27001**
KUB-T.4D.1109.R.05.C1250-EF	V57 72822	1.109	1.250	1.575	9.064	4.436	5.814	1/8" NPT	WOEX 05T304	1,28	**28201**
KUB-T.4D.1125.R.05.C1250-EF	V57 72862	1.125	1.250	1.575	9.128	4.500	5.878	1/8" NPT	WOEX 05T304	1,28	**28601**
KUB-T.4D.1156.R.05.C1250-EF	V57 72942	1.156	1.250	1.575	9.252	4.624	6.002	1/8" NPT	WOEX 05T304	1,28	**29401**
KUB-T.4D.1187.R.05.C1250-EF	V57 73022	1.187	1.250	1.575	9.589	4.748	6.339	1/8" NPT	WOEX 05T304	1,28	**30101**
KUB-T.4D.1218.R.05.C1250-EF	V57 73092	1.218	1.250	1.575	9.713	4.872	6.463	1/8" NPT	WOEX 05T304	1,28	**30901**
KUB-T.4D.1250.R.05.C1250-EF	V57 73182	1.250	1.250	1.575	9.841	5.000	6.591	1/8" NPT	WOEX 05T304	1,28	**31801**
KUB-T.4D.1281.R.05.C1250-E	V57 73252	1.281	1.250	1.575	9.965	5.124	6.715	1/8" NPT	WOEX 05T304	1,28	**32501**
KUB-T.4D.1312.R.05.C1250-EF	V57 73332	1.312	1.250	1.575	10.089	5.248	6.839	1/8" NPT	WOEX 05T304	1,28	**33301**
KUB-T.4D.1328.R.05.C1250-EF	V57 73372	1.328	1.250	1.575	10.137	5.312	6.887	1/8" NPT	WOEX 05T304	1,28	**33701**
KUB-T.4D.1375.R.05.C1250-EF	V57 73492	1.375	1.250	1.575	10.341	5.500	7.091	1/8" NPT	WOEX 05T304	1,28	**34901**
KUB-T.4D.1406.R.05.C1250-EF	V57 73572	1.406	1.250	1.575	10.449	5.624	7.199	1/8" NPT	WOEX 05T304	1,28	**35701**
KUB-T.4D.1437.R.05.C1250-E	V57 73652	1.437	1.250	1.575	10.589	5.748	7.339	1/8" NPT	WOEX 05T304	1,28	**36501**
KUB-T.4D.1469.R.06.C1250-EF	V57 73732	1.469	1.250	1.575	11.095	5.876	7.845	1/8" NPT	WOEX 06T304	2,8	**37301**
KUB-T.4D.1500.R.06.C1250-EF	V57 73812	1.500	1.250	1.575	11.219	6.000	7.969	1/8" NPT	WOEX 06T304	2,8	**38101**
KUB-T.4D.1531.R.06.C1250-EF	V57 73892	1.531	1.250	1.575	11.343	6.124	8.093	1/8" NPT	WOEX 06T304	2,8	**38901**
KUB-T.4D.1562.R.06.C1250-EF	V57 73972	1.562	1.250	1.575	11.467	6.248	8.217	1/8" NPT	WOEX 06T304	2,8	**39701**
KUB-T.4D.1625.R.06.C1250-EF	V57 74132	1.625	1.250	1.575	11.719	6.500	8.469	1/8" NPT	WOEX 06T304	2,8	**41301**
KUB-T.4D.1656.R.06.C1500-EF	V57 74212	1.656	1.500	1.970	13.593	6.624	8.593	1/4" NPT	WOEX 06T304	2,8	**42102**
KUB-T.4D.1687.R.06.C1500-EF	V57 74292	1.687	1.500	1.970	13.717	6.748	8.717	1/4" NPT	WOEX 06T304	2,8	**42802**
KUB-T.4D.1750.R.06.C1500-EF	V57 74452	1.750	1.500	1.970	13.969	7.000	8.969	1/4" NPT	WOEX 06T304	2,8	**44502**

Screwdriver

Clamping screw

Spare parts

DC	80 950 ...	10 950 ...
0.562 - 0.781	**123**	**10000**
0.812 - 0.937	**123**	**10700**
0.985 - 1.437	**125**	**10500**
1.469 - 1.750	**127**	**10600**

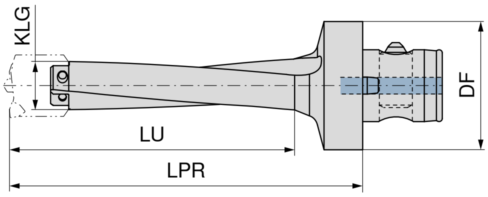
Matching holders can be found in our Online-Shop at cuttingtools.ceratizit.com and in the metric clamping technology catalog

KUB Centron – basic element

▲ KLG = Coupling Size

≤ 4xD

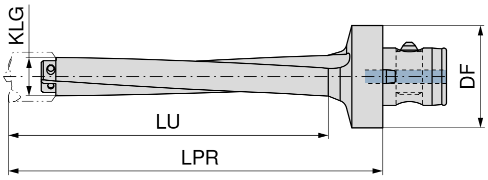
ABS



Designation	KOMET no.	DF inch	LU inch	LPR inch	KLG	10 864 ...
KUB-C.GH.4D.190-ABS50	V47 20201	1.969	4.449	5.709	19	**19095**
KUB-C.GH.4D.250-ABS50	V47 20261	1.969	5.118	6.299	25	**25095**
KUB-C.GH.4D.320-ABS50	V47 20331	1.969	6.299	7.677	32	**32095**
KUB-C.GH.4D.385-ABS63	V47 20401	2.480	7.283	9.252	38,5	**38596**
KUB-C.GH.4D.445-ABS80	V47 20461	3.150	8.465	11.024	44,5	**44598**
KUB-C.GH.4D.535-ABS80	V47 20551	3.150	10.236	12.795	53,5	**53598**

≤ 6xD

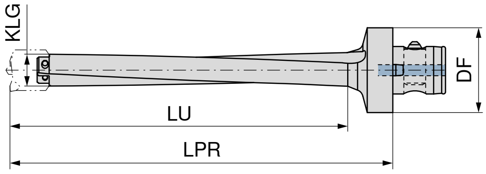
ABS



Designation	KOMET no.	DF inch	LU inch	LPR inch	KLG	10 866 ...
KUB-C.GH.6D.190-ABS50	V47 40201	1.969	5.906	7.283	19	**19095**
KUB-C.GH.6D.250-ABS50	V47 40261	1.969	6.890	8.268	25	**25095**
KUB-C.GH.6D.320-ABS50	V47 40331	1.969	8.465	10.039	32	**32095**
KUB-C.GH.6D.385-ABS63	V47 40401	2.480	10.236	12.205	38,5	**38596**
KUB-C.GH.6D.445-ABS80	V47 40461	3.150	12.205	14.764	44,5	**44598**
KUB-C.GH.6D.535-ABS80	V47 40551	3.150	14.567	17.126	53,5	**53598**

≤ 9xD

ABS



Designation	KOMET no.	DF inch	LU inch	LPR inch	KLG	10 869 ...
KUB-C.GH.9D.190-ABS50	V47 60201	1.969	7.874	9.252	19	**19095**
KUB-C.GH.9D.250-ABS50	V47 60261	1.969	9.055	10.236	25	**25095**
KUB-C.GH.9D.320-ABS50	V47 60331	1.969	11.417	12.992	32	**32095**
KUB-C.GH.9D.385-ABS63	V47 60401	2.480	13.386	15.354	38,5	**38596**
KUB-C.GH.9D.445-ABS80	V47 60461	3.150	16.339	18.898	44,5	**44598**
KUB-C.GH.9D.535-ABS80	V47 60551	3.150	19.488	22.047	53,5	**53598**

For correct assembly, please observe the operating instructions provided.

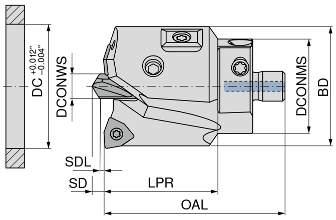
Matching holders can be found in our Online-Shop at cuttingtools.ceratizit.com and in the metric clamping technology catalog

KUB Centron – drill head Ø 0.812–2.500 Inch

- The pre-assembled drill head is ready to use
- The indexable inserts and centering tip must be professionally assembled
- Tightening torque refers to the clamping screw of the indexable inserts
- KLG = Coupling size

Scope of supply:

- Drill head incl. screws, guide pads and shim set
- Order centering tip and indexable inserts separately



NEW

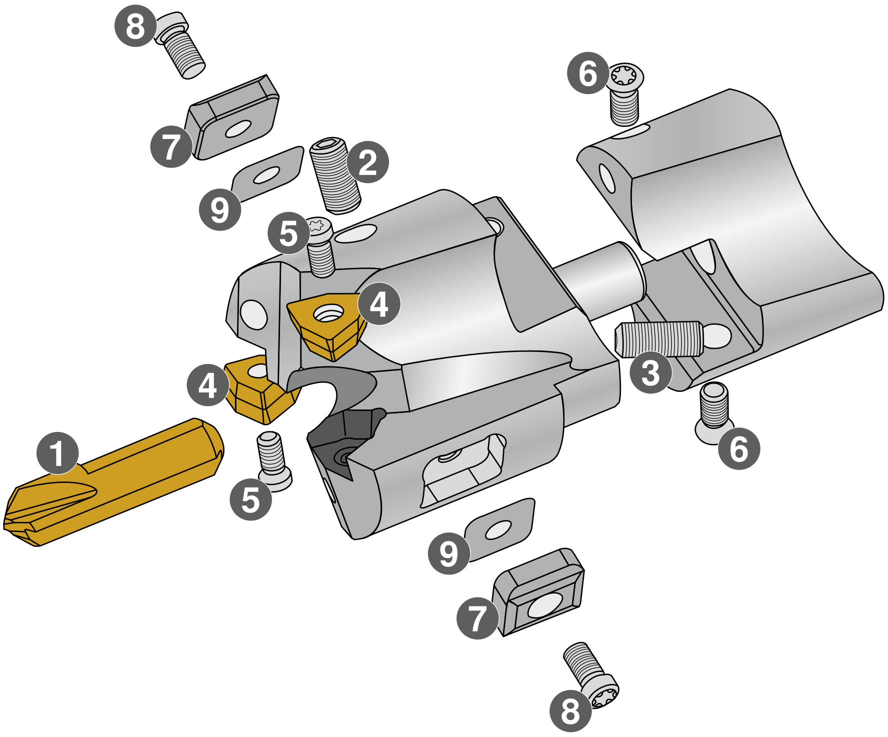
Designation	KOMET no.	DC inch	OAL inch	LPR inch	SD inch	BD inch	SDL inch	DCONMS inch	DCONWS inch	KLG	torque moment Nm	Insert	15 860 ...
KUB-C.BK.0812.R.03.19-F	V46 52060	0.812	1.440	0.910	0.089	0.768	0.039	0.748	0.197	19	0,62	WOEX 030204	**20600**
KUB-C.BK.0875.R.03.19-F	V46 52220	0.875	1.440	0.910	0.089	0.835	0.039	0.748	0.197	19	0,62	WOEX 030204	**22200**
KUB-C.BK.1000.R.03.19-F	V46 52540	1.000	1.440	0.910	0.089	0.961	0.039	0.748	0.197	19	0,62	WOEX 030204	**25400**
KUB-C.BK.1125.R.04.25-F	V46 52860	1.125	1.500	0.910	0.104	1.083	0.043	0.984	0.236	25	1,01	WOEX 040304	**28600**
KUB-C.BK.1250.R.04.25-F	V46 53180	1.250	1.500	0.910	0.104	1.211	0.043	0.984	0.236	25	1,01	WOEX 040304	**31800**
KUB-C.BK.1375.R.05.32-F	V46 53490	1.375	1.540	0.910	0.104	1.335	0.043	1.260	0.236	32	1,28	WOEX 05T304	**34900**
KUB-C.BK.1500.R.05.32-F	V46 53810	1.500	1.540	0.910	0.104	1.461	0.043	1.260	0.236	32	1,28	WOEX 05T304	**38100**
KUB-C.BK.1625.R.05.38,5-F	V46 54130	1.625	1.700	0.980	0.133	1.567	0.049	1.516	0.315	38,5	1,28	WOEX 05T304	**41300**
KUB-C.BK.1750.R.05.38,5-F	V46 54450	1.750	1.700	0.980	0.133	1.689	0.049	1.516	0.315	38,5	1,28	WOEX 05T304	**44500**
KUB-C.BK.1875.R.06.44,5-F	V46 54760	1.875	1.850	0.980	0.152	1.815	0.049	1.752	0.394	44,5	2,8	WOEX 06T304	**47600**
KUB-C.BK.2000.R.06.44,5-F	V46 55080	2.000	1.850	0.980	0.152	1.941	0.049	1.752	0.394	44,5	2,8	WOEX 06T304	**50800**
KUB-C.BK.2250.R.08.53,5-F	V46 55720	2.250	2.050	1.180	0.152	2.193	0.049	2.106	0.394	53,5	6,25	WOEX 080404	**57200**
KUB-C.BK.2375.R.08.53,5-F	V46 56030	2.375	2.050	1.180	0.152	2.315	0.049	2.106	0.394	53,5	6,25	WOEX 080404	**60300**
KUB-C.BK.2500.R.08.53,5-F	V46 56350	2.500	2.050	1.180	0.150	2.441	0.049	2.106	0.394	53,5	6,25	WOEX 080404	**63500**




Spare parts **DC**	Guide pad clamping screw	10 950 ...	Indexable insert clamping screw	10 950 ...	Guide pad 10 950 ...	Shim set 10 950 ...
0.812 - 1.000	M2,5x4,2 - 8IP - 1,28Nm	**11900**	M2,0x4,3 - 06IP	**10000**	**14600**	**15200**
1.125 - 1.250	M2,5x4,5 - 8IP - 1,28Nm	**11700**	M2,2x5,5 - 06IP	**10700**	**14700**	**15200**
1.375 - 1.750	M2,5x4,5 - 8IP - 1,28Nm	**11700**	M2,5x7,2 - 08IP	**10500**	**14800**	**15200**
1.875 - 2.000	M3,5x5,0 - 8IP - 2,25Nm	**11800**	M3,5x7,3 - 10IP	**10600**	**15000**	**15300**
2.250 - 2.500	M3,5x5,0 - 8IP - 2,25Nm	**11800**	M4,5x9 - 15IP	**12700**	**15100**	**15300**


Spare parts **DC**	Basic element clamping screw	10 950 ...	Centering tip clamping screw	10 950 ...
0.812 - 1.000	M2,5x6,4 - 08IP - 1,28Nm	**12400**	M4x6 - SW2 - 1,5Nm	**12800**
1.125 - 1.250	M3x7,4 - 08IP - 2,25Nm	**12500**	M5x10 - SW2,5 - 2,5Nm	**13000**
1.375 - 1.750	M4x8,9 - 15IP - 4,3Nm	**12000**	M5x12 - SW2,5 - 2,5Nm	**13100**
1.875 - 2.000	M5x11,5 - 20IP - 6,25Nm	**12100**	M8x16 - SW4 - 8Nm	**13300**
2.250 - 2.500	M5,5x14 - 20IP - 6,25Nm	**12200**	M8x16 - SW4 - 8Nm	**13300**

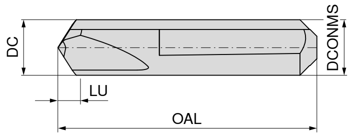
Exploded drawing of the drill head Ø 0.812–2.500 inch



1	Centering tip
2	Clamping screw for centering tip
3	Adjusting screw for centering tip
4	Indexable Insert
5	Clamping screw for indexable insert
6	Clamping screw for basic element
7	Guide pad
8	Clamping screw for guide pad
9	Shim set for aligning the guide pads

For correct assembly, please observe the operating instructions provided.

KUB Centron – centering tip



					NEW	NEW	NEW
					ZP	ZP	ZP
					TiAlN/TiN	TiN	TiAlN
					120°	120°	120°
					Solid carbide	HSS	HSS
					10 863 ...	10 862 ...	10 862 ...
DC inch	KOMET no.	OAL inch	LU inch	DCONMS inch			
0.197	V95 10012.0089	0.846	0.089	0.197		**00500**	
0.197	V95 10012.0090	0.846	0.089	0.197			**10500**
0.197	V95 10310.8450	0.846	0.089	0.197	**20500**		
0.236	V95 10022.0089	0.906	0.104	0.236		**00600**	
0.236	V95 10022.0090	0.906	0.104	0.236			**10600**
0.236	V95 10320.8450	0.906	0.104	0.236	**20600**		
0.315	V95 10032.0089	1.063	0.133	0.315		**00800**	
0.315	V95 10032.0090	1.063	0.133	0.315			**10800**
0.315	V95 10330.8450	1.063	0.133	0.315	**20800**		
0.394	V95 10042.0089	1.102	0.152	0.394		**01000**	
0.394	V95 10042.0090	1.102	0.152	0.394			**11000**
0.394	V95 10340.8450	1.102	0.152	0.394	**21000**		
P					●	●	
M					●		●
K					●		●
N					●	●	
S					○		●
H							
O					○	○	

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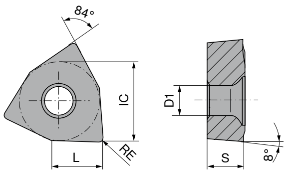
The cutting data of the KUB Centron depends on the centering tip and not on the indexable inserts. Please select the cutting data of the centering tip.

For correct assembly, please observe the operating instructions provided.

Article No. 10 863 ... is only suitable up to drilling depth 6xD.

WOEX

Designation	L inch	IC inch	S inch	D1 inch
WOEW 0201..	0.106	0.156	0.062	0.090
WOEX 0302..	0.125	0.196	0.090	0.090
WOEX 0403..	0.161	0.250	0.125	0.100
WOEX 05T3..	0.208	0.314	0.149	0.112
WOEX 06T3..	0.259	0.393	0.149	0.159
WOEX 0804..	0.311	0.472	0.188	0.192
WOEX 0804..	0.311	0.472	0.188	0.194
WOEX 1005..	0.389	0.590	0.208	0.192
WOEX 1206..	0.456	0.692	0.236	0.236



WOEX

ISO	KOMET no.	RE inch	**-01** BK8425  WOEX **10 821 ...**	**-03** BK8425  WOEX **10 821 ...**	**-13** BK8425  WOEX **10 821 ...**	**-01** BK7935  WOEX **10 821 ...**	**-01** BK6115  WOEX **10 821 ...**
030204	W29 10130.048425	0.016			**30313**		
030204	W29 10010.046115	0.016					**40301**
030204	W29 10010.047935	0.016				**50301**	
030204	W29 10030.048425	0.016		**30303**			
030204	W29 10010.048425	0.016	**30301**				
040304	W29 18130.048425	0.016			**30413**		
040304	W29 18010.046115	0.016					**40401**
040304	W29 18010.047935	0.016				**50401**	
040304	W29 18030.048425	0.016		**30403**			
040304	W29 18010.048425	0.016	**30401**				
05T304	W29 24130.048425	0.016			**30513**		
05T304	W29 24010.046115	0.016					**40501**
05T304	W29 24010.047935	0.016				**50501**	
05T304	W29 24030.048425	0.016		**30503**			
05T304	W29 24010.048425	0.016	**30501**				
06T304	W29 34130.048425	0.016			**30613**		
06T304	W29 34010.046115	0.016					**40601**
06T304	W29 34010.047935	0.016				**50601**	
06T304	W29 34030.048425	0.016		**30603**			
06T304	W29 34010.048425	0.016	**30601**				
080404	W29 42130.048425	0.016			**30813**		
080404	W29 42010.046115	0.016					**40801**
080404	W29 42010.048425	0.016	**30801**				
100504	W29 50130.048425	0.016			**31013**		
100504	W29 50010.046115	0.016					**41001**
100504	W29 50010.048425	0.016	**31001**				
100508	W29 50010.088425	0.031	**39001**				
120608	W29 58130.088425	0.031			**38213**		
120608	W29 58010.086115	0.031					**41201**
P			●	●	●	●	●
M			●	●	●	●	●
K			●	●	●	●	●
N			○	○	○	○	
S						●	
H			○	○	○		○
O							

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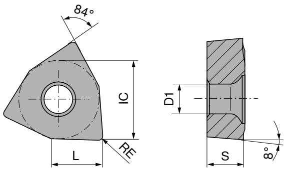
BK8425 -03 and BK6115 -01 are exclusively recommended for use on the peripheral cutting edge!

WOEX

Designation	L inch	IC inch	S inch	D1 inch
WOEX 0302..	0.125	0.196	0.090	0.090
WOEX 0403..	0.161	0.250	0.125	0.100
WOEX 05T3..	0.208	0.314	0.149	0.112
WOEX 06T3..	0.259	0.393	0.149	0.159
WOEX 0804..	0.311	0.472	0.188	0.194



WOEX

ISO	KOMET no.	RE inch	**-01** BK7615  WOEX **10 821 ...**	**-01** BK62  WOEX **10 821 ...**	**-11** BK77  WOEX **10 821 ...**	**-13** BK79  WOEX **10 821 ...**
030204	W29 10010.0462	0.016		**20301**		
030204	W29 10130.0479	0.016				**15313**
030204	W29 10110.0477	0.016			**80311**	
030204	W29 10010.047615	0.016	**05301**			
040304	W29 18010.0462	0.016		**20401**		
040304	W29 18130.0479	0.016				**15413**
040304	W29 18110.0477	0.016			**80411**	
040304	W29 18010.047615	0.016	**05401**			
05T304	W29 24010.0462	0.016		**20501**		
05T304	W29 24130.0479	0.016				**15513**
05T304	W29 24110.0477	0.016			**80511**	
05T304	W29 24010.047615	0.016	**05501**			
06T304	W29 34010.0462	0.016		**20601**		
06T304	W29 34130.0479	0.016				**15613**
06T304	W29 34110.0477	0.016			**80611**	
06T304	W29 34010.047615	0.016	**05601**			
080404	W29 42010.0462	0.016		**20801**		
080404	W29 42130.0479	0.016				**15813**
080404	W29 42110.0477	0.016			**80811**	
080404	W29 42010.047615	0.016	**05801**			
100504	W29 50010.0462	0.016		**21001**		
100504	W29 50130.0479	0.016				**16013**
100504	W29 50110.0477	0.016			**81011**	
100508	W29 50010.087615	0.031	**08001**			
120608	W29 58010.087615	0.031	**08201**			
120608	W29 58130.0879	0.031				**16213**
120608	W29 58010.0862	0.031		**28201**		

P				●
M				●
K	●	●		●
N				○
S			●	
H		○	○	
O			○	

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Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength lbf/in^2* / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0.15 % C	Annealed	60900 lbf/in^2 / 125 HB	1.0401	1015	1.0301	1010
		P.1.2	< 0.45 % C	Annealed	92800 lbf/in^2 / 190 HB	1.1191	1045	1.0737	12L14
		P.1.3		Tempered	121800 lbf/in^2 / 250 HB	1.1191	1045	1.0503	1043
		P.1.4	< 0.75 % C	Annealed	132000 lbf/in^2 / 270 HB	1.1223	1060	1.0535	1055
		P.1.5		Tempered	146500 lbf/in^2 / 300 HB	1.1223	1060	1.1274	1095
	Low-alloy steel	P.2.1		Annealed	88500 lbf/in^2 / 180 HB	1.7131	5115	1.6523	8620
		P.2.2		Tempered	134900 lbf/in^2 / 275 HB	1.7131	5115	1.6582	4340
		P.2.3		Tempered	146500 lbf/in^2 / 300 HB	1.7225	4142	1.7131	5115
		P.2.4		Tempered	174000 lbf/in^2 / 375 HB	1.7225	4142	17223	4140
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	98600 lbf/in^2 / 200 HB	1.4021	420	1.2379	D2
		P.3.2		Hardened and tempered	159500 lbf/in^2 / 300 HB	1.2343	H11	1.3343	M2
		P.3.3		Hardened and tempered	188500 lbf/in^2 / 400 HB	1.2343	H11	1.2363	A2
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	98600 lbf/in^2 / 200 HB	1.4016	430	1.4125	440C
		P.4.2	Martensitic	Tempered	117500 lbf/in^2 / 250 HB	1.4112	S44003	1.4021	420
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	88500 lbf/in^2 / 200 HB	1.4301	304	1.4401	316
		M.2.1	Austenitic	Tempered	300 HB	1.4841	314	1.4568	17-7 PH
		M.3.1	Austenitic / ferritic (Duplex)		113100 lbf/in^2 / 230 HB	1.4462	S32205	1.4410	S32750
K	Grey cast iron	K.1.1	Pearlitic / ferritic		88500 lbf/in^2 / 180 HB	0.6010	A48-20B	0.6025	A48-40 B
		K.1.2	Pearlitic (martensitic)		127600 lbf/in^2 / 260 HB	0.6030	A48-45B	0.6040	A48-60 B
	Spherulitic graphite cast iron	K.2.1	Ferritic		78300 lbf/in^2 / 160 HB	0.7040	60-40-18	0.7050	65-45-12
		K.2.2	Pearlitic		122600 lbf/in^2 / 250 HB	0.7070	100-70-03	0.7660	A439 Type D2
	Malleable iron	K.3.1	Ferritic		63800 lbf/in^2 / 130 HB	0.8035	GTW-35-04		
		K.3.2	Pearlitic		113100 lbf/in^2 / 230 HB	0.8170	70003		
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	A91060	3.0255	A91060
		N.1.2	Hardenable		49300 lbf/in^2 / 100 HB	3.1355	2024	3.1355	2024
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		36300 lbf/in^2 / 75 HB	3.2581	A04130 / A413-0	3.2581	A04130 / A413-0
		N.2.2	≤ 12 % Si, hardenable		43500 lbf/in^2 / 90 HB	3.2134	G-AlSi5Cu1Mg		
		N.2.3	> 12 % Si, non-hardenable		63800 lbf/in^2 / 130 HB		G-AlSi17Cu4Mg		
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		54400 lbf/in^2 / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0380	C37700
		N.3.2	CuZn, CuSnZn		43500 lbf/in^2 / 90 HB	2.0331	CuZn15	2.0331	C34000
		N.3.3	CuSn, lead-free copper and electrolytic copper		49300 lbf/in^2 / 100 HB	2.0060	E-Cu57		
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn		
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	98600 lbf/in^2 / 200 HB	1.4864	X12NiCrSi 36-16	1.4864	330
		S.1.2			137800 lbf/in^2 / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4980	S66286
		S.2.1	Ni or Co basis	Annealed	121800 lbf/in^2 / 250 HB	2.4856	Inconel 625	2.4812	Hastelloy C
		S.2.2			171100 lbf/in^2 / 350 HB	2.4952	Nimonic 80A	2.4668	Inconel 718
		S.2.3		Cast	156600 lbf/in^2 / 320 HB	2.4674	Nimocast PK24	2.4670	Nimocast 713
	Titanium alloys	S.3.1	Pure titanium		5800 lbf/in^2	3.7025	Ti99,8		
		S.3.2	Alpha + beta alloys		152300 lbf/in^2	3.7165	TiAl6V4		
		S.3.3	Beta alloys		203100 lbf/in^2 / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr		
H	Hardened steel	H.1.1		Hardened and tempered	46-55 HRC				
		H.1.2		Hardened and tempered	56-60 HRC				
		H.1.3		Hardened and tempered	61-65 HRC				
		H.1.4		Hardened and tempered	66-70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 21800 lbf/in^2				
		O.1.2	Plastics, thermoplastic		≤ 14500 lbf/in^2				
		O.2.1	Aramid fibre-reinforced		≤ 145000 lbf/in^2				
		O.2.2	Glass/carbon-fibre reinforced		≤ 145000 lbf/in^2				
		O.3.1	Graphite						

*** Tensile Strength at Rupture (Rm)**

Cutting data standard values for SOGX indexable inserts

Index	SOGX 10 820 ...						
	-01 / -13 / -32 BK8425	-03 BK8430	-34 BK8425	-01 BK7935	-01 BK6115	-01 BK6425	-01 BK7710
	v_c in ft/min						
P.1.1	850	850		820	980	1050	
P.1.2	850	850	850	720	980	1050	
P.1.3	890	890		890	890	920	
P.1.4	820	820		820	820	820	
P.1.5	890	890	890	660	980	950	
P.2.1	890	890		890	890	920	
P.2.2	850	850		850	850	890	
P.2.3	590	590	590	520	790	850	
P.2.4	490	490	490	430	660	690	
P.3.1	520	520	520	460	660	720	
P.3.2	430	430	430	390	520	590	
P.3.3	390	390	390	360	460	520	
P.4.1	590	590		490	720	790	
P.4.2	430	430		390	520	590	
M.1.1	490	490		520	720	660	
M.2.1	490	490		520	720	660	
M.3.1	460	460		490	660	590	
K.1.1	520	520	520	490	790	660	
K.1.2	390	390	390	390	590	490	
K.2.1	520	520	520	490	520	520	
K.2.2	330	330	330	300	330	330	
K.3.1	390	390	390	360	390	390	
K.3.2	330	330	330	300	330	330	
N.1.1	1310	1310		1310			1640
N.1.2	1310	1310		1310			1640
N.2.1	820	820		820			920
N.2.2	820	820		820			920
N.2.3	750	750		750			820
N.3.1	660	660		660			820
N.3.2	720	720		720			920
N.3.3	1080	1080		1080			1280
N.4.1	660	660		660			820
S.1.1	200	200		200			
S.1.2	160	160		160			
S.2.1	200	200		200			
S.2.2	160	160		160			
S.2.3	100	100		100			
S.3.1	330	330		330			330
S.3.2	260	260		260			260
S.3.3	160	160		160			160
H.1.1	330	330			330		
H.1.2	260	260			260		
H.1.3	160	160			160		
H.1.4							
H.2.1	330	330			330		
H.3.1	260	260			260		
O.1.1				330			330
O.1.2				330			330
O.2.1							
O.2.2				330			330
O.3.1				330			330

During the drilling operation on through holes a sharp disk will be produced. Safety precautions must be observed. A safety guard has to be provided as protection.

In order to ensure efficient chip evacuation, coolant pressure must be at least 5 bar. Optimum pressure is > 15 bar.

Cutting data standard values for KUB Pentron – 4xD

	ABS / C 10 874 ... / 15 874 ...											
Index	Ø 0.562–0.625 inch	Ø 0.656–0.703 inch	Ø 0.750–0.781 inch	Ø 0.812–0.828 inch	Ø 0.875–0.937 inch	Ø 0.985–1.000 inch	Ø 1.031–1.062 inch	Ø 1.109–1.218 inch	Ø 1.250–1.328 inch	Ø 1.375–1.469 inch	Ø 1.500–1.687 inch	Ø 1.750 inch
	f in inch/rev.											
P.1.1	0.002	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
P.1.2	0.003	0.005	0.005	0.006	0.006	0.006	0.007	0.007	0.007	0.007	0.007	0.007
P.1.3	0.002	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
P.1.4	0.002	0.004	0.004	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
P.1.5	0.003	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
P.2.1	0.002	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
P.2.2	0.002	0.004	0.004	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
P.2.3	0.003	0.006	0.006	0.006	0.006	0.007	0.007	0.007	0.007	0.007	0.007	0.007
P.2.4	0.002	0.004	0.004	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.006	0.006
P.3.1	0.003	0.005	0.005	0.006	0.006	0.007	0.007	0.007	0.007	0.007	0.007	0.007
P.3.2	0.002	0.004	0.004	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.006	0.006
P.3.3	0.002	0.003	0.003	0.004	0.004	0.005	0.005	0.005	0.005	0.005	0.005	0.005
P.4.1	0.004	0.005	0.005	0.007	0.007	0.008	0.008	0.008	0.008	0.008	0.008	0.008
P.4.2	0.002	0.004	0.004	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.006	0.006
M.1.1	0.003	0.004	0.004	0.005	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
M.2.1	0.003	0.003	0.003	0.004	0.004	0.006	0.006	0.006	0.006	0.006	0.006	0.006
M.3.1	0.003	0.003	0.003	0.004	0.004	0.005	0.005	0.005	0.005	0.005	0.005	0.005
K.1.1	0.005	0.006	0.006	0.007	0.007	0.009	0.010	0.010	0.010	0.010	0.010	0.010
K.1.2	0.004	0.004	0.004	0.004	0.004	0.008	0.008	0.008	0.008	0.008	0.008	0.008
K.2.1	0.005	0.006	0.006	0.007	0.007	0.009	0.010	0.010	0.010	0.010	0.010	0.010
K.2.2	0.004	0.005	0.005	0.006	0.006	0.007	0.008	0.008	0.008	0.008	0.008	0.008
K.3.1	0.005	0.006	0.006	0.007	0.007	0.009	0.010	0.010	0.010	0.010	0.010	0.010
K.3.2	0.004	0.005	0.005	0.006	0.006	0.007	0.008	0.008	0.008	0.008	0.008	0.008
N.1.1	0.004	0.004	0.004	0.004	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
N.1.2	0.004	0.004	0.004	0.004	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
N.2.1	0.004	0.005	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
N.2.2	0.004	0.005	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
N.2.3	0.004	0.005	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
N.3.1	0.004	0.005	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
N.3.2	0.004	0.005	0.006	0.006	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
N.3.3	0.004	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
N.4.1	0.004	0.005	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
S.1.1	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
S.1.2	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
S.2.1	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
S.2.2	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
S.2.3	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002
S.3.1	0.002	0.002	0.002	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.004
S.3.2	0.002	0.002	0.002	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.004
S.3.3	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
H.1.1	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
H.1.2	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
H.1.3	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
H.1.4												
H.2.1	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
H.3.1	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
O.1.1	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
O.1.2	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
O.2.1												
O.2.2	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
O.3.1	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004

During the drilling operation on through holes a sharp disk will be produced. Safety precautions must be observed. A safety guard has to be provided as protection.

In order to ensure efficient chip evacuation, coolant pressure must be at least 5 bar. Optimum pressure is > 15 bar.

Cutting data standard values for KUB Pentron – 5xD

	ABS / C 10 875 ... / 15 875 ...											
Index	Ø 0.562–0.625 inch	Ø 0.656–0.703 inch	Ø 0.750–0.781 inch	Ø 0.812–0.828 inch	Ø 0.875–0.937 inch	Ø 0.985–1.000 inch	Ø 1.031–1.062 inch	Ø 1.109–1.218 inch	Ø 1.250–1.328 inch	Ø 1.375–1.469 inch	Ø 1.500–1.687 inch	Ø 1.750 inch
	f in inch/rev.											
P.1.1	0.002	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
P.1.2	0.003	0.004	0.004	0.005	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.006
P.1.3	0.002	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
P.1.4	0.002	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
P.1.5	0.003	0.004	0.004	0.005	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.006
P.2.1	0.002	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
P.2.2	0.002	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
P.2.3	0.003	0.004	0.004	0.006	0.007	0.007	0.006	0.006	0.006	0.006	0.006	0.006
P.2.4	0.002	0.003	0.003	0.005	0.006	0.006	0.005	0.005	0.005	0.005	0.005	0.005
P.3.1	0.003	0.005	0.005	0.006	0.006	0.007	0.007	0.007	0.007	0.007	0.007	0.007
P.3.2	0.002	0.004	0.004	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.006	0.006
P.3.3	0.002	0.003	0.003	0.004	0.004	0.005	0.005	0.005	0.005	0.005	0.005	0.005
P.4.1	0.004	0.005	0.005	0.007	0.007	0.008	0.008	0.008	0.008	0.008	0.008	0.008
P.4.2	0.002	0.004	0.004	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.006	0.006
M.1.1	0.003	0.003	0.003	0.004	0.004	0.006	0.004	0.004	0.004	0.004	0.004	0.004
M.2.1	0.003	0.003	0.003	0.004	0.004	0.005	0.005	0.005	0.005	0.005	0.005	0.005
M.3.1	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004
K.1.1	0.004	0.005	0.005	0.006	0.006	0.008	0.009	0.009	0.009	0.009	0.009	0.009
K.1.2	0.003	0.004	0.004	0.005	0.005	0.006	0.007	0.007	0.007	0.007	0.007	0.007
K.2.1	0.004	0.005	0.005	0.006	0.006	0.008	0.009	0.009	0.009	0.009	0.009	0.009
K.2.2	0.003	0.004	0.004	0.005	0.005	0.006	0.007	0.007	0.007	0.007	0.007	0.007
K.3.1	0.004	0.005	0.005	0.006	0.006	0.008	0.009	0.009	0.009	0.009	0.009	0.009
K.3.2	0.003	0.004	0.004	0.005	0.005	0.006	0.007	0.007	0.007	0.007	0.007	0.007
N.1.1	0.004	0.004	0.004	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
N.1.2	0.004	0.004	0.004	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
N.2.1	0.004	0.005	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
N.2.2	0.004	0.005	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
N.2.3	0.004	0.005	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
N.3.1	0.004	0.005	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
N.3.2	0.004	0.006	0.006	0.006	0.007	0.007	0.007	0.007	0.007	0.007	0.007	0.007
N.3.3	0.004	0.005	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
N.4.1	0.004	0.005	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.006	0.006	0.006
S.1.1	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
S.1.2	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
S.2.1	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
S.2.2	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
S.2.3	0.001	0.001	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002
S.3.1	0.002	0.002	0.002	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.004
S.3.2	0.002	0.002	0.002	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.004
S.3.3	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
H.1.1	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
H.1.2	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
H.1.3	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
H.1.4												
H.2.1	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
H.3.1	0.001	0.001	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
O.1.1	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
O.1.2	0.003	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
O.2.1												
O.2.2	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
O.3.1	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004

During the drilling operation on through holes a sharp disk will be produced. Safety precautions must be observed. A safety guard has to be provided as protection.

In order to ensure efficient chip evacuation, coolant pressure must be at least 5 bar. Optimum pressure is > 15 bar.

Cutting data standard values for SOEX indexable inserts

Index	SOEX 10 822 ...					
	BK8425	BK7935	BK6115	BK7710	BK6420	BK7615
	v_c in ft/min					
P.1.1	**850**	**820**	**980**		**980**	
P.1.2	**850**	**720**	**980**		**980**	
P.1.3	**890**	**890**	**890**		**890**	
P.1.4	**820**	**820**	**820**		**820**	
P.1.5	**890**	**660**	**980**		**890**	
P.2.1	**890**	**890**	**890**		**890**	
P.2.2	**850**	**850**	**850**		**850**	
P.2.3	**590**	**520**	**790**		**790**	
P.2.4	**490**	**430**	**660**		**620**	
P.3.1	**520**	**460**	**660**		**660**	
P.3.2	**430**	**390**	**520**		**520**	
P.3.3	**390**	**360**	**460**		**460**	
P.4.1	**590**	**490**	**720**		**720**	
P.4.2	**430**	**390**	**520**		**520**	
M.1.1	**490**	**520**	**720**		**720**	
M.2.1	**490**	**520**	**720**		**720**	
M.3.1	**460**	**490**	**660**		**660**	
K.1.1	**520**	**490**	**790**		660	**850**
K.1.2	**390**	**390**	**590**		490	**520**
K.2.1	**520**	**490**	**520**		520	**590**
K.2.2	**330**	**300**	**330**		330	**390**
K.3.1	**390**	**360**	**390**		390	**460**
K.3.2	**330**	**300**	**330**		330	**390**
N.1.1	1310	1310		**1640**		
N.1.2	1310	1310		**1640**		
N.2.1	820	820		**920**		
N.2.2	820	820		**920**		
N.2.3	750	750		**820**		
N.3.1	660	660		**820**		
N.3.2	720	720		**920**		
N.3.3	1080	1080		**1280**		
N.4.1	660	660		**820**		
S.1.1	**200**	**200**				
S.1.2	**160**	**160**				
S.2.1	**200**	**200**				
S.2.2	**160**	**160**				
S.2.3	**100**	**100**				
S.3.1	**330**	**330**		330		
S.3.2	**260**	**260**		260		
S.3.3	**160**	**160**		160		
H.1.1	330		330			
H.1.2	260		260			
H.1.3	160		160			
H.1.4						
H.2.1	330		330			
H.3.1	260		260			
O.1.1		330		330		
O.1.2		330		330		
O.2.1						
O.2.2		330		330		
O.3.1		330		330		

During the drilling operation on through holes a sharp disk will be produced. Safety precautions must be observed. A safety guard has to be provided as protection.

In order to ensure efficient chip evacuation, coolant pressure must be at least 5 bar. Optimum pressure is > 15 bar.

Cutting data standard values for KUB Quatron – 2xD, 3xD

	ABS / C 10 879 … / 15 879 … / 10 880 … / 15 880 …									
Index	Ø 0.562–0.656 inch	Ø 0.687–0.781 inch	Ø 0.812–0.968 inch	Ø 0.985–1.156 inch	Ø1.187–1.437 inch	Ø1.469–1.562 inch	Ø1.625–1.750 inch	Ø1.781–1.812 inch	Ø1.875–2.062 inch	Ø2.125–2.500 inch
	f in inch/rev.									
P.1.1	0.004	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
P.1.2	0.006	0.006	0.007	0.010	0.012	0.012	0.010	0.010	0.010	0.010
P.1.3	0.005	0.006	0.008	0.008	0.010	0.010	0.008	0.008	0.008	0.008
P.1.4	0.004	0.005	0.007	0.007	0.009	0.009	0.007	0.007	0.007	0.007
P.1.5	0.005	0.006	0.007	0.009	0.011	0.011	0.009	0.009	0.009	0.009
P.2.1	0.005	0.006	0.008	0.008	0.010	0.010	0.008	0.008	0.008	0.008
P.2.2	0.004	0.005	0.007	0.007	0.009	0.009	0.007	0.007	0.007	0.007
P.2.3	0.006	0.006	0.008	0.008	0.010	0.010	0.008	0.008	0.008	0.008
P.2.4	0.005	0.006	0.007	0.007	0.009	0.009	0.007	0.007	0.007	0.007
P.3.1	0.004	0.005	0.005	0.007	0.008	0.008	0.007	0.007	0.007	0.007
P.3.2	0.003	0.004	0.004	0.006	0.007	0.007	0.006	0.006	0.006	0.006
P.3.3	0.007	0.004	0.004	0.006	0.006	0.006	0.006	0.006	0.006	0.006
P.4.1	0.004	0.005	0.005	0.008	0.009	0.009	0.008	0.008	0.008	0.008
P.4.2	0.003	0.004	0.004	0.006	0.007	0.007	0.006	0.006	0.006	0.006
M.1.1	0.003	0.003	0.005	0.006	0.007	0.007	0.006	0.006	0.006	0.006
M.2.1	0.002	0.003	0.005	0.005	0.006	0.005	0.005	0.005	0.005	0.005
M.3.1	0.002	0.003	0.004	0.004	0.005	0.004	0.004	0.004	0.004	0.004
K.1.1	0.006	0.006	0.010	0.012	0.012	0.012	0.012	0.012	0.012	0.012
K.1.2	0.005	0.005	0.008	0.010	0.010	0.010	0.010	0.010	0.010	0.010
K.2.1	0.006	0.006	0.008	0.008	0.010	0.010	0.008	0.008	0.008	0.008
K.2.2	0.005	0.006	0.008	0.008	0.009	0.009	0.008	0.008	0.008	0.008
K.3.1	0.006	0.006	0.009	0.009	0.010	0.010	0.009	0.009	0.009	0.009
K.3.2	0.005	0.006	0.008	0.008	0.009	0.009	0.008	0.008	0.008	0.008
N.1.1	0.003	0.003	0.004	0.005	0.005	0.005	0.005	0.005	0.005	0.005
N.1.2	0.003	0.003	0.004	0.005	0.005	0.005	0.005	0.005	0.005	0.005
N.2.1	0.004	0.005	0.006	0.006	0.008	0.008	0.006	0.006	0.006	0.006
N.2.2	0.004	0.005	0.006	0.006	0.008	0.008	0.006	0.006	0.006	0.006
N.2.3	0.004	0.004	0.006	0.006	0.007	0.007	0.006	0.006	0.006	0.006
N.3.1	0.005	0.006	0.010	0.010	0.010	0.010	0.010	0.010	0.008	0.008
N.3.2	0.005	0.006	0.010	0.010	0.010	0.010	0.010	0.010	0.009	0.009
N.3.3	0.003	0.003	0.004	0.005	0.006	0.006	0.005	0.005	0.005	0.005
N.4.1	0.005	0.006	0.010	0.010	0.010	0.010	0.010	0.010	0.008	0.008
S.1.1	0.002	0.003	0.004	0.005	0.005	0.005	0.005	0.005	0.005	0.005
S.1.2	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004
S.2.1	0.002	0.003	0.004	0.005	0.005	0.005	0.005	0.005	0.005	0.005
S.2.2	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004
S.2.3	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
S.3.1	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
S.3.2	0.002	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004
S.3.3	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
H.1.1	0.002	0.002	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
H.1.2	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
H.1.3	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
H.1.4										
H.2.1	0.002	0.002	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
H.3.1	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
O.1.1	0.003	0.003	0.004	0.005	0.006	0.006	0.005	0.005	0.005	0.005
O.1.2	0.003	0.003	0.004	0.005	0.006	0.006	0.005	0.005	0.005	0.005
O.2.1										
O.2.2	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
O.3.1	0.003	0.003	0.004	0.005	0.006	0.006	0.005	0.005	0.005	0.005

During the drilling operation on through holes a sharp disk will be produced. Safety precautions must be observed. A safety guard has to be provided as protection.

In order to ensure efficient chip evacuation, coolant pressure must be at least 5 bar. Optimum pressure is > 15 bar.

Cutting data standard values for WOEX indexable inserts

Index	WOEX 10 821 ...						
	BK8425	BK7935	BK6115	BK7615	BK62	BK77	BK79
	v_c in ft/min						
P.1.1	**850**	**820**	**980**				**850**
P.1.2	**850**	**720**	**980**				**850**
P.1.3	**890**	**890**	**890**				**890**
P.1.4	**790**	**790**	**820**				**790**
P.1.5	**750**	**660**	**890**				**750**
P.2.1	**890**	**890**	**890**				**890**
P.2.2	**850**	**850**	**850**				**850**
P.2.3	**590**	**520**	**790**				**590**
P.2.4	**490**	**430**	**620**				**490**
P.3.1	**520**	**460**	**660**				**520**
P.3.2	**430**	**360**	**520**				**430**
P.3.3	**390**	**330**	**460**				**390**
P.4.1	**590**	**520**	**720**				**590**
P.4.2	**430**	**360**	**520**				**430**
M.1.1	**490**	**520**	**720**				**490**
M.2.1	**490**	**520**	**720**				**490**
M.3.1	**430**	**490**	**660**				**430**
K.1.1	**520**	**490**	**790**	**850**	**790**		**520**
K.1.2	**390**	**360**	**460**	**520**	**460**		**390**
K.2.1	**520**	**490**	**520**	**590**	**520**		**520**
K.2.2	**330**	**300**	**330**	**390**	**330**		**330**
K.3.1	**390**	**360**	**390**	**460**	**390**		**390**
K.3.2	**330**	**300**	**330**	**390**	**330**		**330**
N.1.1	1310	1310					1310
N.1.2	1310	1310					1310
N.2.1	820	820					820
N.2.2	820	820					820
N.2.3	750	750					750
N.3.1	660	660					660
N.3.2	720	720					720
N.3.3	1080	1080					1080
N.4.1	660	660					660
S.1.1		**160**				**160**	
S.1.2		**130**				**130**	
S.2.1		**160**				**160**	
S.2.2		**130**				**130**	
S.2.3		**100**				**100**	
S.3.1		**230**				**230**	
S.3.2		**200**				**200**	
S.3.3		**130**				**130**	
H.1.1	330		330		330	130	
H.1.2	260		260		260	100	
H.1.3	160		160		160	70	
H.1.4							
H.2.1	330		330		330	130	
H.3.1	260		260		260	100	
O.1.1						330	
O.1.2						330	
O.2.1							
O.2.2						330	
O.3.1						330	

During the drilling operation on through holes a sharp disk will be produced. Safety precautions must be observed. A safety guard has to be provided as protection.

In order to ensure efficient chip evacuation, coolant pressure must be at least 5 bar. Optimum pressure is > 15 bar.

Cutting data standard values for KUB Trigon – 2xD

	ABS 15 892 ...												
Index	Ø 0.562–0.625 inch	Ø 0.687–0.781 inch	Ø 0.812–0.937 inch	Ø 0.985–1.156 inch	Ø 1.187–1.437 inch	Ø 1.469–1.562 inch	Ø 1.625–1.750 inch	Ø 1.781–1.812 inch	Ø 1.875–2.062 inch	Ø 2.125–2.500 inch	Ø 2.593-2.656 inch	Ø 2.750–2.875 inch	Ø 3.000–3.250 inch
	f in inch/rev.												
P.1.1	0.003	0.004	0.004	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
P.1.2	0.003	0.004	0.005	0.006	0.006	0.006	0.007	0.008	0.008	0.010	0.010	0.010	0.010
P.1.3	0.002	0.003	0.005	0.006	0.006	0.006	0.006	0.006	0.007	0.008	0.010	0.010	0.010
P.1.4	0.002	0.003	0.004	0.005	0.005	0.005	0.006	0.005	0.006	0.007	0.009	0.009	0.009
P.1.5	0.003	0.004	0.004	0.005	0.006	0.006	0.006	0.007	0.008	0.009	0.009	0.009	0.009
P.2.1	0.002	0.003	0.005	0.006	0.006	0.006	0.006	0.006	0.007	0.008	0.010	0.010	0.010
P.2.2	0.002	0.003	0.004	0.005	0.005	0.005	0.006	0.005	0.006	0.007	0.009	0.009	0.009
P.2.3	0.002	0.003	0.004	0.006	0.006	0.006	0.006	0.006	0.006	0.007	0.008	0.008	0.008
P.2.4	0.002	0.002	0.003	0.004	0.005	0.005	0.005	0.006	0.006	0.006	0.007	0.007	0.007
P.3.1	0.002	0.003	0.004	0.005	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.006	0.006
P.3.2	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.005	0.006	0.006	0.006	0.006	0.006
P.3.3	0.002	0.002	0.003	0.003	0.003	0.003	0.004	0.004	0.005	0.005	0.005	0.005	0.005
P.4.1	0.003	0.004	0.004	0.005	0.005	0.005	0.006	0.006	0.007	0.007	0.007	0.007	0.007
P.4.2	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.005	0.006	0.006	0.006	0.006	0.006
M.1.1	0.002	0.002	0.003	0.005	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.006	0.006
M.2.1	0.002	0.002	0.003	0.005	0.005	0.005	0.005	0.005	0.005	0.006	0.006	0.006	0.006
M.3.1	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.006	0.006	0.006	0.006
K.1.1	0.004	0.005	0.006	0.008	0.008	0.008	0.010	0.010	0.010	0.012	0.012	0.012	0.012
K.1.2	0.003	0.003	0.004	0.006	0.006	0.006	0.007	0.007	0.007	0.008	0.010	0.010	0.010
K.2.1	0.003	0.004	0.006	0.008	0.008	0.008	0.010	0.010	0.010	0.012	0.012	0.012	0.012
K.2.2	0.003	0.004	0.005	0.008	0.005	0.005	0.006	0.009	0.009	0.010	0.010	0.010	0.010
K.3.1	0.004	0.005	0.006	0.010	0.006	0.006	0.007	0.010	0.010	0.012	0.012	0.012	0.012
K.3.2	0.003	0.004	0.005	0.008	0.005	0.005	0.006	0.009	0.009	0.010	0.010	0.010	0.010
N.1.1	0.002	0.003	0.003	0.004	0.004	0.005	0.005	0.005	0.005	0.006	0.006	0.006	0.006
N.1.2	0.002	0.003	0.003	0.004	0.004	0.005	0.005	0.005	0.005	0.006	0.006	0.006	0.006
N.2.1	0.004	0.005	0.006	0.007	0.007	0.008	0.008	0.007	0.008	0.008	0.008	0.008	0.008
N.2.2	0.004	0.005	0.006	0.007	0.007	0.008	0.008	0.007	0.008	0.008	0.008	0.008	0.008
N.2.3	0.004	0.004	0.005	0.006	0.006	0.007	0.007	0.006	0.007	0.007	0.007	0.007	0.007
N.3.1	0.002	0.003	0.005	0.006	0.006	0.007	0.008	0.008	0.008	0.010	0.010	0.010	0.010
N.3.2	0.002	0.004	0.005	0.007	0.007	0.008	0.009	0.009	0.009	0.010	0.010	0.010	0.010
N.3.3	0.002	0.003	0.003	0.004	0.004	0.004	0.005	0.005	0.005	0.006	0.006	0.006	0.006
N.4.1	0.002	0.003	0.005	0.006	0.006	0.007	0.008	0.008	0.008	0.010	0.010	0.010	0.010
S.1.1	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.005	0.005	0.005	0.005
S.1.2	0.001	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004
S.2.1	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.005	0.005	0.005	0.005
S.2.2	0.001	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004
S.2.3	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
S.3.1	0.003	0.004	0.004	0.005	0.004	0.005	0.005	0.004	0.004	0.005	0.005	0.006	0.006
S.3.2	0.002	0.003	0.004	0.005	0.004	0.005	0.005	0.004	0.004	0.005	0.005	0.006	0.006
S.3.3	0.002	0.002	0.002	0.003	0.002	0.003	0.003	0.002	0.002	0.003	0.003	0.003	0.003
H.1.1	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003
H.1.2	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003
H.1.3	0.002	0.002	0.002	0.002	0.002	0.002	0.002						
H.1.4													
H.2.1	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
H.3.1	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
O.1.1	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
O.1.2	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
O.2.1													
O.2.2	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
O.3.1	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004

During the drilling operation on through holes a sharp disk will be produced. Safety precautions must be observed. A safety guard has to be provided as protection.

In order to ensure efficient chip evacuation, coolant pressure must be at least 5 bar. Optimum pressure is > 15 bar.

Cutting data standard values for KUB Trigon – 2.5xD

	C 15 896 ...									
Index	Ø 0.562–0.625 inch	Ø 0.687–0.781 inch	Ø 0.812–0.937 inch	Ø 0.985–1.156 inch	Ø 1.187–1.437 inch	Ø 1.469–1.562 inch	Ø 1.625–1.750 inch	Ø 1.812–2.000 inch	Ø 2.125–2.500 inch	Ø 2.750–3.250 inch
	f in inch/rev.									
P.1.1	0.003	0.004	0.004	0.005	0.005	0.005	0.005	0.005	0.005	0.005
P.1.2	0.003	0.004	0.005	0.006	0.006	0.006	0.007	0.008	0.010	0.010
P.1.3	0.002	0.003	0.005	0.006	0.006	0.006	0.006	0.007	0.008	0.010
P.1.4	0.002	0.003	0.004	0.005	0.005	0.005	0.006	0.006	0.007	0.009
P.1.5	0.003	0.004	0.004	0.005	0.006	0.006	0.006	0.008	0.009	0.009
P.2.1	0.002	0.003	0.005	0.006	0.006	0.006	0.006	0.007	0.008	0.010
P.2.2	0.002	0.003	0.004	0.005	0.005	0.005	0.006	0.006	0.007	0.009
P.2.3	0.002	0.003	0.004	0.006	0.006	0.006	0.006	0.006	0.007	0.008
P.2.4	0.002	0.002	0.003	0.004	0.005	0.005	0.005	0.006	0.006	0.007
P.3.1	0.002	0.003	0.004	0.005	0.005	0.005	0.006	0.006	0.006	0.006
P.3.2	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.006	0.006	0.006
P.3.3	0.002	0.002	0.003	0.003	0.003	0.003	0.004	0.005	0.005	0.005
P.4.1	0.003	0.004	0.004	0.005	0.005	0.005	0.006	0.007	0.007	0.007
P.4.2	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.006	0.006	0.006
M.1.1	0.002	0.002	0.003	0.005	0.005	0.005	0.006	0.006	0.006	0.006
M.2.1	0.002	0.002	0.003	0.005	0.005	0.005	0.005	0.005	0.006	0.006
M.3.1	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.006	0.006
K.1.1	0.004	0.005	0.006	0.008	0.008	0.008	0.010	0.010	0.012	0.012
K.1.2	0.003	0.003	0.004	0.006	0.006	0.006	0.007	0.007	0.008	0.010
K.2.1	0.003	0.004	0.006	0.008	0.008	0.008	0.010	0.010	0.012	0.012
K.2.2	0.003	0.004	0.005	0.008	0.005	0.005	0.006	0.009	0.010	0.010
K.3.1	0.004	0.005	0.006	0.010	0.006	0.006	0.007	0.010	0.012	0.012
K.3.2	0.003	0.004	0.005	0.008	0.005	0.005	0.006	0.009	0.010	0.010
N.1.1	0.002	0.003	0.003	0.004	0.004	0.005	0.005	0.005	0.006	0.006
N.1.2	0.002	0.003	0.003	0.004	0.004	0.005	0.005	0.005	0.006	0.006
N.2.1	0.004	0.005	0.006	0.007	0.007	0.008	0.008	0.008	0.008	0.008
N.2.2	0.004	0.005	0.006	0.007	0.007	0.008	0.008	0.008	0.008	0.008
N.2.3	0.004	0.004	0.005	0.006	0.006	0.007	0.007	0.007	0.007	0.007
N.3.1	0.002	0.003	0.005	0.006	0.006	0.007	0.008	0.008	0.010	0.010
N.3.2	0.002	0.004	0.005	0.007	0.007	0.008	0.009	0.009	0.010	0.010
N.3.3	0.002	0.003	0.003	0.004	0.004	0.004	0.005	0.005	0.006	0.006
N.4.1	0.002	0.003	0.005	0.006	0.006	0.007	0.008	0.008	0.010	0.010
S.1.1	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.005
S.1.2	0.001	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.004	0.004
S.2.1	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.005	0.005
S.2.2	0.001	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.004	0.004
S.2.3	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
S.3.1	0.003	0.004	0.004	0.005	0.004	0.005	0.005	0.004	0.005	0.006
S.3.2	0.002	0.003	0.004	0.005	0.004	0.005	0.005	0.004	0.005	0.006
S.3.3	0.002	0.002	0.002	0.003	0.002	0.003	0.003	0.002	0.003	0.003
H.1.1	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003	0.003	0.003
H.1.2	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.003
H.1.3	0.002	0.002	0.002	0.002	0.002	0.002	0.002			
H.1.4										
H.2.1	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
H.3.1	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
O.1.1	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
O.1.2	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
O.2.1										
O.2.2	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003
O.3.1	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004

ℹ During the drilling operation on through holes a sharp disk will be produced. Safety precautions must be observed. A safety guard has to be provided as protection.

ℹ In order to ensure efficient chip evacuation, coolant pressure must be at least 5 bar. Optimum pressure is > 15 bar.

Cutting data standard values for KUB Trigon – 3xD

	ABS 10 893 ... / 15 893 ...												
Index	Ø 0.562–0.656 inch	Ø 0.687–0.781 inch	Ø 0.812–0.937 inch	Ø 0.985–1.156 inch	Ø1.187–1.437 inch	Ø1.469–1.562 inch	Ø1.625–1.750 inch	Ø1.781–1.812 inch	Ø1.875–2.062 inch	Ø2.125–2.500 inch	Ø2.593–2.656 inch	Ø2.750–2.875 inch	Ø3.000–3.250 inch
	f in inch/rev.												
P.1.1	0.003	0.004	0.004	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005	0.005
P.1.2	0.003	0.004	0.005	0.006	0.006	0.006	0.008	0.008	0.008	0.010	0.010	0.010	0.010
P.1.3	0.002	0.003	0.005	0.006	0.006	0.006	0.006	0.006	0.007	0.008	0.010	0.010	0.010
P.1.4	0.002	0.003	0.004	0.005	0.005	0.005	0.006	0.005	0.006	0.007	0.009	0.009	0.009
P.1.5	0.003	0.004	0.004	0.005	0.006	0.006	0.007	0.007	0.008	0.009	0.009	0.009	0.009
P.2.1	0.002	0.003	0.005	0.006	0.006	0.006	0.006	0.006	0.007	0.008	0.010	0.010	0.010
P.2.2	0.002	0.003	0.004	0.005	0.005	0.005	0.006	0.005	0.006	0.007	0.009	0.009	0.009
P.2.3	0.002	0.003	0.004	0.006	0.006	0.006	0.006	0.006	0.006	0.007	0.008	0.008	0.008
P.2.4	0.002	0.002	0.003	0.004	0.005	0.005	0.005	0.006	0.006	0.006	0.007	0.007	0.007
P.3.1	0.002	0.003	0.004	0.005	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.006	0.006
P.3.2	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.005	0.006	0.006	0.006	0.006	0.006
P.3.3	0.002	0.002	0.003	0.003	0.003	0.003	0.004	0.004	0.005	0.005	0.005	0.005	0.005
P.4.1	0.003	0.004	0.004	0.005	0.005	0.005	0.006	0.006	0.007	0.007	0.007	0.007	0.007
P.4.2	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.005	0.006	0.006	0.006	0.006	0.006
M.1.1	0.002	0.002	0.003	0.005	0.005	0.005	0.006	0.006	0.006	0.006	0.006	0.006	0.006
M.2.1	0.002	0.002	0.003	0.005	0.005	0.005	0.005	0.005	0.005	0.006	0.006	0.006	0.006
M.3.1	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.006	0.006	0.006	0.006
K.1.1	0.004	0.005	0.006	0.008	0.008	0.008	0.010	0.010	0.010	0.012	0.012	0.012	0.012
K.1.2	0.003	0.003	0.004	0.006	0.006	0.006	0.007	0.007	0.007	0.008	0.010	0.010	0.010
K.2.1	0.003	0.004	0.006	0.008	0.008	0.008	0.010	0.010	0.010	0.012	0.012	0.012	0.012
K.2.2	0.003	0.004	0.005	0.008	0.008	0.008	0.008	0.009	0.009	0.010	0.010	0.010	0.010
K.3.1	0.004	0.005	0.006	0.010	0.010	0.010	0.010	0.010	0.010	0.012	0.012	0.012	0.012
K.3.2	0.003	0.004	0.005	0.008	0.008	0.008	0.008	0.009	0.009	0.010	0.010	0.010	0.010
N.1.1	0.002	0.003	0.003	0.004	0.004	0.005	0.005	0.005	0.005	0.006	0.006	0.006	0.006
N.1.2	0.002	0.003	0.003	0.004	0.004	0.005	0.005	0.005	0.005	0.006	0.006	0.006	0.006
N.2.1	0.004	0.005	0.006	0.007	0.007	0.008	0.008	0.007	0.008	0.008	0.008	0.008	0.008
N.2.2	0.004	0.005	0.006	0.007	0.007	0.008	0.008	0.007	0.008	0.008	0.008	0.008	0.008
N.2.3	0.004	0.004	0.005	0.006	0.006	0.007	0.007	0.006	0.007	0.007	0.007	0.007	0.007
N.3.1	0.002	0.003	0.005	0.006	0.006	0.007	0.008	0.008	0.008	0.010	0.010	0.010	0.010
N.3.2	0.002	0.004	0.005	0.007	0.007	0.008	0.009	0.009	0.009	0.010	0.010	0.010	0.010
N.3.3	0.002	0.004	0.004	0.004	0.004	0.004	0.005	0.005	0.005	0.006	0.006	0.006	0.006
N.4.1	0.002	0.003	0.005	0.006	0.006	0.007	0.008	0.008	0.008	0.010	0.010	0.010	0.010
S.1.1	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.005	0.005	0.005	0.005
S.1.2	0.001	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004
S.2.1	0.002	0.002	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.005	0.005	0.005	0.005
S.2.2	0.001	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.004	0.004	0.004	0.004
S.2.3	0.001	0.001	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002	0.002
S.3.1	0.003	0.004	0.004	0.005	0.004	0.005	0.005	0.004	0.004	0.005	0.005	0.006	0.006
S.3.2	0.002	0.003	0.004	0.005	0.004	0.005	0.005	0.004	0.004	0.005	0.005	0.006	0.006
S.3.3	0.002	0.002	0.002	0.003	0.002	0.003	0.003	0.002	0.002	0.003	0.003	0.003	0.003
H.1.1	0.002	0.003	0.003	0.004	0.004	0.004	0.004	0.003	0.003	0.003	0.003	0.003	0.003
H.1.2	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.003	0.003
H.1.3	0.001	0.002	0.002	0.002	0.002	0.002	0.002						
H.1.4													
H.2.1	0.002	0.003	0.003	0.004	0.004	0.004	0.004	0.002	0.002	0.002	0.002	0.002	0.002
H.3.1	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.002	0.002	0.002	0.002	0.002	0.002
O.1.1	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
O.1.2	0.003	0.003	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004
O.2.1													
O.2.2	0.002	0.002	0.002	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003	0.003
O.3.1	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004	0.004

During the drilling operation on through holes a sharp disk will be produced. Safety precautions must be observed. A safety guard has to be provided as protection.

In order to ensure efficient chip evacuation, coolant pressure must be at least 5 bar. Optimum pressure is > 15 bar.

Cutting data standard values for KUB Trigon – 4xD

	ABS 10 894 ... / 15 894 ...						
Index	Ø 0.562–0.656 inch	Ø 0.687–0.781 inch	Ø 0.812–0.937 inch	Ø 0.985–1.156 inch	Ø1.187–1.437 inch	Ø1.469–1.562 inch	Ø1.625–1.750 inch
	f in inch/rev.						
P.1.1	0.002	0.003	0.003	0.004	0.004	0.004	0.004
P.1.2	0.002	0.003	0.004	0.005	0.006	0.006	0.007
P.1.3	0.002	0.002	0.004	0.005	0.005	0.005	0.006
P.1.4	0.002	0.002	0.004	0.004	0.004	0.004	0.005
P.1.5	0.002	0.003	0.004	0.004	0.005	0.005	0.006
P.2.1	0.002	0.002	0.004	0.005	0.005	0.005	0.006
P.2.2	0.002	0.002	0.004	0.004	0.004	0.004	0.005
P.2.3	0.002	0.002	0.003	0.005	0.006	0.006	0.006
P.2.4	0.001	0.002	0.002	0.004	0.004	0.004	0.004
P.3.1	0.002	0.002	0.003	0.004	0.004	0.004	0.005
P.3.2	0.001	0.002	0.002	0.003	0.003	0.003	0.004
P.3.3	0.001	0.002	0.002	0.003	0.003	0.003	0.003
P.4.1	0.002	0.003	0.004	0.004	0.004	0.004	0.005
P.4.2	0.001	0.002	0.002	0.003	0.003	0.003	0.004
M.1.1	0.002	0.002	0.002	0.004	0.004	0.004	0.005
M.2.1	0.002	0.002	0.002	0.004	0.004	0.004	0.004
M.3.1	0.002	0.002	0.002	0.004	0.004	0.004	0.004
K.1.1	0.003	0.004	0.005	0.007	0.007	0.007	0.009
K.1.2	0.002	0.002	0.003	0.005	0.005	0.006	0.006
K.2.1	0.002	0.003	0.005	0.007	0.007	0.007	0.009
K.2.2	0.002	0.003	0.004	0.007	0.007	0.007	0.007
K.3.1	0.003	0.004	0.006	0.009	0.009	0.009	0.009
K.3.2	0.002	0.003	0.004	0.007	0.007	0.007	0.007
N.1.1	0.001	0.002	0.002	0.003	0.003	0.004	0.004
N.1.2	0.001	0.002	0.002	0.003	0.003	0.004	0.004
N.2.1	0.003	0.004	0.005	0.006	0.006	0.007	0.007
N.2.2	0.003	0.004	0.005	0.006	0.006	0.007	0.007
N.2.3	0.003	0.004	0.004	0.006	0.006	0.006	0.006
N.3.1	0.001	0.002	0.004	0.006	0.006	0.006	0.007
N.3.2	0.001	0.003	0.004	0.006	0.006	0.007	0.008
N.3.3	0.001	0.002	0.002	0.003	0.003	0.003	0.004
N.4.1	0.001	0.002	0.004	0.006	0.006	0.006	0.007
S.1.1	0.001	0.002	0.002	0.003	0.003	0.003	0.003
S.1.2	0.001	0.001	0.002	0.002	0.002	0.002	0.002
S.2.1	0.001	0.002	0.002	0.003	0.003	0.003	0.003
S.2.2	0.001	0.001	0.002	0.002	0.002	0.002	0.002
S.2.3	0.000	0.001	0.001	0.002	0.002	0.002	0.002
S.3.1	0.002	0.003	0.004	0.004	0.004	0.004	0.004
S.3.2	0.002	0.002	0.003	0.004	0.003	0.004	0.004
S.3.3	0.001	0.002	0.002	0.002	0.002	0.002	0.002
H.1.1	0.001	0.002	0.002	0.003	0.003	0.003	0.003
H.1.2	0.001	0.002	0.002	0.002	0.002	0.002	0.002
H.1.3	0.001	0.001	0.001	0.002	0.002	0.002	0.002
H.1.4							
H.2.1	0.001	0.002	0.002	0.003	0.003	0.003	0.003
H.3.1	0.001	0.002	0.002	0.002	0.002	0.002	0.002
O.1.1	0.003	0.003	0.004	0.004	0.004	0.004	0.004
O.1.2	0.003	0.003	0.004	0.004	0.004	0.004	0.004
O.2.1							
O.2.2	0.002	0.002	0.002	0.003	0.003	0.003	0.003
O.3.1	0.004	0.004	0.004	0.004	0.004	0.004	0.004

During the drilling operation on through holes a sharp disk will be produced. Safety precautions must be observed. A safety guard has to be provided as protection.

In order to ensure efficient chip evacuation, coolant pressure must be at least 5 bar. Optimum pressure is > 15 bar.

Cutting data standard values for KUB Trigon – 4xD

	C 15 894 ...						
Index	Ø 0.562–0.656 inch	Ø 0.687–0.781 inch	Ø 0.812–0.937 inch	Ø 0.985–1.156 inch	Ø1.187–1.437 inch	Ø1.469–1.562 inch	Ø1.625–1.750 inch
	f in inch/rev.						
P.1.1	0.002	0.003	0.003	0.004	0.004	0.004	0.004
P.1.2	0.002	0.003	0.004	0.005	0.006	0.006	0.007
P.1.3	0.002	0.002	0.004	0.005	0.005	0.005	0.006
P.1.4	0.002	0.002	0.004	0.004	0.004	0.004	0.005
P.1.5	0.002	0.003	0.004	0.004	0.005	0.005	0.006
P.2.1	0.002	0.002	0.004	0.005	0.005	0.005	0.006
P.2.2	0.002	0.002	0.004	0.004	0.004	0.004	0.005
P.2.3	0.002	0.002	0.003	0.005	0.006	0.006	0.006
P.2.4	0.001	0.002	0.002	0.004	0.004	0.004	0.004
P.3.1	0.002	0.002	0.003	0.004	0.004	0.004	0.005
P.3.2	0.001	0.002	0.002	0.003	0.004	0.003	0.004
P.3.3	0.001	0.002	0.002	0.003	0.003	0.003	0.003
P.4.1	0.002	0.003	0.004	0.004	0.005	0.004	0.005
P.4.2	0.001	0.002	0.002	0.003	0.004	0.003	0.004
M.1.1	0.002	0.002	0.002	0.004	0.004	0.004	0.005
M.2.1	0.002	0.002	0.002	0.004	0.004	0.004	0.004
M.3.1	0.002	0.002	0.002	0.004	0.004	0.004	0.004
K.1.1	0.003	0.004	0.005	0.007	0.007	0.007	0.009
K.1.2	0.002	0.002	0.003	0.005	0.005	0.006	0.006
K.2.1	0.002	0.003	0.005	0.007	0.007	0.007	0.009
K.2.2	0.002	0.003	0.004	0.007	0.007	0.007	0.007
K.3.1	0.003	0.004	0.006	0.009	0.009	0.009	0.009
K.3.2	0.002	0.003	0.004	0.007	0.007	0.007	0.007
N.1.1	0.001	0.002	0.002	0.003	0.004	0.004	0.004
N.1.2	0.001	0.002	0.002	0.003	0.004	0.004	0.004
N.2.1	0.003	0.004	0.005	0.006	0.007	0.007	0.007
N.2.2	0.003	0.004	0.005	0.006	0.007	0.007	0.007
N.2.3	0.003	0.004	0.004	0.006	0.006	0.006	0.006
N.3.1	0.002	0.002	0.004	0.006	0.006	0.006	0.007
N.3.2	0.002	0.003	0.004	0.006	0.007	0.007	0.008
N.3.3	0.001	0.003	0.003	0.004	0.004	0.003	0.004
N.4.1	0.002	0.002	0.004	0.006	0.006	0.006	0.007
S.1.1	0.001	0.002	0.003	0.003	0.004	0.003	0.003
S.1.2	0.001	0.002	0.002	0.002	0.003	0.002	0.002
S.2.1	0.001	0.002	0.003	0.003	0.004	0.003	0.003
S.2.2	0.001	0.002	0.002	0.002	0.003	0.002	0.002
S.2.3	0.001	0.001	0.002	0.002	0.002	0.002	0.002
S.3.1	0.002	0.003	0.004	0.004	0.004	0.004	0.004
S.3.2	0.002	0.002	0.003	0.004	0.004	0.004	0.004
S.3.3	0.001	0.002	0.002	0.002	0.002	0.002	0.002
H.1.1	0.001	0.002	0.002	0.003	0.003	0.003	0.003
H.1.2	0.001	0.002	0.002	0.002	0.002	0.002	0.002
H.1.3	0.001	0.001	0.001	0.002	0.002	0.002	0.002
H.1.4							
H.2.1	0.001	0.002	0.002	0.003	0.003	0.003	0.003
H.3.1	0.001	0.002	0.002	0.002	0.002	0.002	0.002
O.1.1	0.003	0.003	0.004	0.004	0.004	0.004	0.004
O.1.2	0.003	0.003	0.004	0.004	0.004	0.004	0.004
O.2.1							
O.2.2	0.002	0.002	0.002	0.003	0.003	0.003	0.003
O.3.1	0.004	0.004	0.004	0.004	0.004	0.004	0.004

During the drilling operation on through holes a sharp disk will be produced. Safety precautions must be observed. A safety guard has to be provided as protection.

In order to ensure efficient chip evacuation, coolant pressure must be at least 5 bar. Optimum pressure is > 15 bar.

Cutting data standard values for KUB Centron

	Drill head diameter											
	Ø 0.812–1.000 inch				Ø 1.125–1.250 inch				Ø 1.375–1.750 inch			
		Centering tip v_c				Centering tip v_c				Centering tip v_c		
Index	f inch/rev.	10 863 ... (TiN/TiAlN)	10 862 ... (TiN)	10 862 ... (TiAlN)	f inch/rev.	10 863 ... (TiN/TiAlN)	10 862 ... (TiN)	10 862 ... (TiAlN)	f inch/rev.	10 863 ... (TiN/TiAlN)	10 862 ... (TiN)	10 862 ... (TiAlN)
P.1.1	0.003	**820**	**520**		0.003	**820**	**520**		0.004	**820**	**520**	
P.1.2	0.005	**820**	**520**		0.006	**820**	**520**		0.006	**820**	**520**	
P.1.3	0.004	**660**	**520**		0.005	**660**	**520**		0.005	**660**	**520**	
P.1.4	0.004	**590**	**520**		0.004	**590**	**520**		0.004	**590**	**520**	
P.1.5	0.004	**750**	**520**		0.005	**750**	**520**		0.005	**750**	**520**	
P.2.1	0.004	**660**	**520**		0.005	**660**	**520**		0.005	**660**	**520**	
P.2.2	0.004	**620**	**490**		0.004	**620**	**490**		0.004	**620**	**490**	
P.2.3	0.005	**590**	**460**		0.006	**590**	**460**		0.006	**590**	**460**	
P.2.4	0.004	**490**	**390**		0.005	**490**	**390**		0.005	**490**	**390**	
P.3.1	0.003	**520**	**390**		0.004	**520**	**390**		0.004	**520**	**390**	
P.3.2	0.002	**460**	**330**		0.003	**460**	**330**		0.003	**460**	**330**	
P.3.3	0.003	**430**	**300**		0.003	**430**	**300**		0.003	**430**	**300**	
P.4.1	0.004	**590**	**430**		0.004	**590**	**430**		0.004	**590**	**430**	
P.4.2	0.002	**460**	**330**		0.003	**460**	**330**		0.003	**460**	**330**	
M.1.1	0.004	**520**		**230**	0.005	**520**		**230**	0.005	**520**		**230**
M.2.1	0.003	**390**		**230**	0.004	**390**		**230**	0.004	**390**		**230**
M.3.1	0.003	**360**		**200**	0.003	**360**		**200**	0.003	**360**		**200**
K.1.1	0.006	**660**		**330**	0.006	**660**		**330**	0.006	**660**		**330**
K.1.2	0.005	**520**		**330**	0.006	**520**		**330**	0.006	**520**		**330**
K.2.1	0.005	**520**		**330**	0.006	**520**		**330**	0.006	**520**		**330**
K.2.2	0.004	**330**		**260**	0.005	**330**		**260**	0.005	**330**		**260**
K.3.1	0.005	**390**		**330**	0.006	**390**		**330**	0.006	**390**		**330**
K.3.2	0.004	**330**		**260**	0.005	**330**		**260**	0.005	**330**		**260**
N.1.1	0.003	**1150**	**1150**		0.003	**1150**	**1150**		0.004	**1150**	**1150**	
N.1.2	0.003	**1150**	**1150**		0.003	**1150**	**1150**		0.004	**1150**	**1150**	
N.2.1	0.004	**820**	**820**		0.005	**820**	**820**		0.006	**820**	**820**	
N.2.2	0.004	**820**	**820**		0.005	**820**	**820**		0.006	**820**	**820**	
N.2.3	0.004	**750**	**750**		0.004	**750**	**750**		0.006	**750**	**750**	
N.3.1	0.006	**660**	**660**		0.006	**660**	**660**		0.007	**660**	**660**	
N.3.2	0.006	**720**	**720**		0.007	**720**	**720**		0.008	**720**	**720**	
N.3.3	0.004	**820**	**820**		0.004	**820**	**820**		0.006	**820**	**820**	
N.4.1	0.006	**660**	**660**		0.006	**660**	**660**		0.007	**660**	**660**	
S.1.1	0.002	160		**80**	0.002	**160**		**80**	0.002	**160**		**80**
S.1.2	0.001	130		**70**	0.002	**130**		**70**	0.002	**130**		**70**
S.2.1	0.002	160		**80**	0.002	**160**		**80**	0.002	**160**		**80**
S.2.2	0.001	130		**70**	0.002	**130**		**70**	0.002	**130**		**70**
S.2.3	0.001	100		**70**	0.002	**100**		**70**	0.002	**100**		**70**
S.3.1	0.002	260		**160**	0.003	**260**		**160**	0.003	**260**		**160**
S.3.2	0.002	260		**130**	0.002	**260**		**130**	0.002	**260**		**130**
S.3.3	0.001	160		**100**	0.002	**160**		**100**	0.002	**160**		**100**
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1	0.003	330	330		0.004	330	330		0.004	330	330	
O.1.2	0.003	330	330		0.004	330	330		0.004	330	330	
O.2.1												
O.2.2	0.003	160	100		0.004	160	100		0.004	160	100	
O.3.1	0.003	330	330		0.004	330	330		0.004	330	330	

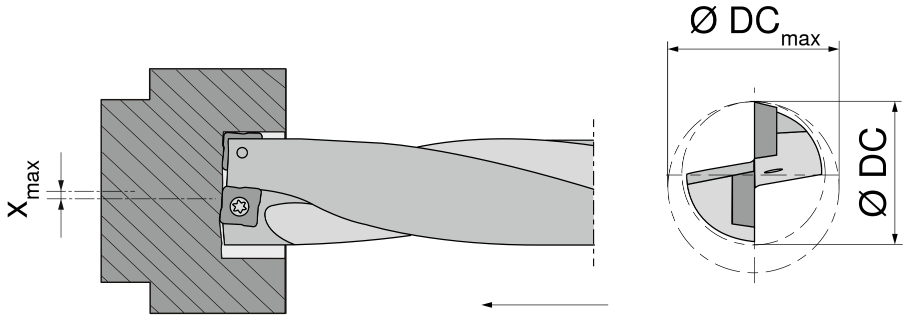
During the drilling operation on through holes a sharp disk will be produced. Safety precautions must be observed. A safety guard has to be provided as protection.

In order to ensure efficient chip evacuation, coolant pressure must be at least 5 bar. Optimum pressure is > 15 bar.

Index	Drill head diameter							
	Ø 1.875–2.000 inch				Ø 2.250–2.500 inch			
	f	Centering tip v_c			f	Centering tip v_c		
	inch/rev.	10 863 ... (TiN/TiAlN)	10 862 ... (TiN)	10 862 ... (TiAlN)	inch/rev.	10 863 ... (TiN/TiAlN)	10 862 ... (TiN)	10 862 ... (TiAlN)
P.1.1	0.004	**820**	**520**		0.004	**820**	**520**	
P.1.2	0.006	**820**	**520**		0.006	**820**	**520**	
P.1.3	0.005	**660**	**520**		0.006	**660**	**520**	
P.1.4	0.004	**590**	**520**		0.005	**590**	**520**	
P.1.5	0.005	**750**	**520**		0.006	**750**	**520**	
P.2.1	0.005	**660**	**520**		0.006	**660**	**520**	
P.2.2	0.004	**620**	**490**		0.005	**620**	**490**	
P.2.3	0.006	**590**	**460**		0.006	**590**	**460**	
P.2.4	0.005	**490**	**390**		0.005	**490**	**390**	
P.3.1	0.004	**520**	**390**		0.005	**520**	**390**	
P.3.2	0.003	**460**	**330**		0.004	**460**	**330**	
P.3.3	0.003	**430**	**300**		0.004	**430**	**300**	
P.4.1	0.004	**590**	**430**		0.006	**590**	**430**	
P.4.2	0.003	**460**	**330**		0.004	**460**	**330**	
M.1.1	0.005	**520**		**230**	0.005	**520**		**230**
M.2.1	0.004	**390**		**230**	0.004	**390**		**230**
M.3.1	0.003	**360**		**200**	0.003	**360**		**200**
K.1.1	0.006	**660**		**330**	0.006	**660**		**330**
K.1.2	0.006	**520**		**330**	0.006	**520**		**330**
K.2.1	0.006	**520**		**330**	0.006	**520**		**330**
K.2.2	0.005	**330**		**260**	0.005	**330**		**260**
K.3.1	0.006	**390**		**330**	0.006	**390**		**330**
K.3.2	0.005	**330**		**260**	0.005	**330**		**260**
N.1.1	0.004	**1150**	**1150**		0.004	**1150**	**1150**	
N.1.2	0.004	**1150**	**1150**		0.004	**1150**	**1150**	
N.2.1	0.006	**820**	**820**		0.006	**820**	**820**	
N.2.2	0.006	**820**	**820**		0.006	**820**	**820**	
N.2.3	0.006	**750**	**750**		0.006	**750**	**750**	
N.3.1	0.007	**660**	**660**		0.007	**660**	**660**	
N.3.2	0.008	**720**	**720**		0.008	**720**	**720**	
N.3.3	0.006	**820**	**820**		0.006	**820**	**820**	
N.4.1	0.007	**660**	**660**		0.007	**660**	**660**	
S.1.1	0.002	**160**		**80**	0.002	**160**		**80**
S.1.2	0.002	**130**		**70**	0.002	**130**		**70**
S.2.1	0.002	**160**		**80**	0.002	**160**		**80**
S.2.2	0.002	**130**		**70**	0.002	**130**		**70**
S.2.3	0.002	**100**		**70**	0.002	**100**		**70**
S.3.1	0.003	**260**		**160**	0.003	**260**		**160**
S.3.2	0.002	**260**		**130**	0.002	**260**		**130**
S.3.3	0.002	**160**		**100**	0.002	**160**		**100**
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1	0.004	330	330		0.004	330	330	
O.1.2	0.004	330	330		0.004	330	330	
O.2.1								
O.2.2	0.004	160	100		0.004	160	100	
O.3.1	0.004	330	330		0.004	330	330	

The cutting data of the KUB Centron depends on the centering tip and not on the indexable inserts. Please select the cutting data of the centering tip.

Maximum adjustment range (X) during solid drilling / from the center for stationary applications – KUB Pentron

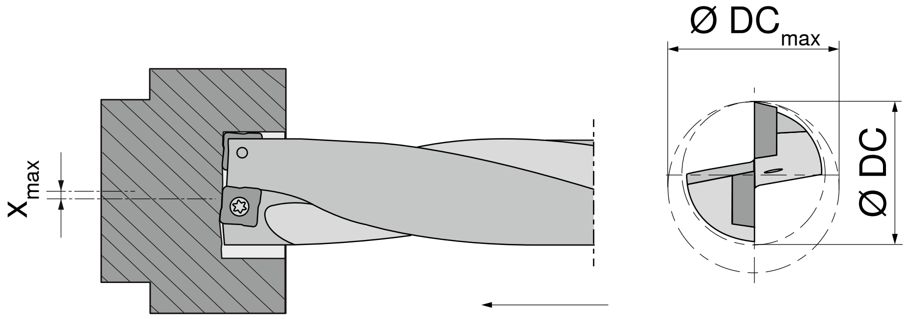


At max. offset X_{max} the hole will be:
$DC_{max} = DC + 2X_{max}$
e.g. for DC = 0.750", X_{max} = 0.010":
DC_{max} = DC + 0.020" = 0.770"

Ø DC inch	Insert size	X_{max} inch	Ø DC_{max} inch
0.562	SOGX 04....	0.010	0.582
0.593		0.010	0.613
0.625		0.010	0.645
0.656	SOGX 05....	0.010	0.676
0.687		0.010	0.707
0.703		0.010	0.723
0.750	SOGX 06....	0.010	0.770
0.765		0.010	0.785
0.781		0.010	0.801
0.812	SOGX 07....	0.010	0.832
0.828		0.010	0.848
0.843		0.010	0.863
0.875		0.010	0.895
0.906		0.010	0.926
0.937	SOGX 08....	0.010	0.957
0.985		0.010	1.005
1.000		0.010	1.020
1.031	SOGX 09....	0.010	1.051
1.062		0.010	1.082
1.109		0.010	1.129
1.125		0.010	1.145
1.156		0.010	1.176
1.187	SOGX 10....	0.010	1.207
1.218		0.010	1.238
1.250		0.010	1.270
1.281		0.010	1.301
1.312	SOGX 11....	0.010	1.332
1.328		0.010	1.348
1.375		0.010	1.395
1.437		0.010	1.457
1.469	SOGX 12....	0.010	1.489
1.500		0.010	1.520
1.531		0.010	1.551
1.562		0.010	1.582
1.625		0.010	1.645
1.656	SOGX 13....	0.010	1.676
1.687		0.010	1.707
1.750		0.010	1.770

The maximum radial X-offset affects the cutting force balance of the drill, therefore, the use of lower feed rates is recommended!

Maximum adjustment range (X) during solid drilling / from the center for stationary applications – KUB Quatron



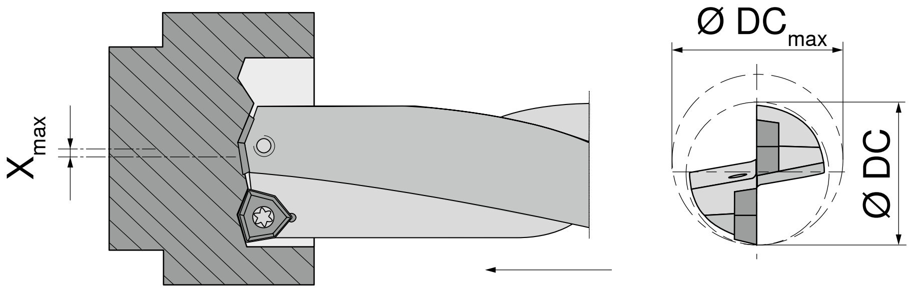
At max. offset X_{max} the hole will be:
$DC_{max} = DC + 2X_{max}$
e.g. for DC = 0.750", X_{max} = 0.010":
DC_{max} = DC + 0.020" = 0.770"

Ø DC inch	Insert size	X_{max} inch	Ø DC_{max} inch
0.562	SOEX 05....	0.010	0.582
0.593		0.010	0.613
0.625		0.010	0.645
0.656		0.010	0.676
0.687		0.010	0.707
0.703	SOEX 06....	0.010	0.723
0.718		0.010	0.738
0.750		0.010	0.770
0.765		0.010	0.785
0.781		0.010	0.801
0.812		0.010	0.832
0.828		0.010	0.848
0.843		0.010	0.863
0.875	SOEX 07....	0.010	0.895
0.906		0.010	0.926
0.937		0.010	0.957
0.968		0.010	0.988
0.985		0.010	1.005
1.000		0.010	1.020
1.031		0.010	1.051
1.062		0.010	1.082
1.109	SOEX 09....	0.010	1.129
1.125		0.010	1.145
1.156		0.010	1.176
1.187		0.010	1.207
1.218		0.010	1.238
1.250		0.010	1.270
1.281		0.010	1.301

Ø DC inch	Insert size	X_{max} inch	Ø DC_{max} inch
1.312	SOEX 12....	0.010	1.332
1.328		0.010	1.348
1.375		0.010	1.395
1.406		0.010	1.426
1.437		0.010	1.457
1.469		0.010	1.489
1.500		0.010	1.520
1.531		0.010	1.551
1.562		0.010	1.582
1.625		0.010	1.645
1.656		0.010	1.676
1.687		0.010	1.707
1.750		0.010	1.770
1.781	SOEX 07....	0.010	1.801
1.812		0.010	1.832
1.875		0.010	1.895
1.937		0.010	1.957
1.975		0.010	1.995
2.000		0.010	2.020
2.062	SOEX 09....	0.010	2.082
2.125		0.010	2.145
2.165		0.010	2.185
2.203		0.010	2.223
2.250		0.010	2.270
2.281		0.010	2.301
2.375		0.010	2.395
2.437		0.010	2.457
2.500			2.520

The maximum radial X-offset affects the cutting force balance of the drill, therefore, the use of lower feed rates is recommended!

Maximum adjustment range (X) during solid drilling / from the center for stationary applications – KUB Trigon



At max. offset X_{max} the hole will be:
$DC_{max} = DC + 2X_{max}$
e.g. for DC = 0.750", X_{max} = 0.020":
DC_{max} = DC + 0.040" = 0.790"

Ø DC inch	Insert size	X_{max} inch	Ø DC_{max} inch
0.562	WOEX 03....	0.020	0.602
0.593		0.020	0.633
0.625		0.020	0.665
0.656		0.020	0.696
0.687		0.020	0.727
0.703		0.020	0.743
0.750		0.020	0.790
0.765		0.020	0.805
0.781		0.020	0.821
0.812	WOEX 04....	0.020	0.852
0.828		0.020	0.868
0.843		0.020	0.883
0.875		0.020	0.915
0.906		0.020	0.946
0.937		0.020	0.977
0.985	WOEX 05....	0.020	1.025
1.000		0.020	1.040
1.031		0.040	1.111
1.062		0.040	1.142
1.109		0.060	1.229
1.125		0.065	1.254
1.156		0.060	1.276
1.187		0.050	1.287
1.218		0.050	1.318
1.250		0.041	1.331
1.281		0.040	1.361
1.312		0.040	1.392
1.328		0.040	1.408
1.375		0.020	1.415
1.406		0.020	1.446
1.437		0.020	1.477

Ø DC inch	Insert size	X_{max} inch	Ø DC_{max} inch
1.469	WOEX 06....	0.060	1.589
1.500		0.060	1.620
1.531		0.060	1.651
1.562		0.060	1.682
1.625		0.060	1.745
1.656		0.060	1.776
1.687		0.043	1.773
1.750		0.011	1.772
1.781	WOEX 08....	0.058	1.897
1.812		0.059	1.929
1.875		0.059	1.992
1.937		0.059	2.055
1.975		0.059	2.093
2.000		0.059	2.118
2.062		0.049	2.160
2.125		0.023	2.171
2.165	WOEX 10....	0.059	2.283
2.203		0.059	2.321
2.250		0.058	2.366
2.281		0.058	2.397
2.375		0.027	2.429
2.437		0.059	2.555
2.500		0.065	2.630
2.593		0.059	2.711
2.625		0.058	2.740
2.656		0.059	2.774
2.750	WOEX 12....	0.058	2.866
2.875		0.059	2.992
3.000		0.059	3.118
3.250		0.018	3.285

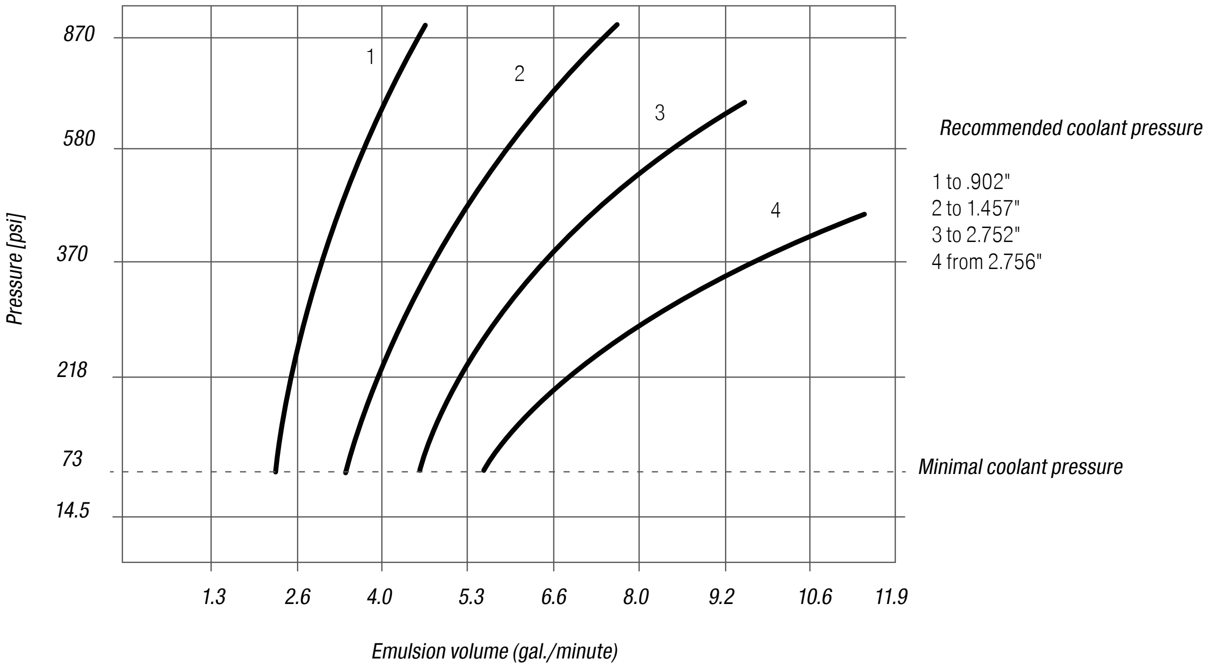
The maximum radial X-offset affects the cutting force balance of the drill, therefore, the use of lower feed rates is recommended!

Coding example indexable insert drilling

System		Length		Bore diameter		Direction of rotation		Insert size		Machine connection and size
KUB-P	.	4D	.	0750	.	R	.	06	-	ABS 50
KUB-Q	.	3D	.	1375	.	R	.	12	-	ABS 50
KUB-T	.	2.5D	.	1125	.	R	.	05	-	C1250
KUB-C.GH	.	4D	.	320		R			-	ABS 50

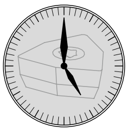
KUB-P = KUB Pentron	0750 = 0.750“	R = right	ABS50 = ABS adapter size 50
KUB-Q = KUB Quatron	1375 = 1.375“	R = right	ABS50 = ABS adapter size 50
KUB-T = KUB Trigon	1125 = 1.125“	R = right	C1250 = Cylindrical shank with clamping flat Ø1.250"
KUB-C.GH = KUB Centron Basic Element	320 = KLG 32	R = right	ABS50 = ABS adapter size 50

Recommended coolant pressure and coolant flow



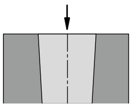
Indexable insert drilling – problems / possible causes / solutions

Rotating and stationary application



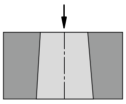
Short service life / types of wear of indexable inserts

- Cutting speed too high → select the correct cutting speed
- Insert grade selection has too little wear resistance → select a wear resistant grade
- Tool overhang too large → if possible, use a shorter tool
- Damaged insert seat → check tool, replace if necessary
- Clamping device stability too low → increase stability



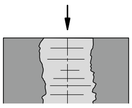
Hole tapers in

- Chip jam on the outer cutting edge → use a different chip breakage geometry, increase the feed if necessary
- Material very soft → increase the cutting speed, reduce the feed.
  Use a positive cutting edge geometry



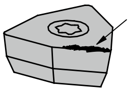
Hole tapers out

- Chip jam on the inner cutting edge → use a different chip breakage geometry, increase the feed if necessary



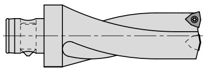
Poor surface quality

- Poor chip evacuation → optimize the cutting parameters: Increase the cutting speed, reduce the feed



Built-up edge

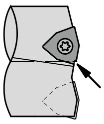
- Cutting speed too low → increase cutting speed
- Indexable insert too negative → use positive geometry
- Unsuitable coating → select the correct coating



Friction marks on the tool body

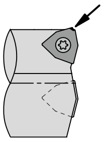
- Drill diameter too small → check the setting
- Chip evacuation problems → optimize the cutting parameters, check the geometry of the indexable insert
- Cutting radius too large → use the correct cutting radius

Stationary application



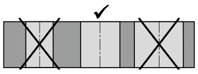
Edge breakage on the inner cutting edge

- Center height of the tool too high/too low → adjust tool turret/adapter if necessary → Recalibrate the machine
- Indexable insert grades interchanged → use correct indexable insert
- Feed too high → reduce feed
- Indexable insert grade too brittle → use a tougher indexable insert grade
- Incorrect indexable insert geometry → if necessary use a geometry with a chamfered cutting edge



Edge breakage on the outer cutting edge

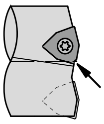
- Feed too high → reduce feed
- Interrupted cut → switch to a tougher grade of indexable insert
- Cutting radius too small → use an indexable insert with a larger cutting radius



Hole too small / too large with adjustable tools

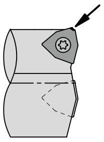
- Machine is not in the X-0 position → move axis to correct position
- Machine axis has been moved → recalibrate the machine

Rotating application



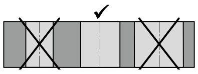
Edge breakage on the inner cutting edge

- Indexable insert grades interchanged → use correct indexable insert
- Feed too high → reduce feed
- Indexable insert grade too brittle → use a tougher indexable insert grade
- Incorrect indexable insert geometry → if necessary use a geometry with a chamfered cutting edge



Edge breakage on the outer cutting edge

- Feed too high → reduce feed
- Interrupted cut → switch to a tougher grade of indexable insert
- Cutting radius too small → use an indexable insert with a larger cutting radius

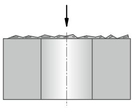


Hole too small / too large when using adjustable tools

- Incorrect cutting radius used → use the correct cutting radius
- Incorrect adjustment setting → set the tool to the correct diameter
- Increase cutting fluid supply

KUB Centron – notes on drilling technology

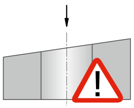
1.



Center drill entering on uneven surfaces (casting surfaces)

- Generally possible
- Reduce feed during drill entry

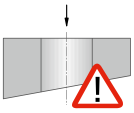
2.



Center drill entering on angled surfaces

- The entering drilling location must be spot faced in advance
- Avoid chips jamming on the drill shank

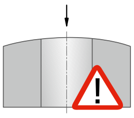
3.



Angled drill exit

- Possible under certain conditions
- If necessary, reduce feed
- Drilling angle max. 3°

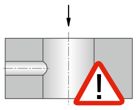
4.



Center drill entering on convex surfaces

- Centered drilling possible with reduced feed
- If the drill entry location is outside the center of the radius, spot facing is required

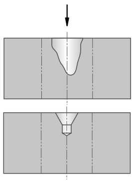
5.



Drilling through a cross hole

- During the interruption, reduce the feed rate by 1/2
- Cross hole max. 1/3 of the bore diameter
- Off center cross hole not possible

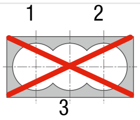
6.



Center drill entering on pre-op or large center drilled hole

- Possible under certain conditions
- If necessary, reduce feed
- In the case of a large center, facing is required in advance
- If necessary, adjust the set length of the center drill. The center drill must be engaged before the inserts begin to cut.

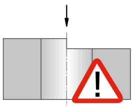
7.



Drilling a cavity

- Not possible

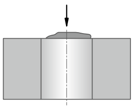
8.



Center drill entering on an edge

- Not possible with tools longer than 4xD
- Preparation required due to undefined center drill entry location (spot facing, face milling)
- Then continue as described under Point 1

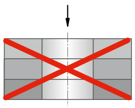
9.



Center drill entering on a forging/welding/casting seam

- Reduce feed during drill entry
- If necessary, face surface before drilling

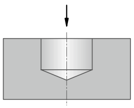
10.



Drilling through stacks

- Not possible

11.

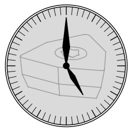


Blind hole

- Possible
- Set guide pads .020" below actual ⌀

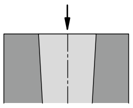
KUB Centron – problems / possible causes / solutions

Rotating and stationary application



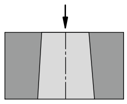
Short service life / types of wear of indexable inserts

- ▲ Cutting speed too high → select the correct cutting speed
- ▲ Grade has too little wear resistance → select a wear-resistant grade
- ▲ Tool overhang too large → if possible, use a shorter tool
- ▲ Damaged insert seat → check tool, replace if necessary
- ▲ Clamping device stability too low → increase stability



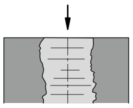
Hole tapers in

- ▲ Chip jam on the outer cutting edge → use a different chip breakage geometry, increase the feed if necessary
- ▲ Material very soft → increase the cutting speed, reduce the feed
- ▲ Use positive cutting edge geometry
- ▲ Axial adjustment of the centering tip not optimal → adjust according to the setting sheet in the operating instructions



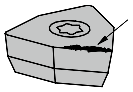
Hole tapers out

- ▲ Chip jam on the inner cutting edge → use a different chip breakage geometry, increase the feed if necessary



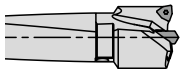
Poor surface quality

- ▲ Poor chip evacuation → optimize the cutting parameters: Increase the cutting speed, reduce the feed



Built-up edge

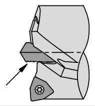
- ▲ Cutting speed too low → increase cutting speed
- ▲ Indexable insert too negative → use positive geometry
- ▲ Unsuitable coating → select the correct coating



Friction marks on the tool body

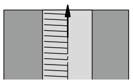
- ▲ Drill diameter too small → check the setting
- ▲ Chip evacuation problems → optimize the cutting parameters, check the geometry of the indexable insert
- ▲ Cutting radius too large → use the correct cutting radius
- ▲ Chips stuck on the guide pads, broken guide pads, the guide pads do not have to be used for base elements of < 6xD

Stationary application



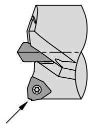
Significant wear on one side of the centering tip

- ▲ Tool not centered → tool turret/adapter may have moved → recalibrate the machine



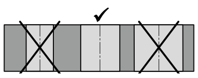
Single-sided retract marks

- ▲ Tool not centered → tool turret/adapter may have moved → recalibrate the machine



Edge breakage on the outer cutting edge

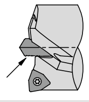
- ▲ Feed too high → reduce feed
- ▲ Interrupted cut → switch to a tougher grade of indexable insert
- ▲ Cutting radius too small → use an indexable insert with a larger cutting radius



Hole too small / too large with adjustable tools

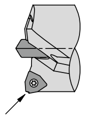
- ▲ Machine is not in the X-0 position → move axis to correct position
- ▲ Machine axis has been moved → recalibrate the machine

Rotating application



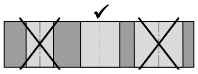
Significant wear on one side of the centering tip

- ▲ Insufficient guiding → check length adjustment of the centering tip



Edge breakage on the outer cutting edge

- ▲ Feed too high → reduce feed
- ▲ Interrupted cut → switch to a tougher grade of indexable insert
- ▲ Cutting radius too small → use an indexable insert with a larger cutting radius



Hole too small / too large with adjustable tools

- ▲ Incorrect cutting radius used → use the correct cutting radius
- ▲ Incorrect adjustment setting → set the tool to the correct diameter

Grades Overview

CTPP430	▲ Carbide, TiAlN-coated ▲ ISO | **P30** | **M25** | S25 | K30 | N25 ▲ The universal high-performance grade for steel, austenitic steel and heat-resistant alloys.	**BK8425**	▲ Carbide, TiAlN/TiN-coated ▲ ISO | **P25** | **M25** | **K25** | N25 | **S25** | H25 ▲ Universally applicable grade with increased wear resistance thanks to the innovative PVD coating in a multilayer design.
CTPP420	▲ Carbide, TiCN-Al$_2$O$_3$-coated ▲ ISO | **P20** | **K20** ▲ The wear-resistant solution for steel and cast iron materials at high cutting speeds.	**BK8430**	▲ Carbide, TiAlN/TiN-coated ▲ ISO | **P25** | **M25 | K25** | N25 | **S25** | H25 ▲ Fine-grain grade with high wear resistance ▲ Extreme edge stability and maximum wear resistance in the middle and top speed range
BK7710	▲ Carbide, TiB$_2$-coated ▲ ISO | **N10** | S10 | O10 ▲ The wear-resistant grade with optimum cutting characteristics to prevent built-up edge formation for machining aluminium and titanium alloys.	**BK6115**	▲ Carbide, TiCN-TiN-Al$_2$O$_3$-coated ▲ ISO | **P20** | **M20** | **K20** | H20 ▲ High-quality, surface-treated coating for machining cast iron materials under normal to stable conditions and high cutting speeds.
BK6425	▲ Carbide, TiCN-Al$_2$O$_3$-TiN-coated ▲ ISO | **P25 | M15** | **K20** ▲ The extremely wear-resistant grade for machining all steel and stainless materials.	**BK7935**	▲ Carbide, AlTiN-coated ▲ ISO | **P35** | **M30** | **K30** | N30 | **S30** | O30 ▲ The tough carbide grade for machining stainless steel and acid-resistant steels as well as special alloys.
BK62	▲ Carbide, TiN-TiCN-Al$_2$O$_3$-coated ▲ ISO | **K15** | H15 ▲ Special carbide grade for machining cast iron materials at high cutting speeds. Not suitable for machining aluminium materials.	**BK77**	▲ Carbide, TiN-coated ▲ ISO | **S10** | H10 | O10 ▲ The wear-resistant carbide grade for machining aluminum alloys, superalloys and plastics at medium cutting speeds.
BK79	▲ Carbide, TiAlN-coated ▲ ISO | **P40** | **M35** | **K25** | N30 ▲ Universally applicable grade with high wear-resistance ▲ low to medium cutting speed for roughing and finishing as well as interrupted cut	**BK7615**	▲ Carbide, TiCN-Al$_2$O$_3$-coated ▲ ISO | **K15** ▲ Highly productive grade with extreme edge stability for wet and dry machining of all cast iron materials

Chip breakers

-01	▲ Universal geometry suitable for a wide range of materials ▲ Can be used for the center and peripheral insert	**-21**	▲ Soft cutting geometry that reduces cutting forces ▲ High positive chip breaker
-03	▲ Geometry for chip breaking problems with excellent chip control at low feed rates ▲ WOEX BK8425 -03: Can only be used for the peripheral insert ▲ SOGX BK8425 -03: Suitable for the center and peripheral insert ▲ Main application in low alloyed and stainless steels	**-32**	▲ For the machining of steel and cast iron materials ▲ Minimised burr formation when entering and exiting the hole ▲ Reliable separation of disc-shaped residual material when the drill exits the hole
-11	▲ Highly positive, minimally rounded chip breaker ▲ For soft cutting use ▲ Main application in aluminum	**-34**	▲ High-feed geometry ▲ Extremely sturdy indexable insert ▲ Designed specially for steel and cast iron materials
-13	▲ The dome-shaped chip breaker results in more controlled breaking of the chips ▲ Can be used for center and periphery ▲ Suitable for unstable machining conditions due to the low cutting forces		

Application

Grade designation	Standard designation	ISO application range	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O
BK6115	HC-P20	10–25	●						
	HC-M20	15–25		●					
	HC-K20	05–25			●				
	HC-H20	05–15						○	
BK8425	HC-P25	05–35	●						
	HC-M25	10–30		●					
	HC-K25	15–35			●				
	HC-N25	15–30				○			
	HC-S25	10–25					●		
	HC-H25	10–20						○	
BK8430	HC-P30	10–40	●						
	HC-M25	10–30		●					
	HC-K25	15–35			●				
	HC-N25	15–35				○			
	HC-S25	10–25					●		
	HC-H25	10–20						○	
BK7935	HC-P35	25–50	●						
	HC-M30	20–45		●					
	HC-S30	15–35					●		
	HC-K30	30–45			●				
	HC-N30	30–40				○			
	HC-O30	15–40							○
BK7710	HC-N10	05–25				●			
	HC-S10	05–20					○		
	HC-O10	05–30							○
BK6425	HC-P25	15–30	●						
	HC-M15	15–25		●					
	HC-K20	15–25			●				
CTCP420 DRAGONSKIN	HC-P20	15–25	●						
	HC-K20	20–30			●				
CTPP430 DRAGONSKIN	HC-P30	15–50	●						
	HC-M25	15–45		●					
	HC-S25	~18–30					○		
	HC-N25	20–35				○			
	HC-K30	15–40			○				
BK7615	HC-K15	05–25			●				
BK62	HC-K15	05–25			●				
	HC-H15	05–15						○	
BK77	HC-S10	10–30					●		
	HC-H10	10–25						○	
	HC-O10	10–35							○
BK79	HC-P40	30–45	●						
	HC-M35	30–40		●					
	HC-K25	20–35			●				
	HC-N30	25–35				○			

● **Main Application**
○ Extended application

wear-resistant v_c+ ○ ⟷ v_c– tough

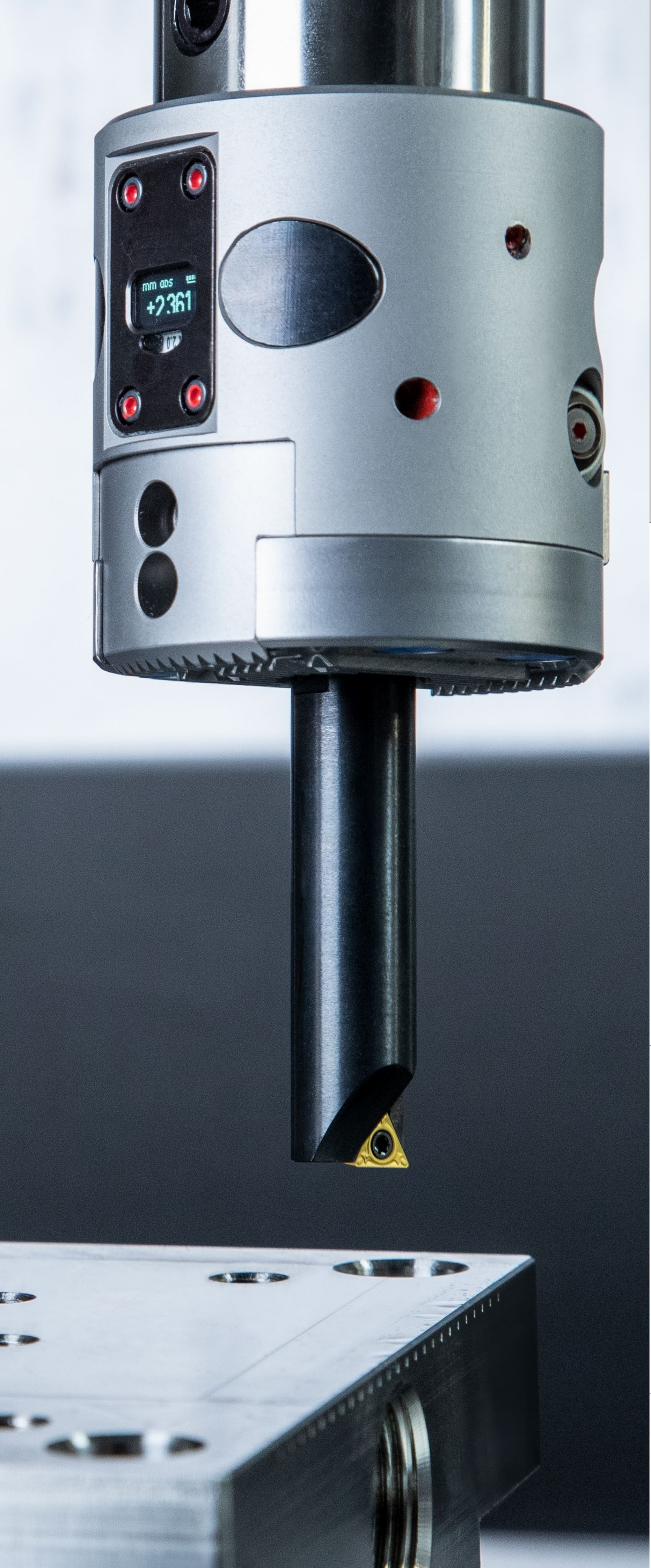

mm abs
+2.361

Table of contents

KOMET \ Performance

Premium quality tools for high performance.

The premium quality tools from the **KOMET Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

Symbol explanation

F	Fine Machining
M	Medium Machining
R	Rough Machining

○	Smooth cut
◯	Irregular cutting depth
◌	Interrupted cut

Coolant supply central
Steep taper Form AD

ABS **KOMET ABS** – modular coupling system for rotating and stationary tools

Coolant supply either via the flange or centrally

Micron-precise display resolution:
0.00005" in diameter

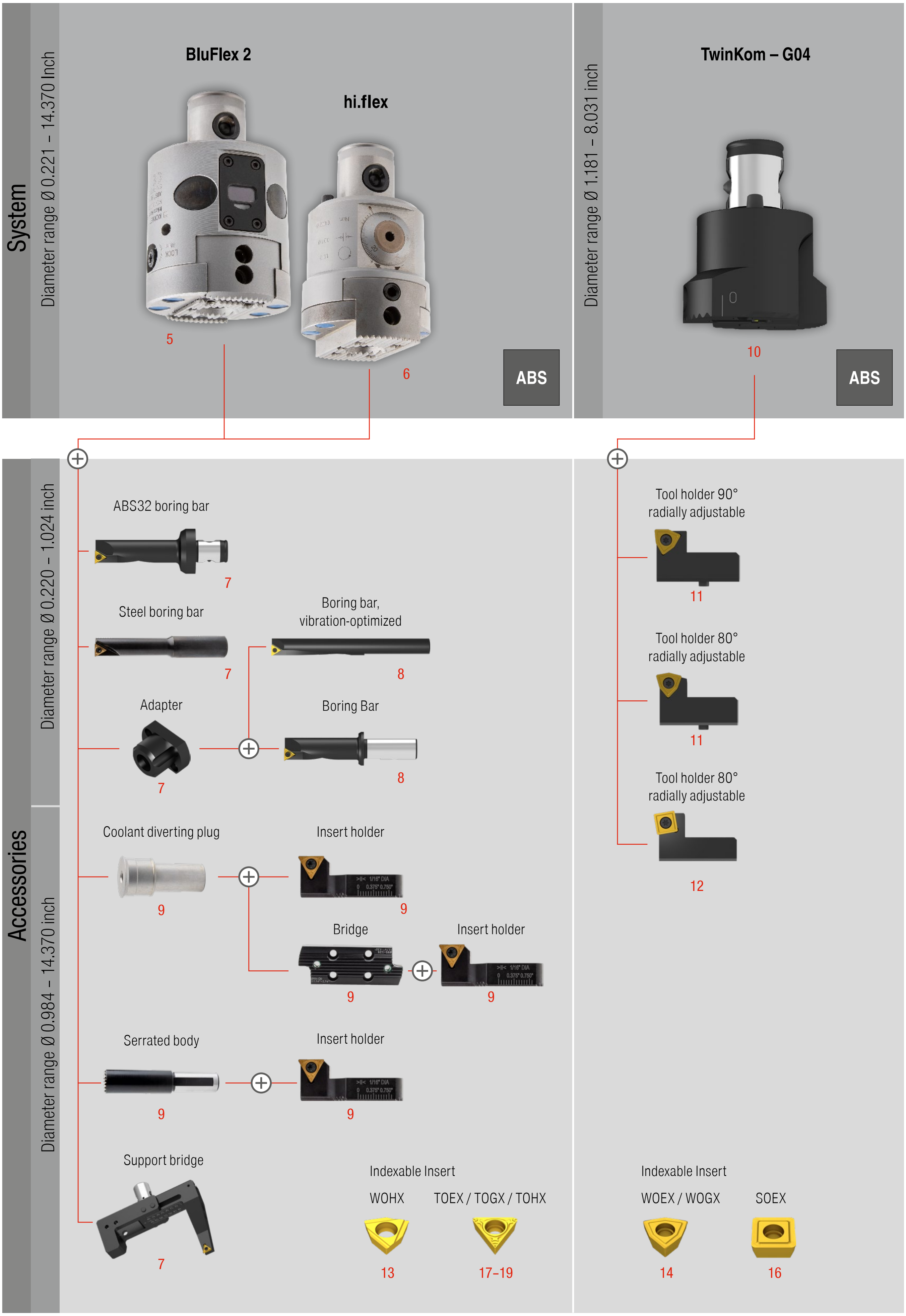
Universal ABS interface

Modern, high contrast OLED display on
the precision adjustment head itself

Absolute position measuring system

Additional Bluetooth Low Energy interface for easy display on any
conventional smartphone

System overview – MicroKom / TwinKom



Overview of ABS tool holders

Work with flexibility and process-security with the modular ABS coupling system for rotating and stationary tools.

CAT Taper shank holder on request.

ISO 7388-1 – SK steep taper holders

ISO 7388-2 – MAS-BT taper shank

HSK hollow taper adapters with face contact

ISO 26623-1 – PSC polygon hollow adapters with face contact

metric

Additional metric items are available in our Online-Shop at cuttingtools.ceratizit.com and in the metric main catalog.

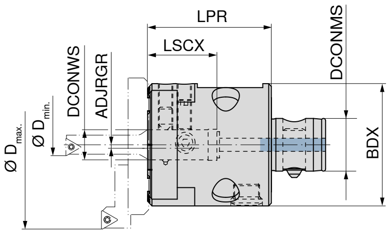
MicroKom – BluFlex 2 – precision adjustment head

- ▲ Via the free app (Android/IOS), an extended display can be transferred to a standard smartphone (62 840 16097)
- ▲ For MicroKom boring bars with Ø 0.630 inch or with ABS 32, MicroKom bridges, and serrated body
- ▲ With through coolant supply
- ▲ LSCX = Recess depth of boring bar

Scope of supply:

incl. Battery

ABS



D$_{min}$ - D$_{max}$ inch	KOMET no.	Adapter	DCONWS inch	DCONMS inch	BDX inch	LPR inch	LSCX inch	ADJRGR inch	without Bluetooth 62 820 ...	with Bluetooth 62 840 ...
0.221 -14.370	M04 30100	ABS 50	0.630	1.102	2.559	2.795	1.496	0.183	**16097**	
0.221 -14.370	M04 30000	ABS 50	0.630	1.102	2.559	2.795	1.496	0.183		**16097**

Spare parts for Article no.		 Clamping screw 62 950 ...		 Clamping screw 62 950 ...		 Clamping screw 62 950 ...	 Clamping sleeve 62 950 ...	 Battery cover 62 950 ...
62 820 16097	M8x1x12/SW4	**13989**	M8x1x20/SW4	**13700**	M5x14/SW4	**18600**	**18500**	**18400**
62 840 16097	M8x1x12/SW4	**13989**	M8x1x20/SW4	**13700**	M5x14/SW4	**18600**	**18500**	**18400**

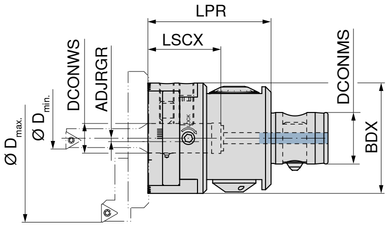
Metric Adaptors can be found in our Online-Shop or in the Metric Catalog 2021

metric

MicroKom – hi.flex – precision adjustment head

- for MicroKom boring bars with Ø 0.630 inch or ABS 32, MicroKom bridges, and serrated body
- with through coolant supply
- LSCX = Recess depth of boring bar

ABS



D_{min} - D_{max} inch	KOMET no.	Adapter	DCONWS inch	DCONMS inch	BDX inch	LPR inch	LSCX inch	Analogue 67 800 ...
0.221 - 14.370	M05 01600	ABS 50	0.630	1.102	2.362	2.638	1.575	**12597**

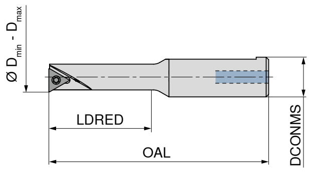
Spare parts for Article no.	 Clamping screw 62 950 ...	 Clamping screw 62 950 ...	 Clamping screw 62 950 ...
67 800 12597	**14700**	**13989**	**13700**

Metric Adaptors can be found in our Online-Shop or in the Metric Catalog 2021

metric

MicroKom – Steel boring bar for hi.flex, BluFlex 2

▲ With internal coolant supply



D_{min} - D_{max} inch	KOMET no.	OAL inch	LDRED inch	DCONMS h6 inch	Insert	62 850 ...
0.236 - 0.315	B05 20100	2.823	0.827	0.630	WO.. 02T0	**00600**
0.315 - 0.472	B05 20120	3.047	1.102	0.630	TO.. 06T1	**00800**
0.394 - 0.551	B05 20140	3.220	1.339	0.630	TO.. 0902	**01000**
0.472 - 0.709	B05 20160	3.472	1.654	0.630	TO.. 0902	**01200**
0.551 - 0.709	B05 20180	3.717	1.969	0.630	TO.. 0902	**01400**
0.709 - 0.984	B05 20220	3.937	2.362	0.630	TO.. 0902	**01800**
0.866 - 1.024	B05 20260	4.252	2.697	0.630	TO.. 1403	**02200**


TORX® Screws

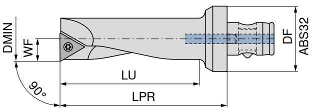
Spare parts

Insert	62 950 ...
TO.. 06T1	**12800**
TO.. 0902	**12000**
TO.. 1403	**12600**
WO.. 02T0	**11800**

MicroKom – Boring bar

▲ With internal coolant supply

ABS



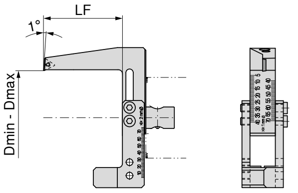
DMIN inch	KOMET no.	WF inch	DF inch	LU inch	LPR inch	Insert	62 857 ...
0.311	B00 25610	0.156	1.260	1.102	1.654	TO.X 06T1..	**07989**
0.350	B00 25700	0.175	1.260	1.339	1.890	TO.X 06T1..	**21989**
0.390	B00 25620	0.195	1.260	1.339	1.890	TO.X 06T1..	**08989**
0.429	B00 25710	0.215	1.260	1.693	2.244	TO.X 0902..	**23989**
0.469	B00 25630	0.234	1.260	1.693	2.244	TO.X 0902..	**09989**
0.547	B00 25640	0.274	1.260	1.969	2.520	TO.X 0902..	**10989**
0.626	B00 25650	0.313	1.260	2.283	2.835	TO.X 0902..	**11989**
0.705	B00 25661	0.352	1.260	2.323	2.835	TO.X 0902..	**13989**
0.783	B00 25671	0.390	1.260	2.756	3.228	TO.X 0902..	**15989**
0.862	B00 25681	0.429	1.260	2.756	3.228	TO.X 0902..	**17989**
0.941	B00 25691	0.469	1.260	2.756	3.228	TO.X 0902..	**19989**


TORX® Screws

Spare parts

Insert	62 950 ...
TO.X 06T1..	**12800**
TO.X 0902..	**12000**

MicroKom – Spindle tool



D_{min} - D_{max} inch	KOMET no.	LF inch	Insert	62 866 ...
0.197 - 2.756	M05 90300	2.283	TO.X 0902..	**07000**


Cylindrical screw


TORX® Screws

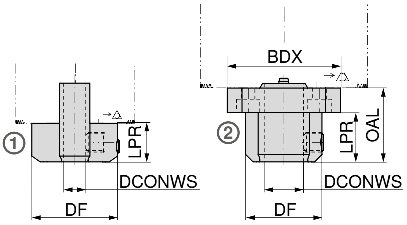
Spare parts

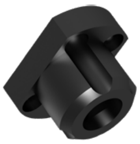
Insert	62 950 ...	62 950 ...
TO.X 0902..	**26800**	**12000**

Suitable inserts can be found on → **Page 14–19.**

MicroKom – Adapter

▲ for 62 852 ..., 62 853 ..., 62 856 ... (essential for using the boring bar)





DCONWS inch	KOMET no.	OAL inch	BDX inch	DF inch	LPR inch	Fig.	62 851 ...
0.236	M05 90200			1.220	0.630	1	**00600**
0.315	M05 90210			1.220	0.630	1	**00800**
0.394	M05 90220	0.984	1.811	1.220	0.591	2	**01000**
0.472	M05 90230	0.984	1.811	1.220	0.591	2	**01200**
0.630	M05 90240	1.181	1.811	1.220	0.787	2	**01600**


Cylindrical screw

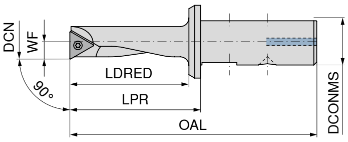

Clamping screw

Spare parts

DCONWS	62 950 ...	62 950 ...
0.236 - 0.315		**44800**
0.394 - 0.472	**00000**	**44800**
0.630	**00000**	**14700**

MicroKom – Boring bar

- ▲ can only be used with adapter 62 851 ...
- ▲ with internal coolant supply



DCN inch	KOMET no.	OAL inch	LPR inch	DCONMS inch	WF inch	LDRED inch	Insert	62 856 ...
0.220	B00 37010	1.890	1.024	0.315	0.108	0.866	WOHX 02T0..	**05600**
0.256	B00 37020	2.047	1.181	0.315	0.126	1.024	WOHX 02T0..	**06500**
0.315	B00 15510	2.244	1.378	0.315	0.156	1.102	TO.X 06T1..	**08000**
0.315	B00 15610	2.953	1.378	0.630	0.156	1.181	TO.X 06T1..	**00800**
0.394	B00 15620	3.150	1.575	0.630	0.195	1.378	TO.X 0902..	**01000**
0.433	B00 15710	3.346	1.772	0.630	0.215	1.575	TO.X 0902..	**01100**
0.472	B00 15530	2.638	1.772	0.630	0.234	1.496	TO.X 0902..	**11200**
0.472	B00 15630	3.346	1.772	0.630	0.234	1.575	TO.X 0902..	**01200**
0.551	B00 15640	3.543	1.969	0.630	0.274	1.772	TO.X 0902..	**01400**
0.630	B00 15650	3.740	2.165	0.630	0.313	1.969	TO.X 0902..	**01600**
0.709	B00 15661	3.937	2.362	0.630	0.352	2.165	TO.X 0902..	**01800**
0.748	B00 15751	4.134	2.559	0.630	0.372	2.362	TO.X 0902..	**01900**
0.787	B00 15671	4.134	2.559	0.630	0.390	2.362	TO.X 0902..	**02000**
0.866	B00 15681	4.134	2.559	0.630	0.429	2.362	TO.X 0902..	**02200**
0.945	B00 15691	4.134	2.559	0.630	0.469	2.362	TO.X 0902..	**02400**

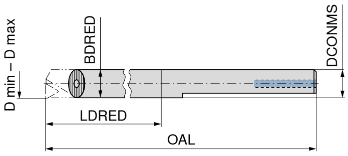
TORX® Screws

Spare parts

DCN	62 950 ...
0.220 - 0.256	**11800**
0.315 - 0.394	**12800**
0.433 - 0.945	**12000**

MicroKom – Carbide boring shank

- ▲ for boring head 62 854 ...
- ▲ can only be used with adapter 62 851 ...
- ▲ with internal coolant supply



D_{min} - D_{max} inch	KOMET no.	OAL inch	BDRED inch	LDRED inch	DCONMS inch	62 853 ...
0.512 - 0.669	G10 12060	4.724	0.472	2.953	0.472	**01300**
0.669 - 0.866	G10 12070	5.512	0.630	3.937	0.630	**01700**
0.866 - 1.024	G10 12080	5.512	0.630	3.937	0.630	**02200**

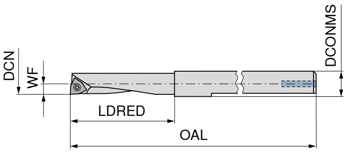
Fixing screw

Spare parts

DCONMS	62 950 ...
0.472	**19700**
0.630	**19800**

MicroKom – Boring bar, vibration-optimized

- ▲ can only be used with adapter 62 851 ...
- ▲ with internal coolant supply



DCN inch	KOMET no.	OAL inch	LDRED inch	DCONMS inch	Insert	62 852 ...
0.220	B00 30280	2.559	0.866	0.236	WOHX 02T0..	**10600**
0.272	B00 30290	3.150	1.417	0.236	WOHX 02T0..	**00600** 1)
0.354	B00 00680	3.543	0.945	0.315	TO.X 06T1..	**00800** 1)
0.433	B00 00690	3.740	1.969	0.394	TO.X 06T1..	**01000** 1)

1) Carbide version

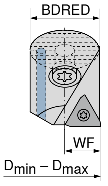
TORX® Screws

Spare parts

Insert	62 950 ...
TO.X 06T1..	**09700**
WOHX 02T0..	**11800**

MicroKom – Boring head

- ▲ for boring shank 62 853 ...



D_{min} - D_{max} inch	KOMET no.	WF inch	BDRED inch	Insert	62 854 ...
0.518 - 0.591	G10 12621	0.254	0.472	TO.X 0902..	**01300**
0.591 - 0.669	G10 12841	0.333	0.630	TO.X 0902..	**01500**
0.669 - 0.748	G10 12711	0.333	0.472	TO.X 0902..	**01700**
0.748 - 0.866	G10 12861	0.372	0.630	TO.X 0902..	**01900**
0.866 - 1.024	G10 12731	0.431	0.630	TO.X 0902..	**02200**

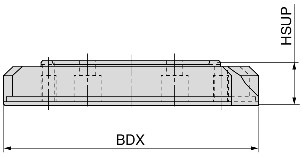
TORX® Screws

Spare parts

Insert	62 950 ...
TO.X 0902..	**12000**

Suitable inserts can be found on → **Page 14–19.**

MicroKom – Bridge for hi.flex, BluFlex 2



D$_{min}$ - D$_{max}$ inch	KOMET no.	BDX inch	HSUP inch	WT inch	62 860 ...
3.543 - 4.921	M05 80101	3.346	0.472	0.147	12500
4.724 - 6.102	M05 80200	4.528	0.719	0.107	15500
5.906 - 7.283	M05 80300	5.709	0.797	0.152	18500
7.087 - 8.465	M05 80400	6.890	0.915	0.229	21500
8.267 - 9.646	M05 80500	8.071	0.984	0.309	24500
9.449 - 10.827	M05 80510	9.252	0.984	0.349	27500
10.630 - 12.008	M05 80520	10.433	0.984	0.394	30500
11.811 - 13.189	M05 80530	11.614	0.984	0.435	33500
12.992 - 14.370	M05 80540	12.795	0.984	0.478	36500


Cylindrical screw

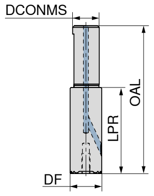

Disk spring

Spare parts BDX	62 950 ...	62 950 ...
3.346 - 12.795	00000	19100

MicroKom – Serrated body for hi.flex, BluFlex 2

▲ With internal coolant supply

Scope of supply:
without insert holder



D$_{min}$ - D$_{max}$ inch	KOMET no.	DCONMS inch	OAL inch	LPR inch	DF inch	67 861 ...
0.984 - 2.480	M05 90600	0.630	3.484	2.028	0.748	06300


Cylindrical screw

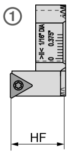

Disk spring

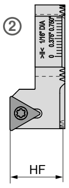
Spare parts for Article no.	62 950 ...	62 950 ...
67 861 06300	00000	19100

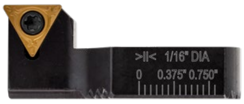
MicroKom – Insert holder for hi.flex, BluFlex 2

▲ With internal coolant supply

Scope of supply:
without inserts
incl. mounting screws





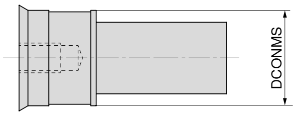


DCN inch	DCX inch	KOMET no.	HF inch	Insert	Fig.	67 863 ...
0.984	1.732	M05 20601	0.531	TO.. 06T1	1	04400
1.732	2.480	M05 20651	0.531	TO.. 0902	2	12500


TORX® Screws

Spare parts Insert	62 950 ...
TO.. 06T1	09700
TO.. 0902	09900

MicroKom – Coolant diverting plug for hi.flex



DCONMS inch	KOMET no.	62 862 ...
0.630	M05 90501	09300

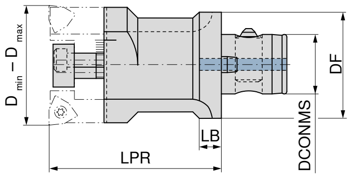
Suitable inserts can be found on → **Page 14–19.**

TwinKom – Base body

Scope of supply:

Clamping plate incl. adjustment and fixing screws
Order tool holder and indexable inserts separately

ABS



D_{min} - D_{max} inch	KOMET no.	DCONMS inch	DF inch	Adapter	LPR inch	LB inch	short 62 881 ...	long 62 881 ...
1.181 - 1.575	G04 00500	0.512	0.984	ABS 25	1.969		**04190**	
1.575 - 2.008	G04 01010	0.630	1.260	ABS 32	2.362		**05189**	
1.181 - 1.575	G04 01000	0.630	1.260	ABS 32	3.346	0.295		**44189**
2.008 - 2.677	G04 01510	0.787	1.575	ABS 40	2.362		**07188**	
1.575 - 2.008	G04 01500	0.787	1.575	ABS 40	4.724	0.335		**45188**
2.677 - 3.425	G04 02010	1.102	1.969	ABS 50	2.756		**09197**	
2.677 - 3.425	G04 02020	1.102	1.969	ABS 50	5.315			**49197**
2.008 - 2.677	G04 02000	1.102	1.969	ABS 50	5.315	0.413		**47197**
3.425 - 4.567	G04 02500	1.339	2.480	ABS 63	2.756		**12196**	
3.425 - 4.567	G04 02510	1.339	2.480	ABS 63	6.102			**52196**
4.567 - 6.024	G04 03000	1.811	3.150	ABS 80	3.543		**15792**	
4.567 - 6.024	G04 03010	1.811	3.150	ABS 80	6.890			**55792**
6.024 - 8.031	G04 03500	2.205	3.937	ABS 100	4.921		**20491**	

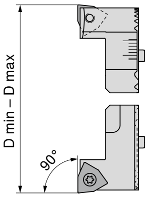
Spare parts **D_{min} - D_{max}**	 Cylindrical screw TwinKom 62 950 ...	 Cylindrical screw TwinKom 84 950 ...	 Adjustment screw 10 950 ...	 Adjustment screw 62 950 ...	 TwinKom clamping plate 62 950 ...
1.181 - 1.575	**45500**			**53800**	**55000**
1.575 - 2.008	**45600**		**11200**		**55100**
2.008 - 2.677	**54400**			**53900**	**55200**
2.677 - 3.425		**42600**		**54000**	**55300**
3.425 - 4.567	**54500**			**54100**	**55400**
4.567 - 6.024	**54600**			**54200**	**55500**
6.024 - 8.031	**54700**			**54300**	**55600**

TwinKom – Tool holder 90°

▲ radially adjustable

Scope of supply:

including pair of holders and clamping screws
Order indexable inserts separately



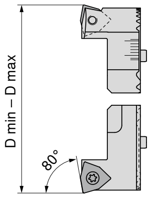
D_{min} - D_{max} inch	KOMET no.	Insert	67 871 ...
1.181 - 1.614	G03 60410	WO.X 05T3	**04100**
1.535 - 2.008	G03 60420	WO.X 06T3	**05100**
1.929 - 2.795	G03 60430	WO.X 06T3	**07100**
2.520 - 3.853	G03 60440	WO.X 0804	**09800**
3.268 - 4.764	G03 60450	WO.X 1005	**12100**
4.291 - 6.181	G03 60460	WO.X 1005	**15700**
5.472 - 8.031	G03 60470	WO.X 1206	**20400**

TwinKom – Tool holder 80°

▲ radially adjustable

Scope of supply:

including pair of holders and clamping screws
Order indexable inserts separately



D_{min} - D_{max} inch	KOMET no.	Insert	67 875 ...
1.181 - 1.614	G03 50410	WO.X 05T3	**04100**
1.535 - 2.008	G03 50420	WO.X 06T3	**05100**
1.929 - 2.795	G03 50430	WO.X 06T3	**07100**
2.520 - 3.853	G03 50440	WO.X 0804	**09800**
3.268 - 4.764	G03 50450	WO.X 1005	**12100**
4.291 - 6.181	G03 50460	WO.X 1005	**15700**
5.472 - 8.031	G03 50470	WO.X 1206	**20400**

Spare parts for Article no.	Screwdriver 80 950 ...	Clamping screw 10 950 ...
67 875 04100 / 67 871 04100	**125**	**10500**
67 875 05100 / 67 871 05100	**127**	**10600**
67 875 07100 / 67 871 07100	**127**	**10600**
67 875 09800 / 67 871 09800	**128**	**12700**
67 875 12100 / 67 871 12100	**128**	**12700**
67 875 15700 / 67 871 15700	**128**	**12700**
67 875 20400 / 67 871 20400	**129**	**17400**

Suitable inserts can be found on → **Page 14+15.**

TwinKom – depths of cut

$a_{p\ max}$	P	M	K	N	S
WO.X 05T3	0.177	0.138	0.197	0.197	0.138
WO.X 05T6	0.236	0.157	0.236	0.236	0.157
WO.X 0804	0.295	0.236	0.295	0.295	0.236
WO.X 1005	0.354	0.354	0.354	0.354	0.354
WO.X 1206	0.354	0.354	0.354	0.354	0.354

Further cutting data can be found on → **pages 20**

Metric Adaptors can be found in our Online-Shop or in the Metric Catalog 2021

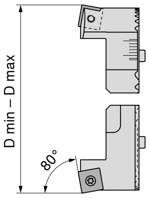
metric

TwinKom – Tool holder 80°

▲ radially adjustable

Scope of supply:

including pair of holders and clamping screws
Order indexable inserts separately



D_{min} - D_{max} inch	KOMET no.	Insert	67 872 ...
1.181 - 1.614	G03 80200	SOEX 07T308	04100
1.535 - 2.008	G03 80211	SOEX 090408	05100
1.929 - 2.795	G03 80220	SOEX 090408	07100
2.520 - 3.853	G03 80230	SOEX 120508	09800
3.268 - 4.764	G03 80240	SOEX 120508	12100
4.291 - 6.181	G03 80250	SOEX 120508	15700
5.472 - 8.031	G03 80260	SOEX 120508	20400

Screwdriver

Clamping screw

Spare parts

D_{min} - D_{max}	80 950 ...	10 950 ...
1.181 - 1.614	125	10800
1.535 - 2.008	128	10300
1.929 - 2.795	128	10300
2.520 - 3.853	129	10400
3.268 - 4.764	129	10400
4.291 - 6.181	129	10400
5.472 - 8.031	129	10400

TwinKom – depths of cut

$a_{p\ max}$	P	M	K	N
SOEX 07T308	0.177	0.138	0.197	0.197
SOEX 090408	0.236	0.157	0.236	0.236
SOEX 120508	0.354	0.354	0.354	0.354

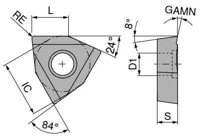
Further cutting data can be found on → **pages 20**

Metric Adaptors can be found in our Online-Shop or in the Metric Catalog 2021

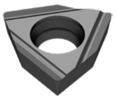
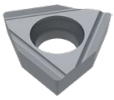
metric

WOHX

Designation	L inch	S inch	D1 inch	IC inch
WOHX 02T0..	0.102	0.047	0.079	0.157



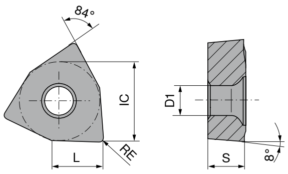
WOHX

ISO	KOMET no.	RE inch	**-G12** BK2710 ○  **F** WOHX **62 600 ...**	**-G12** BK8440 ○  **F** WOHX **62 600 ...**	**-G12** K10 ○  **F** WOHX **62 600 ...**
02T001EL	W00 04120.018440	0.004		**00102**	
02T001EL	W00 04120.012710	0.004	**10102**		
02T001FL	W00 04120.0121	0.004			**20102**
P			●	●	
M			●	●	
K			●	●	
N					●
S					●
H				●	
O					●

→ v_c Page 21

WOGX / WOEX

Designation	L inch	S inch	D1 inch	IC inch
WOEX 0302..	0.126	0.091	0.091	0.197
WOEX 0403..	0.161	0.125	0.100	0.250
WO.X 05T3..	0.209	0.150	0.112	0.315
WO.X 06T3..	0.260	0.150	0.159	0.394
WO.X 0804..	0.311	0.189	0.193	0.472
WOEX 0804..	0.311	0.189	0.195	0.472
WOEX 1005..	0.390	0.209	0.193	0.591
WOEX 1206..	0.457	0.236	0.236	0.693



WOGX / WOEX

ISO	KOMET no.	RE inch	NEW -15 BK8430  WOGX 10 821 ...	NEW -02 BK6440  WOEX 10 821 ...	-11 BK77  WOEX 10 821 ...	-11 BK7710  WOEX 10 821 ...	-01 BK8425  WOEX 10 821 ...
030204	W29 10110.0477	0.016			80311		
030204	W29 10010.048425	0.016					30301
030204	W29 10110.047710	0.016				90311	
040304	W29 18110.047710	0.016				90411	
040304	W29 18010.048425	0.016					30401
040304	W29 18110.0477	0.016			80411		
05T304	W29 24110.0477	0.016			80511		
05T304	W29 24010.048425	0.016					30501
05T304	W29 24110.047710	0.016				90511	
05T304	W29 24020.046440	0.016		25502			
05T304	W29 24150.048430	0.016	00515				
06T304	W29 34110.0477	0.016			80611		
06T304	W29 34010.048425	0.016					30601
06T304	W29 34110.047710	0.016				90611	
06T304	W29 34020.046440	0.016		25602			
06T304	W29 34150.048430	0.016	00615				
080404	W29 42110.0477	0.016			80811		
080404	W29 42010.048425	0.016					30801
080404	W29 42110.047710	0.016				90811	
080404	W29 42020.046440	0.016		25802			
080404	W29 42150.048430	0.016	00815				
100504	W29 50110.0477	0.016			81011		
100504	W29 50010.048425	0.016					31001
100504	W29 50110.047710	0.016				91011	
100504	W29 50020.046440	0.016		26002			
100508	W29 50010.088425	0.031					39001
120608	W29 58020.086440	0.031		21202			

P	○	●			●
M	○	●			●
K	○				●
N				●	○
S	●		●		
H	●		○		○
O			○		

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WOEX

ISO	KOMET no.	RE inch	-01 BK7935 10 821 ...	-01 BK6115 10 821 ...	-01 BK7615 10 821 ...
030204	W29 10010.046115	0.016		**40301**	
030204	W29 10010.047615	0.016			**05301**
030204	W29 10010.047935	0.016	**50301**		
040304	W29 18010.046115	0.016		**40401**	
040304	W29 18010.047615	0.016			**05401**
040304	W29 18010.047935	0.016	**50401**		
05T304	W29 24010.046115	0.016		**40501**	
05T304	W29 24010.047615	0.016			**05501**
05T304	W29 24010.047935	0.016	**50501**		
06T304	W29 34010.046115	0.016		**40601**	
06T304	W29 34010.047615	0.016			**05601**
06T304	W29 34010.047935	0.016	**50601**		
080404	W29 42010.046115	0.016		**40801**	
080404	W29 42010.047615	0.016			**05801**
100504	W29 50010.046115	0.016		**41001**	
100508	W29 50010.087615	0.031			**08001**
120608	W29 58010.086115	0.031		**41201**	
120608	W29 58010.087615	0.031			**08201**

P	●	●	
M	●	●	
K	●	●	●
N	○		
S	●		
H		○	
O			

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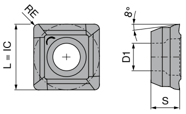
SOEX

Designation	L inch	IC inch	D1 inch	S inch
SOEX 0502..	0.219	0.219	0.091	0.094
SOEX 0603..	0.250	0.250	0.104	0.125
SOEX 07T3..	0.313	0.313	0.112	0.141
SOEX 0904..	0.375	0.375	0.161	0.172
SOEX 1205..	0.500	0.500	0.205	0.203



SOEX

ISO	KOMET no.	RE inch	NEW -01 BK8425 10 822 ...	NEW -01 BK7615 10 822 ...	NEW -01 BK7935 10 822 ...
050204	W83 13010.047615	0.016		**05501**	
050204	W83 13010.047935	0.016			**50501**
050204	W83 13010.048425	0.016	**30501**		
060306	W83 18010.067615	0.024		**05601**	
060306	W83 18010.067935	0.024			**50601**
060306	W83 18010.068425	0.024	**30601**		
07T308	W83 23010.087615	0.031		**05701**	
07T308	W83 23010.087935	0.031			**50701**
07T308	W83 23010.088425	0.031	**30701**		
090408	W83 32010.087615	0.031		**05901**	
090408	W83 32010.087935	0.031			**50901**
090408	W83 32010.088425	0.031	**30901**		
120508	W83 44010.087615	0.031		**06201**	
120508	W83 44010.087935	0.031			**51201**
120508	W83 44010.088425	0.031	**31201**		
P			●		●
M			●		●
K			●	●	●
N			○		○
S			●		●
H			○		
O					○

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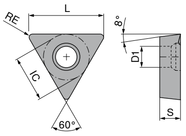
TOGX

Designation	L inch	S inch	D1 inch	IC inch
TOGX 06T1..	0.261	0.071	0.087	0.157
TOGX 0902..	0.359	0.098	0.110	0.220
TOGX 1403..	0.536	0.118	0.150	0.323



TOGX

ISO	KOMET no.	RE inch	NEW **-18** CK32 ○  **F** TOGX **62 607 ...**	**-14** CK3230 ○  **F** TOGX **62 601 ...**	NEW **-14** CK3230 ○  **F** TOGX **62 606 ...**	**-14** BK60 ○  **F** TOGX **62 601 ...**
06T102EN	W57 04140.023210	0.008		**53202**		
06T102EN	W57 04140.0260	0.008				**90206**
06T102EN	W57 04140.023230	0.008			**10201**	
06T102EN	W57 04180.0432	0.016	**20401**			
090204EN	W57 14140.043210	0.016		**54002**		
090204EN	W57 14140.0460	0.016				**70409**
090204EN	W57 14140.043230	0.016			**11401**	
090204EN	W57 14180.0432	0.016	**21401**			
140304EN	W57 26140.043210	0.016		**54602**		
140304EN	W57 26140.0460	0.016				**70414**
140304EN	W57 26140.043230	0.016			**12601**	
140304EN	W57 26180.0432	0.016	**22601**			
P			●	●	●	●
M			●	●	●	●
K						●
N						
S						
H						
O						

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TOGX

ISO	KOMET no.	RE inch	NEW -18 BK8430  F TOGX 62 607 ...	-12 BK7710  F TOGX 62 601 ...	-12 K10  F TOGX 62 601 ...	NEW CBN40  F TOGX 62 601 ...
06T102EN	W57 04180.048430	0.016	**30401**			
06T102FN	W57 04120.027710	0.008		**70201**		
06T102FN	W57 04120.0223	0.008			**50206**	
06T102TN	W30 04990.0240	0.008				**60206**
090204EN	W57 14180.048430	0.016	**31401**			
090204FN	W57 14120.047710	0.016		**70401**		
090204FN	W57 14120.0423	0.016			**50409**	
090204TN	W30 14990.0440	0.016				**60409**
140304EN	W57 26180.048430	0.016	**32601**			
140304FN	W57 26120.0423	0.016			**50414**	
140304TN	W30 26990.0440	0.016				**62600**

P	○			
M	○			
K	○			
N		●	●	
S	●		●	
H	●			●
O			●	

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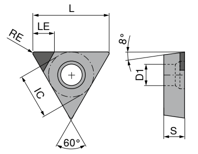
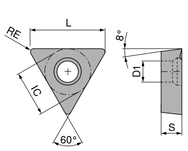
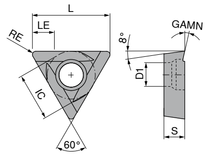
TOEX / TOHX / TOGX

Designation	L inch	S inch	D1 inch	IC inch	LE inch
TO.X 0902..	0.359	0.098	0.110	0.220	-
TOEX 06T1..	0.261	0.071	0.087	0.157	0.071
TOEX 0902..	0.359	0.098	0.110	0.220	0.106
TOEX 1403..	0.536	0.118	0.150	0.323	0.106
TOGX 06T1..	0.261	0.071	0.087	0.157	-
TOHX 06T1..	0.256	0.071	0.087	0.157	-
TOHX 1403..	0.536	0.118	0.150	0.323	-

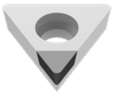






2

TOEX / TOHX / TOGX

ISO	KOMET no.	RE inch						
			NEW	NEW		NEW		NEW
			CTDPU20	-G12 BK8425	-14 BK8430	-G06 BK2710	-G06 BK6110	-G06 BK7615
			○ ○ ○	○ ○ ○	○ ○ ○	○ ○ ○	○ ○ ○	○ ○ ○
								
			F	F	F	F	F	F
			DIAMOND TOEX	TOHX	TOGX	TOHX	TOHX	TOHX
			62 605 ...	**62 603 ...**	**62 601 ...**	**62 602 ...**	**62 602 ...**	**62 602 ...**
06T102EN	W57 04140.028430	0.008			**30201**			
06T102FN	W30 04990.025510	0.008	**00201**					
06T103EL	W30 04120.038425	0.012		**30200**				
06T103EL	W30 04060.036110	0.012					**40606**	
06T103EL	W30 04060.032710	0.012				**10606**		
090204EL	W30 14060.042710	0.016				**10409**		
090204EL	W30 14060.046110	0.016					**40409**	
090204EL	W30 14120.048425	0.016		**31800**				
090204EN	W57 14140.048430	0.016			**30401**			
090204FN	W30 14990.045510	0.016	**01401**					
140304EL	W30 26120.048425	0.016		**32600**				
140304EL	W30 26060.047615	0.016						**82600**
140304EL	W30 26060.046110	0.016					**40414**	
140304EL	W30 26060.042710	0.016				**12600**		
140304FN	W30 26990.045510	0.016	**02601**					
P				●	○	●	●	
M				●	○	●	●	
K				●	○	●	●	●
N			●					
S				●	●			
H				○	●		●	
O			●					

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Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength lbf/in^2* / HB / HRC	Material number	Material designation	Material number	Material designation
P	**Unalloyed steel**	**P.1.1**	< 0.15 % C	Annealed	60900 lbf/in^2 / 125 HB	1.0401	1015	1.0301	1010
		P.1.2	< 0.45 % C	Annealed	92800 lbf/in^2 / 190 HB	1.1191	1045	1.0737	12L14
		P.1.3		Tempered	121800 lbf/in^2 / 250 HB	1.1191	1045	1.0503	1043
		P.1.4	< 0.75 % C	Annealed	132000 lbf/in^2 / 270 HB	1.1223	1060	1.0535	1055
		P.1.5		Tempered	146500 lbf/in^2 / 300 HB	1.1223	1060	1.1274	1095
	Low-alloy steel	**P.2.1**		Annealed	88500 lbf/in^2 / 180 HB	1.7131	5115	1.6523	8620
		P.2.2		Tempered	134900 lbf/in^2 / 275 HB	1.7131	5115	1.6582	4340
		P.2.3		Tempered	146500 lbf/in^2 / 300 HB	1.7225	4142	1.7131	5115
		P.2.4		Tempered	174000 lbf/in^2 / 375 HB	1.7225	4142	17223	4140
	High-alloy steel and high-alloy tool steel	**P.3.1**		Annealed	98600 lbf/in^2 / 200 HB	1.4021	420	1.2379	D2
		P.3.2		Hardened and tempered	159500 lbf/in^2 / 300 HB	1.2343	H11	1.3343	M2
		P.3.3		Hardened and tempered	188500 lbf/in^2 / 400 HB	1.2343	H11	1.2363	A2
	Stainless steel	**P.4.1**	Ferritic / martensitic	Annealed	98600 lbf/in^2 / 200 HB	1.4016	430	1.4125	440C
		P.4.2	Martensitic	Tempered	117500 lbf/in^2 / 250 HB	1.4112	S44003	1.4021	420
M	**Stainless steel**	**M.1.1**	Austenitic / austenitic-ferritic	Quenched	88500 lbf/in^2 / 200 HB	1.4301	304	1.4401	316
		M.2.1	Austenitic	Tempered	300 HB	1.4841	314	1.4568	17-7 PH
		M.3.1	Austenitic / ferritic (Duplex)		113100 lbf/in^2 / 230 HB	1.4462	S32205	1.4410	S32750
K	**Grey cast iron**	**K.1.1**	Pearlitic / ferritic		88500 lbf/in^2 / 180 HB	0.6010	A48-20B	0.6025	A48-40 B
		K.1.2	Pearlitic (martensitic)		127600 lbf/in^2 / 260 HB	0.6030	A48-45B	0.6040	A48-60 B
	Spherulitic graphite cast iron	**K.2.1**	Ferritic		78300 lbf/in^2 / 160 HB	0.7040	60-40-18	0.7050	65-45-12
		K.2.2	Pearlitic		122600 lbf/in^2 / 250 HB	0.7070	100-70-03	0.7660	A439 Type D2
	Malleable iron	**K.3.1**	Ferritic		63800 lbf/in^2 / 130 HB	0.8035	GTW-35-04		
		K.3.2	Pearlitic		113100 lbf/in^2 / 230 HB	0.8170	70003		
N	**Aluminium wrought alloy**	**N.1.1**	Non-hardenable		60 HB	3.0255	A91060	3.0255	A91060
		N.1.2	Hardenable		49300 lbf/in^2 / 100 HB	3.1355	2024	3.1355	2024
	Cast aluminium alloy	**N.2.1**	≤ 12 % Si, non-hardenable		36300 lbf/in^2 / 75 HB	3.2581	A04130 / A413-0	3.2581	A04130 / A413-0
		N.2.2	≤ 12 % Si, hardenable		43500 lbf/in^2 / 90 HB	3.2134	G-AlSi5Cu1Mg		
		N.2.3	> 12 % Si, non-hardenable		63800 lbf/in^2 / 130 HB		G-AlSi17Cu4Mg		
	Copper and copper alloys (bronze/brass)	**N.3.1**	Free-machining alloys, PB > 1 %		54400 lbf/in^2 / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0380	C37700
		N.3.2	CuZn, CuSnZn		43500 lbf/in^2 / 90 HB	2.0331	CuZn15	2.0331	C34000
		N.3.3	CuSn, lead-free copper and electrolytic copper		49300 lbf/in^2 / 100 HB	2.0060	E-Cu57		
	Magnesium alloys	**N.4.1**	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn		
S	**Heat-resistant alloys**	**S.1.1**	Fe - basis	Annealed	98600 lbf/in^2 / 200 HB	1.4864	X12NiCrSi 36-16	1.4864	330
		S.1.2			137800 lbf/in^2 / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4980	S66286
		S.2.1	Ni or Co basis	Annealed	121800 lbf/in^2 / 250 HB	2.4856	Inconel 625	2.4812	Hastelloy C
		S.2.2			171100 lbf/in^2 / 350 HB	2.4952	Nimonic 80A	2.4668	Inconel 718
		S.2.3		Cast	156600 lbf/in^2 / 320 HB	2.4674	Nimocast PK24	2.4670	Nimocast 713
	Titanium alloys	**S.3.1**	Pure titanium		5800 lbf/in^2	3.7025	Ti99,8		
		S.3.2	Alpha + beta alloys		152300 lbf/in^2	3.7165	TiAl6V4		
		S.3.3	Beta alloys		203100 lbf/in^2 / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr		
H	**Hardened steel**	**H.1.1**		Hardened and tempered	46-55 HRC				
		H.1.2		Hardened and tempered	56-60 HRC				
		H.1.3		Hardened and tempered	61-65 HRC				
		H.1.4		Hardened and tempered	66-70 HRC				
	Chilled iron	**H.2.1**		Cast	400 HB				
	Hardened cast iron	**H.3.1**		Hardened and tempered	55 HRC				
O	**Non-metal materials**	**O.1.1**	Plastics, duroplastic		≤ 21800 lbf/in^2				
		O.1.2	Plastics, thermoplastic		≤ 14500 lbf/in^2				
		O.2.1	Aramid fibre-reinforced		≤ 145000 lbf/in^2				
		O.2.2	Glass/carbon-fibre reinforced		≤ 145000 lbf/in^2				
		O.3.1	Graphite						

*** Tensile Strength at Rupture (Rm)**

Cutting data standard values for indexable inserts – MicroKom tools

	Indexable inserts for ...											
	62 820 ... / 62 840 ... / 62 800 ... / 62 815 ... / 62 810 ... / 62 858 ...											
Index	BK8440	BK8425	BK2710	K10	BK60	BK6110	BK7615	BK7710	CBN40	PKD5510 CTDPU20	CK3230	CK32
	v_c ft/min											
P.1.1	**560**	**660**	**750**		**890**	**980**					**1150**	**1150**
P.1.2	**560**	**660**	**750**		**890**	**980**					**1150**	**1150**
P.1.3	**560**	**660**	**750**		**890**	**980**					**1150**	**1150**
P.1.4	**490**	**590**	**690**		**820**	**980**					**1050**	**1050**
P.1.5	**490**	**590**	**690**		**820**	**980**					**1050**	**1050**
P.2.1	**460**	**520**	**590**		**690**	**890**					**920**	**920**
P.2.2	**460**	**520**	**590**		**690**	**890**					**920**	**920**
P.2.3	**460**	**520**	**590**		**690**	**890**					**920**	**920**
P.2.4	**460**	**520**	**590**		**690**	**890**					**920**	**920**
P.3.1	**390**	**460**	**520**		**620**	**820**					**820**	**820**
P.3.2	**390**	**460**	**520**		**620**	**820**					**820**	**820**
P.3.3	**390**	**460**	**520**		**620**	**820**					**820**	**820**
P.4.1	**330**	**390**	**460**		**520**	**720**					**690**	**690**
P.4.2	**330**	**390**	**460**		**520**	**720**					**690**	**690**
M.1.1	**460**	**520**	**590**		**920**	**720**					**920**	**920**
M.2.1	**390**	**460**	**520**		**820**	**720**					**820**	**820**
M.3.1	**300**	**330**	**390**		**590**	**660**					**590**	**590**
K.1.1	**490**	**590**	**690**		**690**	**950**	**950**					
K.1.2	**460**	**520**	**590**		**590**	**950**	**950**					
K.2.1	**390**	**460**	**520**		**520**	**890**	**890**					
K.2.2	**390**	**460**	**520**		**520**	**820**	**820**					
K.3.1	**330**	**390**	**460**		**460**	**720**	**720**					
K.3.2	**330**	**390**	**460**		**460**	**720**	**720**					
N.1.1				**820**				**1300**		**1640**		
N.1.2				**820**				**1300**		**1640**		
N.2.1				**820**				**1300**		**1640**		
N.2.2				**820**				**1300**		**1640**		
N.2.3				**820**				**1100**		**1640**		
N.3.1				**750**				**1100**		**1480**		
N.3.2				**750**				**1100**		**1480**		
N.3.3				**750**				**1100**		**1480**		
N.4.1				**750**				**1100**		**1480**		
S.1.1		**200**		**70**								
S.1.2		**160**		**70**								
S.2.1		**200**		**70**								
S.2.2		**160**		**70**								
S.2.3		**100**		**70**								
S.3.1		**330**		**200**								
S.3.2		**260**		**100**								
S.3.3		**160**		**100**								
H.1.1	**300**	330				**330**			**520**			
H.1.2	**230**	260				**260**			**610**			
H.1.3	**130**	160				**160**			**710**			
H.1.4									**790**			
H.2.1	**300**	330				**330**						
H.3.1	**230**	260				**260**						
O.1.1				**330**						**1640**		
O.1.2				**330**						**1640**		
O.2.1										**1640**		
O.2.2				**330**						**980**		
O.3.1				**330**						**980**		

The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The stated values are possible cutting data which have to be increased or reduced according to the application conditions! The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions. It is essential to observe the vc values of the type used, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length. You can find these on pages **24 + 25**.

Cutting data standard values for precision adjustment heads

Fine machining with depth of cut a_p = 0.004 - 0.008 inch

● 1st choice
○ suitable

Index	hi.flex								
	67 800 ...								
	Ø .236"-.311"	Ø .315"-.469"	Ø .472"-.984"	Ø .984"-1.732"	Ø 1.732"-3.701"	Ø 3.701"-2.559"	Emulsion	Compressed air	MMS
	f in inch/rev.								
P.1.1	.002	.003	.004	.003	.004	.004	●	○	
P.1.2	.002	.003	.005	.004	.006	.006	●	○	
P.1.3	.002	.002	.005	.003	.005	.005	●	○	
P.1.4	.002	.002	.004	.003	.004	.004	●	○	
P.1.5	.002	.003	.005	.004	.006	.006	●	○	
P.2.1	.002	.002	.005	.003	.005	.005	●	○	
P.2.2	.002	.002	.004	.003	.004	.004	●	○	
P.2.3	.001	.002	.004	.003	.004	.004	●	○	
P.2.4	.001	.002	.002	.002	.002	.002	●	○	
P.3.1	.001	.002	.004	.002	.004	.004	●	○	
P.3.2	.001	.002	.003	.002	.003	.003	●	○	
P.3.3	.001	.002	.003	.002	.003	.003	●	○	
P.4.1	.001	.002	.004	.002	.004	.004	●	○	
P.4.2	.001	.002	.003	.002	.003	.003	●	○	
M.1.1	.000	.002	.004	.002	.004	.004	●	○	
M.2.1	.000	.002	.003	.002	.004	.004	●	○	
M.3.1	.000	.002	.003	.002	.003	.003	●	○	
K.1.1	.002	.004	.006	.006	.008	.008	○	●	
K.1.2	.002	.004	.006	.006	.008	.008	○	●	
K.2.1	.002	.003	.006	.004	.006	.006	○	●	
K.2.2	.001	.003	.005	.003	.005	.005	○	●	
K.3.1	.002	.003	.006	.004	.006	.006	○	●	
K.3.2	.001	.003	.005	.003	.005	.005	○	●	
N.1.1	.001	.002	.004	.003	.005	.005	●	○	
N.1.2	.001	.002	.004	.003	.005	.005	●	○	
N.2.1	.002	.003	.005	.004	.006	.006	●	○	
N.2.2	.002	.003	.005	.004	.006	.006	●	○	
N.2.3	.002	.003	.005	.004	.006	.006	●	○	
N.3.1	.001	.002	.003	.004	.006	.006	●	○	
N.3.2	.001	.002	.003	.004	.006	.006	●	○	
N.3.3	.002	.003	.006	.004	.006	.006	●	○	
N.4.1	.001	.002	.003	.004	.006	.006	●	○	
S.1.1	.000	.002	.003	.002	.003	.003	●	○	
S.1.2	.000	.001	.002	.002	.002	.002	●	○	
S.2.1	.000	.002	.003	.002	.003	.003	●	○	
S.2.2	.000	.001	.002	.002	.002	.002	●	○	
S.2.3	.002	.003	.002	.003	.003	.003	●	○	
S.3.1	.000	.002	.003	.002	.003	.003	●	○	
S.3.2	.000	.002	.003	.002	.003	.003	●	○	
S.3.3	.000	.001	.002	.001	.002	.002	●	○	
H.1.1	.000	.002	.003	.003	.003	.003		●	
H.1.2	.000	.002	.003	.002	.003	.003		●	
H.1.3	.000	.001	.002	.001	.002	.002		●	
H.1.4									
H.2.1	.000	.002	.003	.003	.003	.003		●	
H.3.1	.000	.002	.003	.002	.003	.003		●	
O.1.1	.000	.002	.002	.002	.002	.002	○	●	
O.1.2	.000	.002	.002	.002	.002	.002	○	●	
O.2.1									
O.2.2	.000	.001	.001	.002	.002	.002	○	●	
O.3.1	.000	.001	.001	.002	.002	.002	○	●	

The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The stated values are possible cutting data which have to be increased or reduced according to the application conditions! The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions. It is essential to observe the vc values of the type used **(page 65 + 66)**, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length. You can find these on pages **24 + 25**.

Cutting data values for rough boring heads

Cutting depth a_p = 0.138" - 0.354"

	TwinKom G04 with WOEX / WOGX												● 1st choice ○ suitable		
	67 881 ...														
Index	BK8425	BK6440	BK6115	BK8430	BK77	Ø 1.181“– 1.614“	Ø 1.535“– 2.008“	Ø 1.929“– 2.795“	Ø 2.520“– 3.853“	Ø 3.268“– 4.764“	Ø 4.291“– 6.181“	Ø 5.472“– 8.031“	Emulsion	Compressed air	MMS
						f in inch/rev.									
P.1.1	660	790	980	660		.006	.007	.008	.009	.010	.011	.011	●	○	○
P.1.2	660	790	980	660		.006	.007	.008	.008	.009	.011	.011	●	○	○
P.1.3	660	720	980	660		.006	.007	.008	.008	.009	.011	.011	●	○	○
P.1.4	590	720	980	590		.006	.007	.008	.008	.009	.011	.011	●	○	○
P.1.5	590	720	980	590		.006	.007	.008	.008	.009	.011	.011	●	○	○
P.2.1	520	660	890	520		.006	.007	.007	.008	.009	.010	.010	●	○	○
P.2.2	520	660	890	520		.006	.007	.007	.008	.009	.010	.010	●	○	○
P.2.3	520	660	890	520		.006	.007	.007	.008	.009	.010	.010	●	○	○
P.2.4	520	660	890	520		.006	.007	.007	.008	.009	.010	.010	●	○	○
P.3.1	460	590	820	460		.006	.006	.007	.007	.009	.010	.010	●	○	○
P.3.2	460	520	820	460		.006	.006	.007	.007	.009	.010	.010	●	○	○
P.3.3	460	520	820	460		.006	.006	.007	.007	.009	.010	.010	●	○	○
P.4.1	390	460	720	390		.005	.006	.006	.006	.007	.008	.008	●	○	○
P.4.2	390	460	720	390		.005	.006	.006	.006	.007	.008	.008	●	○	○
M.1.1	520	660	720	520		.006	.006	.007	.007	.008	.009	.009	●	○	○
M.2.1	460	590	720	460		.005	.006	.006	.006	.007	.008	.008	●	○	○
M.3.1	330	520	660	330		.005	.006	.006	.006	.007	.008	.008	●	○	○
K.1.1	590		950	590		.009	.009	.010	.010	.012	.012	.012	○	●	○
K.1.2	520		950	520		.009	.009	.010	.010	.012	.012	.012	○	●	○
K.2.1	460		890	460		.009	.009	.010	.010	.012	.012	.012	○	●	○
K.2.2	460		820	460		.009	.009	.010	.010	.012	.012	.012	○	●	○
K.3.1	390		720	390		.008	.009	.009	.009	.010	.010	.010	○	●	○
K.3.2	390		720	390		.008	.009	.009	.009	.010	.010	.010	○	●	○
N.1.1					820	.006	.010	.010	.012	.014	.014	.014	●	○	○
N.1.2					820	.006	.010	.010	.012	.014	.014	.014	●	○	○
N.2.1					820	.006	.010	.010	.012	.014	.014	.014	●	○	○
N.2.2					820	.006	.010	.010	.012	.014	.014	.014	●	○	○
N.2.3					660	.006	.009	.009	.011	.013	.013	.013	●	○	○
N.3.1					820	.006	.010	.010	.012	.014	.014	.014	●	○	○
N.3.2					820	.006	.011	.011	.013	.014	.014	.014	●	○	○
N.3.3					820	.006	.010	.010	.012	.014	.014	.014	●	○	○
N.4.1					820	.006	.010	.010	.012	.014	.014	.014	●	○	○
S.1.1	200			200		.002	.003	.003	.003	.004	.004	.004	●	○	○
S.1.2	160			160		.002	.002	.002	.002	.003	.003	.003	●	○	○
S.2.1	200			200		.002	.003	.003	.003	.004	.004	.004	●	○	○
S.2.2	160			160		.002	.002	.002	.002	.003	.003	.003	●	○	○
S.2.3	100			100		.002	.002	.002	.002	.003	.003	.003	●	○	○
S.3.1	330			330		.002	.003	.003	.003	.004	.004	.004	●	○	○
S.3.2	260			260		.002	.003	.003	.003	.004	.004	.004	●	○	○
S.3.3	160			160		.002	.002	.002	.002	.003	.003	.003	●	○	○
H.1.1	330		330	330		.003	.003	.003	.003	.003	.003	.003		●	○
H.1.2	260		260	260		.002	.002	.002	.002	.002	.002	.002		●	○
H.1.3	160		160	160		.002	.002	.002	.002	.002	.002	.002		●	○
H.1.4															○
H.2.1	330		330	330		.002	.002	.002	.002	.002	.002	.002		●	○
H.3.1	260		260	260		.002	.002	.002	.002	.002	.002	.002		●	○
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The stated values are possible cutting data which have to be increased or reduced according to the application conditions! The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions. It is essential to observe the vc values of the type used, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length. You can find these on pages **24 + 25**.

Cutting data values for rough boring heads

Cutting depth a_p = 0.138" - 0.354"

● 1st choice
○ suitable

	TwinKom G04 with SOEX											
	67 881 ...											
Index	BK8425	BK7935	BK7615	Ø 1.181“– 1.614“	Ø 1.535“– 2.008“	Ø 1.929“– 2.795“	Ø 2.520“– 3.853“	Ø 3.268“– 4.764“	Ø 4.291“– 6.181“	Ø 5.472“– 8.031“	Emulsion	Compressed air	MMS
				f in inch/rev.									
P.1.1	**660**			.007	.009	.012	.014	.017	.019	.019	●	○	○
P.1.2	**660**			.007	.009	.012	.014	.017	.019	.019	●	○	○
P.1.3	**660**			.007	.009	.012	.014	.017	.019	.019	●	○	○
P.1.4	**590**			.007	.009	.012	.014	.017	.019	.019	●	○	○
P.1.5	**590**			.007	.009	.012	.014	.017	.019	.019	●	○	○
P.2.1	**520**			.007	.009	.012	.014	.017	.019	.019	●	○	○
P.2.2	**520**			.007	.009	.012	.014	.017	.019	.019	●	○	○
P.2.3	**520**			.007	.009	.012	.014	.017	.019	.019	●	○	○
P.2.4	**520**			.007	.009	.012	.014	.017	.019	.019	●	○	○
P.3.1	**460**			.006	.007	.009	.012	.012	.014	.014	●	○	○
P.3.2	**460**			.006	.007	.009	.012	.012	.014	.014	●	○	○
P.3.3	**460**			.006	.007	.009	.012	.012	.014	.014	●	○	○
P.4.1	**390**			.006	.007	.009	.012	.012	.014	.014	●	○	○
P.4.2	**390**			.006	.007	.009	.012	.012	.014	.014	●	○	○
M.1.1		**390**		.006	.007	.009	.012	.012	.014	.014	●	○	○
M.2.1		**390**		.006	.007	.009	.012	.012	.014	.014	●	○	○
M.3.1		**300**		.006	.007	.009	.012	.012	.014	.014	●	○	○
K.1.1			**790**	.009	.012	.014	.017	.019	.024	.024	○	●	○
K.1.2			**590**	.009	.012	.014	.017	.019	.024	.024	○	●	○
K.2.1			**520**	.009	.012	.014	.017	.019	.024	.024	○	●	○
K.2.2			**330**	.009	.012	.014	.017	.019	.024	.024	○	●	○
K.3.1			**390**	.009	.012	.014	.017	.019	.024	.024	○	●	○
K.3.2			**330**	.009	.012	.014	.017	.019	.024	.024	○	●	○
N.1.1	**820**			.009	.012	.014	.017	.019	.024	.024	●	○	○
N.1.2	**820**			.009	.012	.014	.017	.019	.024	.024	●	○	○
N.2.1	**820**			.009	.012	.014	.017	.019	.024	.024	●	○	○
N.2.2	**820**			.009	.012	.014	.017	.019	.024	.024	●	○	○
N.2.3	**660**			.009	.012	.014	.017	.019	.024	.024	●	○	○
N.3.1	**820**			.009	.012	.014	.017	.019	.024	.024	●	○	○
N.3.2	**820**			.009	.012	.014	.017	.019	.024	.024	●	○	○
N.3.3	**820**			.009	.012	.014	.017	.019	.024	.024	●	○	○
N.4.1	**820**			.009	.012	.014	.017	.019	.024	.024	●	○	○
S.1.1													
S.1.2													
S.2.1													
S.2.2													
S.2.3													
S.3.1													
S.3.2													
S.3.3													
H.1.1													
H.1.2													
H.1.3													
H.1.4													
H.2.1													
H.3.1													
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

The cutting data is significantly dependent on the external conditions, e.g. stability of the tool and workpiece clamping, material and machine type! The stated values are possible cutting data which have to be increased or reduced according to the application conditions! The specified values represent guideline cutting data that can be adjusted by approx. **± 20 %** according to the usage conditions. It is essential to observe the vc values of the type used, the maximum speeds of the system and the reduction of these maximum speeds depending on the type used overhang length. You can find these on pages **24 + 25**.

Maximum Speeds and Scale Accuracy

Maximum speeds for precision adjustment heads and Micro-Boring Heads

System	Boring range	Maximum speed n_{max} in RPM
BlueFlex 2 (62 820 ..., 62 840 ...)	Ø 0.221“-14.370“	20,000
hi.flex (67 800 ...)	Ø 0.221“-14.370“	17,500

Maximum speeds for two-edged systems

System	Boring range	Maximum speed n_{max} in RPM
TwinKom (62 881 ...)	Ø 1.181“-1.575“	10,000
	Ø 1.575“-2.008“	8,000
	Ø 2.008“-2.677“	6,500
	Ø 2.677“-3.425“	5,000
	Ø 3.425“-4.567“	4,000
	Ø 4.567“-6.024“	3,000
	Ø 6.024“-8.031“	2,200

The specified maximum speeds refer to an overhang length of up to 4xD.

For longer overhangs the maximum speeds should be reduced as follows:

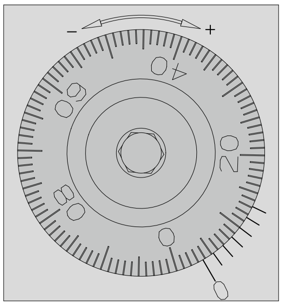
5xD = 80 % n_{max}
6xD = 60 % n_{max}

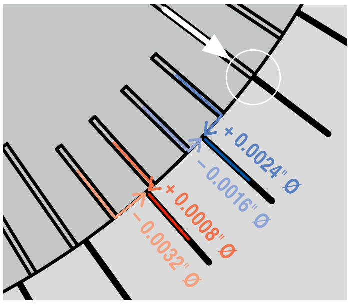
> 6xD n_{max} identify with caution

Scale accuracy

Large scale with 0.0008" adjustment

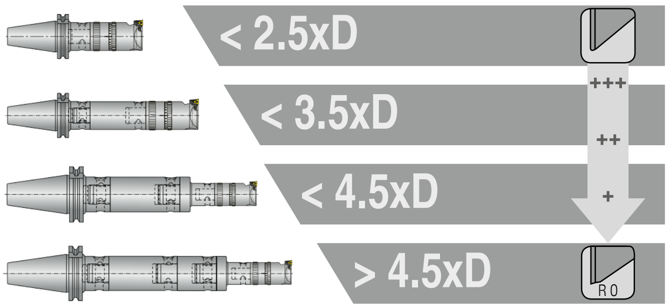
How it works:



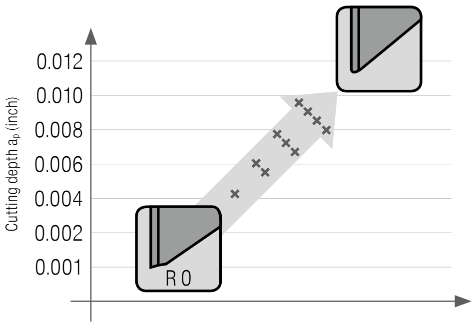


Using the vernier the diameter can be set to 0.0008". The starting point is the point at which the graduation on the vernier and a graduation on the scale ring overlap (white arrow).
If the **first vernier graduation** (blue) is brought to the left of it with the left section of the scale ring to congruence, this corresponds to a diameter change of **– 0.0016"**.
If this vernier graduation is brought to congruence with the right section of the scale ring, this corresponds to a diameter change of **+ 0.0024"**.
If the **second vernier graduation** (red) is brought to the left of it with the left section of the scale ring to congruence, this corresponds to a diameter change of **– 0.0032"**.
If this vernier graduation is brought to congruence with the right section of the scale ring, this corresponds to a diameter change of **+ 0.0008"**.

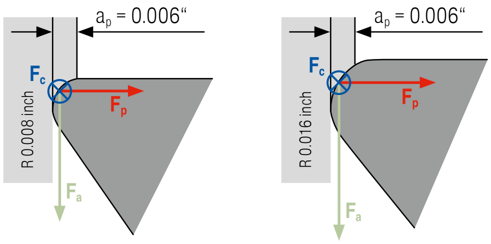
Selection of the cutting radius depending on the overhang length



Selection of the cutting edge radius in dependency of the cutting depth a_p



Influence of the cutting forces of the cutting edge radius on internal machining



Resulting force

$$F_{res} = \sqrt{F_a^2 + F_p^2} = \sqrt{F_c^2 + F_f^2 + F_p^2}$$

Tangential cutting force (Fc)

- pushes the tool down from the vertical central axis
- is influenced by the cutting depth and the chip thickness
- reduces the clearance angle

Passive cutting force (Fp)

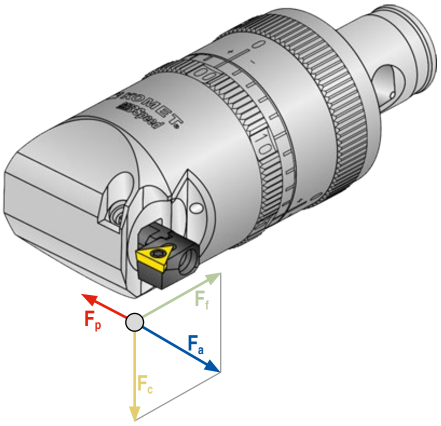
- pushes the tool away from the horizontal central axis
- increases the risk of vibrations and causes dimensional inaccuracies

Feed force (Ff)

- acts in the machining direction of the tool

Active cutting force (Fa)

- determined by F_c and F_f



Selection of the rake angle

Recommendations for the use of inserts with ground Chip breakers

	rounded E	Sharp F	chamfered T
0°	P	P	P
	M	M	M
	K	K	**K**
	N	**N**	N
	S	S	S
	H	H	**H**
≤ 6°	**P**	P	P
	M	M	M
	K	K	K
	N	N	N
	S	S	S
	H	H	H
≤ 12°	**P**	P	P
	M	M	M
	K	K	K
	N	**N**	N
	S	**S**	S
	H	H	H
≤ 20°	P	P	P
	M	M	M
	K	K	K
	N	**N**	N
	S	**S**	S
	H	H	H

Chip groove description → **page 29**

Types of wear

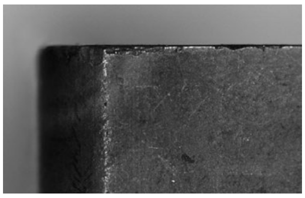
Wear on clearance face

Abrasion on the flank: normal wear after a certain period of operation

Cause
- ▲ Cutting speed too high
- ▲ Carbide grade does not have enough wear resistance
- ▲ Feed not adapted to application

Remedy
- ▲ Reduce cutting speed
- ▲ Select a carbide grade with high wear resistance
- ▲ Bring feed into the right relationship with cutting speed and cutting depth

Edge chipping



Increased mechanical stress on the cutting edge may result in carbide particles breaking off.

Cause
- ▲ Grade with too high a wear resistance
- ▲ Vibrations on tool or workpiece
- ▲ Feed rate or cutting depth is too high
- ▲ Built-up edge
- ▲ Interrupted cut
- ▲ Chip stroke

Remedy
- ▲ Use tougher grade
- ▲ Improve stability (tool, workpiece)
- ▲ Avoid built-up edges

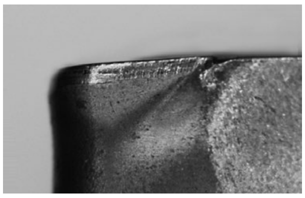
Cratering

The outgoing hot chip is causing cratering of the cutting insert on the clamping surface.

Cause
- ▲ Cutting speed, feed rate or both are too high
- ▲ Rake angle too small
- ▲ Grade does not have enough wear resistance
- ▲ Incorrectly supplied coolant

Remedy
- ▲ Reduce cutting speed and/or feed rate
- ▲ Choose carbide grades with greater wear-resistance
- ▲ Increase quantity and/or pressure of coolant, check supply
- ▲ Use a more crater-resistant grade

Plastic deformation

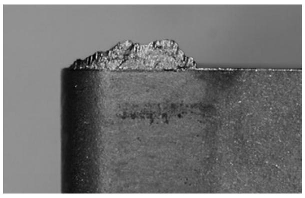


High machining temperature with simultaneous mechanical stress can lead to plastic deformation.

Cause
- ▲ Working temperature too high, softening of the base material
- ▲ Damage to the coating
- ▲ Grade does not have enough wear resistance
- ▲ Incorrectly supplied coolant

Remedy
- ▲ Reduce cutting speed
- ▲ Choose carbide grades with greater wear-resistance and thermal stability
- ▲ Make provisions for cooling

Built-up edge

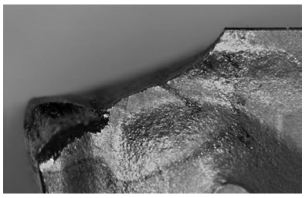


Material builds up on the cutting edge if the chip does not flow correctly due to the cutting temperature being too low.

Cause
- ▲ Cutting speed to low
- ▲ Rake angle too small
- ▲ Incorrect cutting material
- ▲ Missing coolant/lubrication

Remedy
- ▲ Increase cutting speed
- ▲ Increase rake angle
- ▲ Use coating
- ▲ Increase oil content of emulsion

Insert breakage



If a cutting insert is overloaded, insert breakage may occur.

Cause
- ▲ Cutting material overloaded (extreme values)
- ▲ Lack of stability
- ▲ Wedge angle too small
- ▲ Interference contours were not taken into account
- ▲ Interrupted cut

Remedy
- ▲ Use a tougher cutting material
- ▲ Use chamfer for edge protection
- ▲ Increase rounding of cutting edge
- ▲ Use more stable geometry
- ▲ Check cutting data
- ▲ Check interference contours

Grade description

BK60	▲ Carbide, TiC-TiCN-TiN-coated ▲ ISO | P25 | **M10** ▲ Multi-layer coating for long service life even in the upper cutting speed range
BK77	▲ Carbide, TiN-coated: ▲ wear-resistant PVD-coated grade ▲ for cutting aluminum alloys and plastics at medium cutting speeds ▲ sufficient properties of toughness and a high level of resistance against the formation of build-up on the cutting edges
BK2710	▲ Carbide, TiAlN-coated ▲ ISO | P10 | M10 | **K10** ▲ Extremely wear-resistant carbide grade for machining stainless steels, structural steels and tool steels as well as cast iron materials
BK6110	▲ Carbide, TiCN-TiN-Al$_2$O$_3$-coated ▲ ISO | P10 | **K10** ▲ Wear-resistant carbide for machining cast iron and steel materials
BK6115	▲ Carbide, TiCN-TiN-Al$_2$O$_3$-coated ▲ ISO | **P20** | **K20** | H20 ▲ High-quality, surface-treated coating for machining cast iron materials in normal to stable conditions and at high cutting speeds
BK6440	▲ Carbide, CVD-TiCn-Al2O3-TiN coated ▲ ISO | **M25** | **K35** ▲ Extremely tough standard grain grade; good wear resistance in steel and stainless steel materials, even in unfavourable cutting conditions / interrupted cut
BK7615	▲ Carbide, TiCN-Al$_2$O$_3$-coated ▲ ISO | **K15** ▲ Highly productive grade with extreme edge stability for wet and dry machining of all cast iron materials
BK7935	▲ PVD-AlTiN: ▲ coating with high aluminum content on tough substrate for continous drilling of rust- and acid-resistant steels, and special alloys ▲ Use as continuous drilling inner indexable insert and for difficult conditions recommended
BK7710	▲ Carbide, TiB$_2$-coated ▲ ISO | **N10** | S10 | O10 ▲ The wear-resistant grade with optimum cutting characteristics to prevent built-up edge formation for machining aluminium and titanium alloys.
BK8425	▲ Carbide, TiAlN/TiN-coated ▲ ISO | **P25** | **M25** | **K25** ▲ Universal grade with greater wear resistance thanks to innovative PVD multi-layer coating
BK8430	▲ Carbide, TiAlN/TiN-coated ▲ ISO | **P25** | **M25** ▲ Fine-grain grade with high wear resistance ▲ Extreme edge stability and maximum wear resistance in the middle and top speed range
BK8440	▲ Carbide, TiCN-TiN-coated ▲ ISO | **P35** | M10 ▲ Very tough carbide grade for medium cutting speeds and interrupted cut
CBN40	▲ Cubic boron nitride, uncoated ▲ ISO | **H05** ▲ Uncoated cutting material made of cubic boron nitride for machining hardened steels over 45 HRC, heat-resistant nickel-based or cobalt-based alloys
CK32	▲ Cermet, uncoated ▲ ISO | **P10** | **M15** | K05 | N15 ▲ For fine and finish turning ▲ Less wear and greater cutting speed result in longer tool life and high surface quality ▲ Cutting material for high productivity in the top cutting speed range
CK3230	▲ Cermet, uncoated ▲ ISO | **P20** | **M20** | K10 | N20 ▲ Extremely tough behaviour with good wear resistance suitable for use also in interrupted cut
K10	▲ Carbide, uncoated ▲ ISO | **K10** ▲ Uncoated carbide grade for machining grey cast iron or non-ferrous metals, depending on the cutting edge geometry
PKD5510 CTDPU20	▲ Polycrystalline diamond cutting material with mixed grain, uncoated ▲ ISO | **N15** ▲ Outstanding wear resistance, even where Si content > 12% and high proportion of abrasive reinforcements ▲ Used in plastics and fibre composites (GFK, CFK)

Chip breakers

-01	▲ Rake angle 12° ▲ All-round topography chamfered, rounded ▲ Very smooth-cutting thanks to positive cutting edge geometry ▲ Also suitable for less-powerful machines and unstable workpieces ▲ Easily controllable chip formation also in less solid materials
-02	▲ Rake angle 0° ▲ Roughing topography, extremely stable (significant wedge angle) ▲ Excellent chip formation for chips that are difficult to control ▲ For small cutting depths < 1.5 mm only suitable under certain circumstances
-11	▲ Highly positive, minimally rounded chip breaker ▲ For soft cutting use ▲ Main application in aluminum
-12	▲ Rake angle 30° ▲ Peripheral ground indexable insert with pressed chip breaker ▲ Highly positive, sharp and all-round cutting edge, therefore extremely smooth-cutting ▲ Peripheral ground flanks guarantee controlled chip formation and best surface quality at low cutting forces
-14	▲ Rake angle 14° ▲ Peripheral ground, sintered topography ▲ Controlled chip formation in fine and extremely fine machining
-15	▲ Rake angle 15° ▲ Semi-finishing chip breaker; peripheral ground, sintered ▲ Controlled chip formation in fine and extremely fine machining
-18	▲ Rake angle 14° ▲ Peripheral ground and sintered topography ▲ Controlled chip formation in fine and extremely fine machining ▲ Positive wiper geometry for maximum demands on surface quality
-G06	▲ Rake angle 6° ▲ For P / M / K materials ▲ High stability due to significant wedge angle
-G12	▲ Rake angle 12° ▲ For P / N / S materials ▲ Extremely smooth-cutting thanks to positive cutting edge geometry ▲ Extremely suitable for less-powerful machines and unstable workpieces ▲ Easily controllable chip formation also in less solid materials

Table of contents

KOMET \ Performance

Premium quality tools for high performance.

The premium quality tools from the **KOMET Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

Symbol explanation

Shank

DIN 6535 HA

DIN 1835 A

Coolant supply version

central internal coolant

lateral internal coolant

ZEFP = Number of flutes

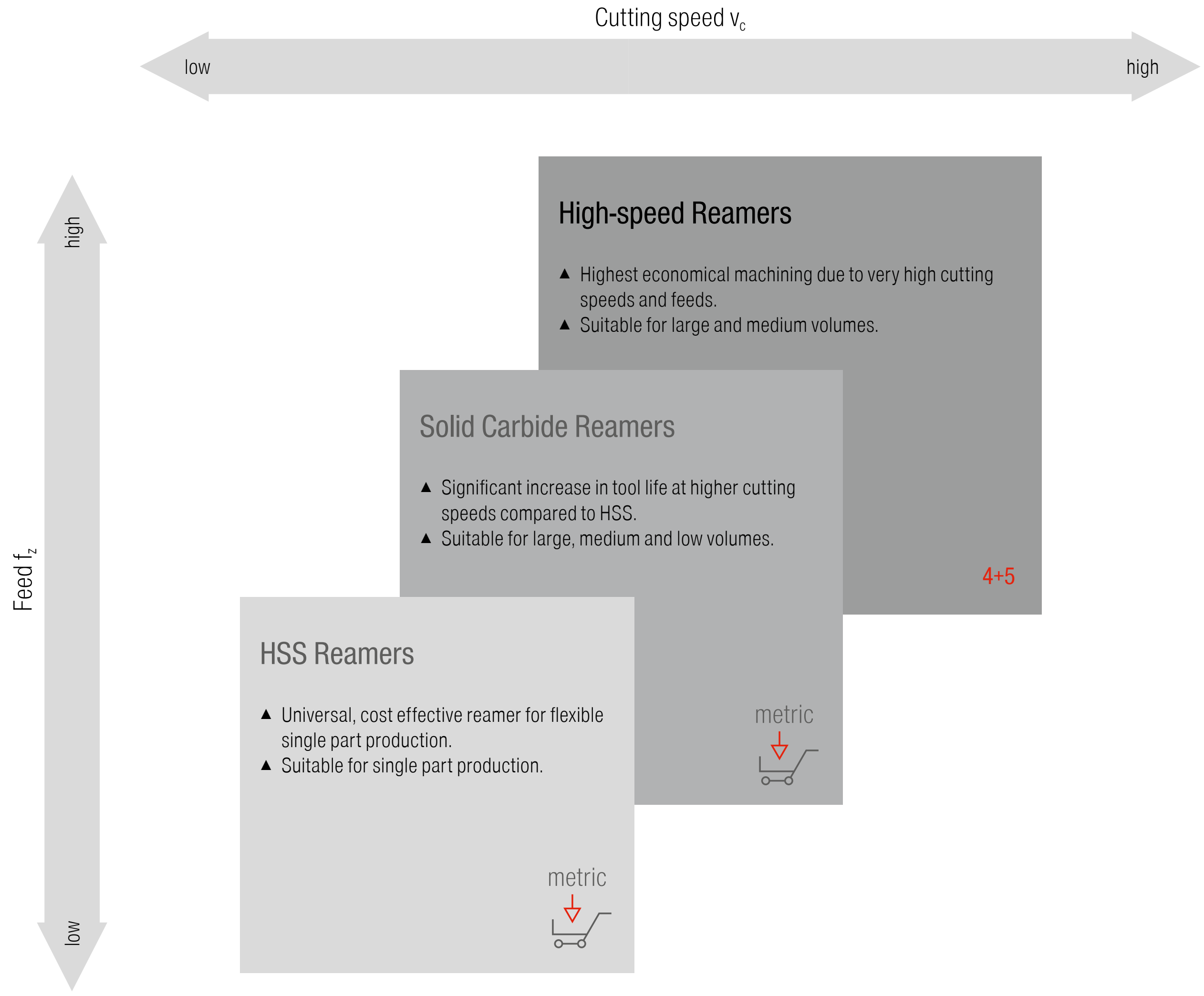
● = **Main Application**

○ = Extended application

metric

Additional metric items are available in our Online-Shop at cuttingtools.ceratizit.com and in the metric main catalog.

Toolfinder – Reamers



High-speed Reamers

- ▲ Highest economical machining due to very high cutting speeds and feeds.
- ▲ Suitable for large and medium volumes.

4+5

Solid Carbide Reamers

- ▲ Significant increase in tool life at higher cutting speeds compared to HSS.
- ▲ Suitable for large, medium and low volumes.

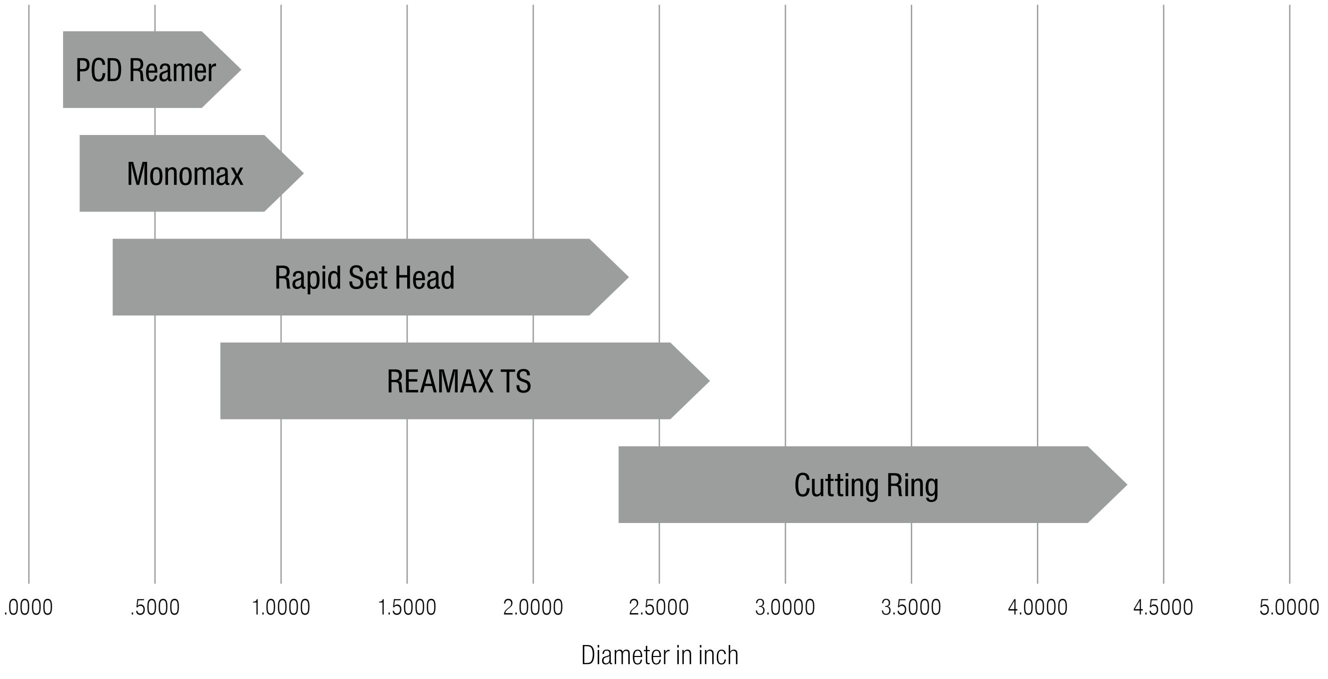
metric

HSS Reamers

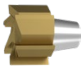
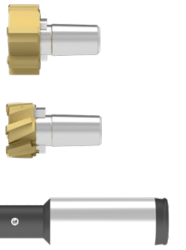
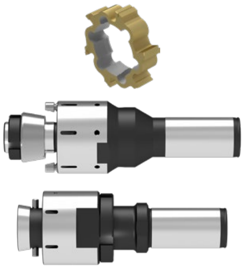
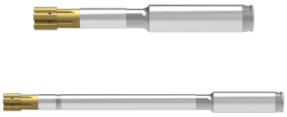
- ▲ Universal, cost effective reamer for flexible single part production.
- ▲ Suitable for single part production.

metric

Overview of high-speed reamers



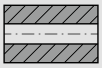
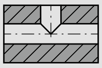
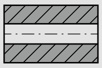
Toolfinder – Reamers

Solid carbide – high speed reamers	**REAMAX TS**		▲ highly flexible and economical replaceable head system ▲ all common materials ▲ can be adjusted in µm range
			▲ Holder available in 3xD and 5xD ▲ DAH zero holder available in 3xD and 5xD
	REAMAX		▲ Exchangeable head system, optimized for use with air mist coolant (MMS) ▲ Face and taper contact giving run out accuracy ≤ 2 µm
			▲ holder available in 3xD and 5xD
	Rapid Set Head		▲ Exchangeable head system ▲ Left hand spiral fluted cutting blades. available for highest productivity ▲ Re-tipping and regrinding available
	MultiChange		▲ flexible quick change system for reaming, countersinking and chamfering ▲ face and taper contact giving run out accuracy ≤ 5 µm
			▲ stable holder in solid carbide and steel, from short to long
	Cutting Ring		▲ For large diameter holes. ▲ Compensation for wear through simple readjustment. ▲ Re-tipping and regrinding available
	Monomax		▲ Expandable monoblock reamer in 3xD and 5xD ▲ Re-tipping and regrinding available ▲ All common materials
	Fullmax		▲ High-speed reamer in shorter and longer version ▲ Reamers for machining steel, stainless and acid-resistant steels, cast materials, aluminium and hardened materials up to 63 HRC ▲ Extremely irregular pitch ▲ Standard shank ~ DIN 6535 HA
PCD Reamer	**PCD Reamer**		▲ 2 and 4 blade versions available ▲ High stability from the carbide body ▲ Optimized for finishing pre-cast bores ▲ Re-tipping and regrinding available

Solid Carbide Reamers and HSS Reamers can be found in the metric catalog.

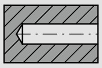
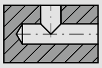
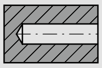
		Hole diameter in inch Ø DC	Through hole	Blind hole	Int. coolant supply	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	KOMET \ Performance
		.7086 – 2.5590 (18.00 – 65.00 mm)	✓	✓	✓	●	●	●	●	●		○	6–11
					✓								12+13
		.4920 – 1.5748 (12.50 – 40.00 mm)	✓	✓	✓	●	●	●	●		●	○	metric 🛒
					✓								
		.3779 – 2.3622 (9.60 – 60.00 mm)	✓	✓	✓	●	●	●	●	●			14–17
		.3779 – 2.3622 (9.60 – 60.00 mm)	✓			●							15+18
					✓								19
		.3150 – 1.2677 (8.00–30.20 mm)	✓	✓	✓	●	●	●	●				metric 🛒
					✓								
		2.3858 – 4.3543 (60.60 –110.60 mm)	✓	✓		●	●	●	●	●			20–23
			✓		✓								24
				✓	✓								25+26
	short	.2205 – 1.0196 (5.60 – 25.90 mm)	✓	✓	✓	●	●	●	●	●		○	29–32
	long	.2205 – 1.0196 (5.60 – 25.90 mm)	✓	✓	✓	●	●	●	●	●		○	33–36
	short	.1575 – .6300 (4.00 – 16.00 mm) .1165 – .7894 (2.96 – 20.05 mm)	✓	✓	✓	●	●	●	○	○	○		metric 🛒
	long	.1575 – .6300 (4.00 – 16.00 mm) .1165 – .7894 (2.96 – 20.05 mm)	✓	✓	✓	●	●	●	●	○	●	○	
		.1575 – .7913 (4.00 – 20.10 mm)	✓	✓					●				37–39

REAMAX TS – Selection guide – Through hole

Ø			.7086 – 2.5590 inch								
KOMET no.			75J.65	75J.65	75J.17	75J.71	75J.71	75J.71	75J.93	75J.93	75J.21
Grind geometry			ASG3000	ASG0106	ASG0706	ASG3000	ASG4000	ASG0106	ASG4000	ASG3000	ASG03
Lead angle			45°	45°	45°/8°	45°	25°	45°	25°	45°	30°/2°
Grade / coating			DBG-P	DBG-P	DBC	TiN	TiN	TiN	DST	DST	K10
Article no.			49 586	49 521	49 526	49 534	49 596	49 520	49 597	49 544	49 531
Application			Through hole								
											
Material sub-group		**Index**									
P	Non alloyed steel	**P.1.1**	●			○	●		●	●	
		P.1.2									
		P.1.3									
		P.1.4									
		P.1.5									
	Low alloyed steel	**P.2.1**	●			○			●	●	
		P.2.2									
		P.2.3									
		P.2.4									
	High-alloy steel and high-alloy tool steel	**P.3.1**		●				○			
		P.3.2									
		P.3.3									
	Stainless steel	**P.4.1**									
		P.4.2									
M	Stainless steel	**M.1.1**		●				○			
		M.2.1									
		M.3.1									
K	Grey cast iron	**K.1.1**	●			○					
		K.1.2									
	Spherulitic graphite cast iron	**K.2.1**	●						●	●	
		K.2.2									
	Malleable iron	**K.3.1**	●							●	
		K.3.2							●		
N	Aluminum alloys,	**N.1.1**			●						
		N.1.2									
	Cast Aluminium Alloys	**N.2.1**									
		N.2.2									
		N.2.3									
	Copper and copper alloys (Bronze, Brass)	**N.3.1**				●				○	
		N.3.2									
		N.3.3									
	Magnesium alloys	**N.4.1**			●						
S	Heat resistant alloys	**S.1.1**									
		S.1.2									
		S.2.1									
		S.2.2									
		S.2.3									
	Titanium alloys	**S.3.1**									●
		S.3.2									
		S.3.3									
O	Non-metal materials	**O.1.1**									
		O.1.2									
		O.2.1									
		O.2.2									
		O.3.1			○						

Applications:	Main application	●
	Additional range of application	○

REAMAX TS – Selection guide – Blind hole

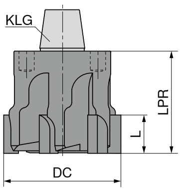
Ø			.7086 – 2.5590 inch						
KOMET no.			75H.65	75H.65	75H.71	75H.71	75H.17	75H.93	75H.21
Grind geometry			ASG3000	ASG0106	ASG0106	ASG3000	ASG0706	ASG3000	ASG03
Lead angle			45°	45°	45°	45°	45°/8°	45°	30°/2°
Grade / coating			DBG-P	DBG-P	TiN	TiN	DBC	DST	K10
Article no.			49 585	49 571	49 527	49 535	49 580	49 539	49 530
Application			Blind hole						
Material sub-group		**Index**							
P	Non alloyed steel	**P.1.1**	●			○		●	
		P.1.2							
		P.1.3							
		P.1.4							
		P.1.5							
	Low alloyed steel	**P.2.1**	●			○		●	
		P.2.2							
		P.2.3							
		P.2.4							
	High-alloy steel and high-alloy tool steel	**P.3.1**		●	○				
		P.3.2							
		P.3.3							
	Stainless steel	**P.4.1**							
		P.4.2							
M	Stainless steel	**M.1.1**		●	○				
		M.2.1							
		M.3.1							
K	Grey cast iron	**K.1.1**	●			●			
		K.1.2							
	Spherulitic graphite cast iron	**K.2.1**	●					●	
		K.2.2							
	Malleable iron	**K.3.1**	●					●	
		K.3.2							
N	Aluminum alloys,	**N.1.1**					●		
		N.1.2							
	Cast Aluminium Alloys	**N.2.1**							
		N.2.2							
		N.2.3							
	Copper and copper alloys (Bronze, Brass)	**N.3.1**				●		○	
		N.3.2							
		N.3.3							
	Magnesium alloys	**N.4.1**					●		
S	Heat resistant alloys	**S.1.1**							
		S.1.2							
		S.2.1							
		S.2.2							
		S.2.3							
	Titanium alloys	**S.3.1**							●
		S.3.2							
		S.3.3							
O	Non-metal materials	**O.1.1**							
		O.1.2							
		O.2.1							
		O.2.2							
		O.3.1					○		

3

Applications:	Main application	●
	Additional range of application	○

REAMAX TS – Replaceable reaming heads

- up to tolerance class IT 6
- precise repeatability < .0001"
- high precision grind for maximum quality
- can be adjusted for the smallest hole tolerances
- interface enables head change in the machine
- retraction from the hole at 3–4 times the cutting feed rate
- KLG = coupling size
- ZEFP = number of cutting edges






					DST	DBG-P	DBC	DST
					75J.93 ◁ 25° ASG4000 CERMET Through hole	75J.65 ◁ 45° ASG0106 HM Through hole	75J.17 ◁ 45/8° ASG0706 HM Through hole	75J.93 ◁ 45° ASG3000 CERMET Through hole
DC inch	L inch	LPR inch	ZEFP	KLG	**49 597 ...**	**49 521 ...**	**49 526 ...**	**49 544 ...**
0.7087 - 0.7874	0.236	0.787	6	1	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
0.7874 - 0.8661	0.236	0.787	6	2	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
0.8661 - 1.0630	0.236	0.787	6	3	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
1.0630 - 1.2519	0.236	0.984	6	4	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
1.2520 - 1.3779	0.236	0.984	8	4	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
1.3780 - 1.6535	0.236	0.984	8	5	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
1.6535 - 2.0472	0.236	1.181	8	6	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
2.0472 - 2.5590	0.314	1.377	10	7	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
P					●	●		●
M						●		
K					●			●
N							●	○
S								
H								
O							○	

1) Not available from stock, articles are non-returnable and cannot be exchanged / Minimum order 2 pieces

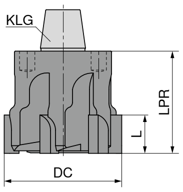
→ v_c Page 41–44

For xxxx please indicate piece part bore diameter and tolerance. (e.g. Ø 1.5000" ±.0005")

Assembly instructions can be found on → **Page 63+64**

REAMAX TS – Replaceable reaming heads

- up to tolerance class IT 6
- precise repeatability < .0001"
- high precision grind for maximum quality
- can be adjusted for the smallest hole tolerances
- interface enables head change in the machine
- retraction from the hole at 3–4 times the cutting feed rate
- KLG = coupling size
- ZEFP = number of cutting edges



					TiN	DBG-P	K10	TiN	TiN
									
					75J.71 ◁ 25° ASG4000 HM Through hole	75J.65 ◁ 45° ASG3000 HM Through hole	75J.21 ◁ 30/2° ASG03 HM Through hole	75J.71 ◁ 45° ASG0106 HM Through hole	75J.71 ◁ 45° ASG3000 HM Through hole
DC inch	L inch	LPR inch	ZEFP	KLG	**49 596 ...**	**49 586 ...**	**49 531 ...**	**49 520 ...**	**49 534 ...**
0.7087 - 0.7874	0.236	0.787	6	1	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
0.7874 - 0.8661	0.236	0.787	6	2	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
0.8661 - 1.0630	0.236	0.787	6	3	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
1.0630 - 1.2519	0.236	0.984	6	4	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
1.252 0- 1.3779	0.236	0.984	8	4	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
1.3780 - 1.6535	0.236	0.984	8	5	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
1.6535 - 2.0472	0.236	1.181	8	6	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
2.0472 - 2.5590	0.314	1.377	10	7	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
P					●	●		○	○
M								○	
K						●			○
N									●
S							●		
H									
O									

1) Not available from stock, articles are non-returnable and cannot be exchanged / Minimum order 2 pieces

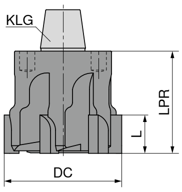
→ v_c Page 41–44

For xxxx please indicate piece part bore diameter and tolerance. (e.g. Ø 1.5000" ±.0005")

Assembly instructions can be found on → **Page 63+64**

REAMAX TS – Replaceable reaming heads

- up to tolerance class IT 6
- precise repeatability < .0001"
- high precision grind for maximum quality
- can be adjusted for the smallest hole tolerances
- interface enables head change in the machine
- retraction from the hole at 3–4 times the cutting feed rate
- KLG = coupling size
- ZEFP = number of cutting edges







DC inch	L inch	LPR inch	ZEFP	KLG	DST 75H.93 ◁ 45° ASG3000 CERMET Blind hole 49 539 ...	DBG-P 75H.65 ◁ 45° ASG0106 HM Blind hole 49 571 ...	DBC 75H.17 ◁ 45/8° ASG0706 HM Blind hole 49 580 ...	DBG-P 75H.65 ◁ 45° ASG3000 HM Blind hole 49 585 ...	TiN 75H.71 ◁ 45° ASG3000 HM Blind hole 49 535 ...
0.7087 - 0.7874	0.236	0.787	6	1	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
0.7874 - 0.8661	0.236	0.787	6	2	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
0.8661 - 1.0630	0.236	0.787	6	3	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
1.0630 - 1.2519	0.236	0.984	6	4	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
1.2520 - 1.3779	0.236	0.984	8	4	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
1.3780 - 1.6535	0.236	0.984	8	5	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
1.6535 - 2.0472	0.236	1.181	8	6	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
2.0472 - 2.5590	0.314	1.377	10	7	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
P					●	●		●	○
M						●			
K					●			●	○
N					○		●		●
S									
H									
O							○		

1) Not available from stock, articles are non-returnable and cannot be exchanged / Minimum order 2 pieces

→ v_c Page 41–44

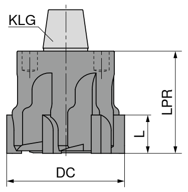
For xxxx please indicate piece part bore diameter and tolerance. (e.g. Ø 1.5000" ±.0005")

Assembly instructions can be found on → **Page 63+64**

REAMAX TS – Replaceable reaming heads

- ▲ up to tolerance class IT 6
- ▲ precise repeatability < .0001"
- ▲ high precision grind for maximum quality
- ▲ can be adjusted for the smallest hole tolerances
- ▲ interface enables head change in the machine
- ▲ retraction from the hole at 3–4 times the cutting feed rate
- ▲ KLG = coupling size
- ▲ ZEFP = number of cutting edges

K10 TiN



					K10 75H.21 ◁ 30/2° ASG03 HM Blind hole	TiN 75H.71 ◁ 45° ASG0106 HM Blind hole
DC inch	L inch	LPR inch	ZEFP	KLG	**49 530 ...**	**49 527 ...**
0.7087 - 0.7874	0.236	0.787	6	1	**xxxx** 1)	**xxxx** 1)
0.7874 - 0.8661	0.236	0.787	6	2	**xxxx** 1)	**xxxx** 1)
0.8661 - 1.0630	0.236	0.787	6	3	**xxxx** 1)	**xxxx** 1)
1.0630 - 1.2519	0.236	0.984	6	4	**xxxx** 1)	**xxxx** 1)
1.2520 - 1.3779	0.236	0.984	8	4	**xxxx** 1)	**xxxx** 1)
1.3780 - 1.6535	0.236	0.984	8	5	**xxxx** 1)	**xxxx** 1)
1.6535 - 2.0472	0.236	1.181	8	6	**xxxx** 1)	**xxxx** 1)
2.0472 - 2.5590	0.314	1.377	10	7	**xxxx** 1)	**xxxx** 1)
P						○
M						○
K						
N						
S					●	
H						
O						

1) Not available from stock, articles are non-returnable and cannot be exchanged / Minimum order 2 pieces

→ v_c Page 41–44

For xxxx please indicate piece part bore diameter and tolerance. (e.g. Ø 1.5000" ±.0005")

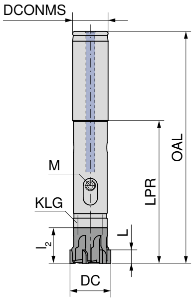
Assembly instructions can be found on → **Page 63+64**

REAMAX TS – Holder

▲ KLG = Coupling Size

Supply details:

Complete holder with pull stud. Reamer head not included



DC inch	KOMET no.	OAL inch	l_2 inch	LPR inch	L inch	DCONMS inch	DCONMS mm	M Nm	KLG	40 501 ...	40 503 ...
0.7087 - 0.7870	75A.40.13010	5.118	0.787	3.149	0.236	0.787	20	1,5	1	**02099**	
0.7087 - 0.7870	75A.40.15010	7.480	0.787	5.511	0.236	0.787	20	1,5	1		**02099**
0.7874 - 0.8657	75A.40.13020	5.118	0.787	3.149	0.236	0.787	20	2,5	2	**02299**	
0.7874 - 0.8657	75A.40.15020	7.480	0.787	5.511	0.236	0.787	20	2,5	2		**02299**
0.8661 - 1.0626	75A.40.13030	5.118	0.787	3.149	0.236	0.787	20	4	3	**02799**	
0.8661 - 1.0626	75A.40.15030	8.267	0.787	6.299	0.236	0.787	20	4	3		**02799**
1.0630 - 1.3776	75A.40.13040	6.929	0.984	4.724	0.236	0.984	25	5	4	**03599**	
1.0630 - 1.3776	75A.40.15040	9.291	0.984	7.086	0.236	0.984	25	5	4		**03599**
1.3780 - 1.6535	75A.40.13050	6.929	0.984	4.724	0.236	0.984	25	6	5	**04299**	
1.3780 - 1.6535	75A.40.15050	10.078	0.984	7.874	0.236	0.984	25	6	5		**04299**
1.6535 - 2.0472	75A.40.13060	7.086	1.181	4.724	0.236	1.259	32	10	6	**05299**	
1.6535 - 2.0472	75A.40.15060	11.023	1.181	8.661	0.236	1.259	32	10	6		**05299**
2.0472 - 2.5590	75A.40.13070	7.086	1.181	4.724	0.314	1.259	32	13	7	**06599**	
2.0472 - 2.5590	75A.40.15070	11.023	1.181	8.661	0.314	1.259	32	13	7		**06599**

Do not heat shrink tools !

Clamping key – T

Screwdriver

Reamax TS pull stud

Spare parts DC		80 397 ...		80 950 ...	40 900 ...
0.7087 - 0.7870			T08 - IP	**039**	**00100**
0.7874 - 0.8657	SW2,5	**025**			**00200**
0.8661 - 1.0626	SW3	**030**			**00300**
1.0630 - 1.3776	SW3	**030**			**00400**
1.3780 - 1.6535	SW3	**030**			**00500**
1.6535 - 2.0472	SW4	**040**			**00500**
2.0472 - 2.5590	SW5	**050**			**00700**

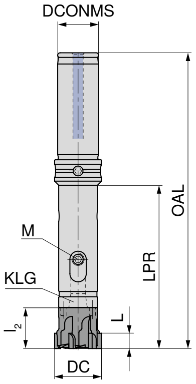
Assembly instructions can be found on → **Page 63+64**

REAMAX TS – Holder

- KLG = Coupling size
- Adjustment inside the machine
- Alignable DAH Zero holder for correction of concentricity error
- DAH Zero holder is pre-loaded and set to a runout of < 0.0002"

Supply details:

Complete holder with pull stud. Reamer head not included



DAH Zero

~A ≤ 3xD

DAH Zero

~A ≤ 5xD

DC inch	KOMET no.	OAL inch	l_2 inch	LPR inch	L inch	DCONMS inch	DCONMS mm	M Nm	KLG	40 504 ...	40 506 ...
0.7087 - 0.7870	75A.41.13010	5.708	0.787	3.149	0.236	0.787	20	1,5	1	**02099**	
0.7087 - 0.7870	75A.41.15010	8.070	0.787	5.511	0.236	0.787	20	1,5	1		**02099**
0.7874 - 0.8657	75A.41.13020	5.708	0.787	3.149	0.236	0.787	20	2,5	2	**02299**	
0.7874 - 0.8657	75A.41.15020	8.070	0.787	5.511	0.236	0.787	20	2,5	2		**02299**
0.8661 - 1.0626	75A.41.13030	5.708	0.787	3.149	0.236	0.787	20	4	3	**02799**	
0.8661 - 1.0626	75A.41.15030	8.858	0.787	6.299	0.236	0.787	20	4	3		**02799**
1.0630 - 1.3776	75A.41.13040	5.708	0.984	4.724	0.236	0.984	25	5	4	**03599**	
1.0630 - 1.3776	75A.41.15040	9.291	0.984	7.086	0.236	0.984	25	5	4		**03599**
1.3780 - 1.6535	75A.41.13050	6.929	0.984	4.724	0.236	0.984	25	6	5	**04299**	
1.3780 - 1.6535	75A.41.15050	9.291	0.984	7.874	0.236	0.984	25	6	5		**04299**

Do not heat shrink tools !

Clamping key – T

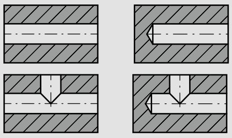
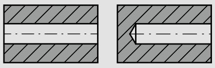
Screwdriver

Reamax TS pull stud

Spare parts **DC**		80 397 ...		80 950 ...	40 900 ...
0.7087 - 0.7870			T08 - IP	**039**	**00100**
0.7874 - 0.8657	SW2,5	**025**			**00200**
0.8661 - 1.0626	SW3	**030**			**00300**
1.0630 - 1.3776	SW3	**030**			**00400**
1.3780 - 1.6535	SW3	**030**			**00500**

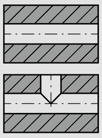
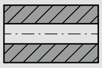
Assembly instructions can be found on → **Page 63+64**

Rapid Set Head – Selection guide

Ø			.3779 – 2.3622 inch							
KOMET no.			340.65	340.65	340.21	340.71	340.71	340.93	340.21	340.21
Grind geometry			ASG3000	ASG0106	ASG03	ASG3000	ASG0106	ASG3000	ASG02	ASG3000
Lead angle			45°	45°	30°/2°	45°	45°	45°	45°/8°	45°
Grade / coating			DBG-P	DBG-P	K10	TiN	TiN	DST	K10	K10
Article no.			49 817	49 816	49 800	49 808	49 809	49 813	49 804	49 801
Application			Through hole + blind hole							
										
Material sub-group		**Index**								
P	Non alloyed steel	**P.1.1**	●			○		●		○
		P.1.2								
		P.1.3								
		P.1.4								
		P.1.5								
	Low alloyed steel	**P.2.1**	●			○		●		○
		P.2.2								
		P.2.3								
		P.2.4	●			●				
	High-alloy steel and high-alloy tool steel	**P.3.1**		●			●			
		P.3.2								
		P.3.3								
	Stainless steel	**P.4.1**		●			●			
		P.4.2								
M	Stainless steel	**M.1.1**		●			●			
		M.2.1								
		M.3.1								
K	Grey cast iron	**K.1.1**	●			●				○
		K.1.2								
	Spherulitic graphite cast iron	**K.2.1**	●					●		○
		K.2.2								
	Malleable iron	**K.3.1**	●					●		○
		K.3.2								
N	Aluminum alloys,	**N.1.1**							●	○
		N.1.2								
	Cast Aluminium Alloys	**N.2.1**								
		N.2.2								
		N.2.3								
	Copper and copper alloys (Bronze, Brass)	**N.3.1**				○		●	●	○
		N.3.2				○			●	○
		N.3.3				○			●	○
	Magnesium alloys	**N.4.1**							●	○
S	Heat resistant alloys	**S.1.1**								
		S.1.2								
		S.2.1								
		S.2.2								
		S.2.3								
	Titanium alloys	**S.3.1**			●					
		S.3.2								
		S.3.3								
O	Non-metal materials	**O.1.1**								
		O.1.2								
		O.2.1								
		O.2.2								
		O.3.1								

Applications:		
	Main application	●
	Additional range of application	○

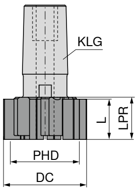
Rapid Set Head – Selection guide

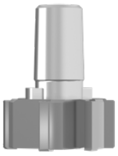
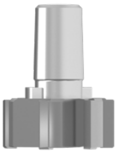
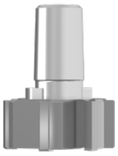
Ø			.3779 – 2.3622 inch	
KOMET no.			340.70	340.92
Grind geometry			ASG05	ASG05
Lead angle			25°	25°
Grade / coating			TiN	DST
Article no.			49 805	49 812
Application			Through hole 	
Material sub-group		**Index**		
P	**Non alloyed steel**	**P.1.1**	○	●
		P.1.2		
		P.1.3		
		P.1.4		
		P.1.5		
	Low alloyed steel	**P.2.1**	○	●
		P.2.2		
		P.2.3		
		P.2.4	●	
	High-alloy steel and high-alloy tool steel	**P.3.1**		
		P.3.2		
		P.3.3		
	Stainless steel	**P.4.1**		
		P.4.2		
M	**Stainless steel**	**M.1.1**		
		M.2.1		
		M.3.1		
K	**Grey cast iron**	**K.1.1**		
		K.1.2		
	Spherulitic graphite cast iron	**K.2.1**		
		K.2.2		
	Malleable iron	**K.3.1**		
		K.3.2		
N	**Aluminum alloys,**	**N.1.1**		
		N.1.2		
	Cast Aluminium Alloys	**N.2.1**		
		N.2.2		
		N.2.3		
	Copper and copper alloys (Bronze, Brass)	**N.3.1**		
		N.3.2		
		N.3.3		
	Magnesium alloys	**N.4.1**		
S	**Heat resistant alloys**	**S.1.1**		
		S.1.2		
		S.2.1		
		S.2.2		
		S.2.3		
	Titanium alloys	**S.3.1**		
		S.3.2		
		S.3.3		
O	**Non-metal materials**	**O.1.1**		
		O.1.2		
		O.2.1		
		O.2.2		
		O.3.1		

Applications:	Main application	●
	Additional range of application	○

Rapid Set Head

- ▲ PHD = Approximate diameter for face machining geometries (ASG)
- ▲ KLG = Coupling Size
- ▲ ZEFP = Number of cutting edges



TiN	TiN	K10	K10	K10
				
340.71 ◁ 45° ASG3000 HM Through hole + blind hole	340.71 ◁ 45° ASG0106 HM Through hole + blind hole	340.21 ◁ 45° ASG3000 HM Through hole + blind hole	340.21 ◁ 30/2° ASG03 HM Through hole + blind hole	340.21 ◁ 45/8° ASG02 HM Through hole + blind hole

DC inch	L inch	LPR inch	ZEFP	PHD inch	KLG	49 808 ...	49 809 ...	49 801 ...	49 800 ...	49 804 ...
0.378 - 0.4957	0.374	0.433	4	DC-0.1220	1	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
0.4961 - 0.6138	0.413	0.433	4	DC-0.1417	2	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
0.6142 - 0.7319	0.413	0.433	6	DC-0.1417	3	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
0.7323 - 0.9449	0.413	0.433	6	DC-0.2008	4	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
0.9453 - 1.185	0.413	0.433	6	DC-0.2362	5	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
1.1854 - 1.2165	0.629	0.669	6	DC-0.2953	6	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
1.2169 - 1.5748	0.629	0.669	6	DC-0.2953	6	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
1.5752 - 1.9957	0.629	0.669	6	DC-0.3150	7	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
1.9961 - 2.3622	0.629	0.669	6	DC-0.3150	8	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
P						○	○	○		
M							○			
K						○		○		
N						○		○		●
S									●	
H										
O										

1) Not available from stock, articles are non-returnable and cannot be exchanged / Minimum order 2 pieces

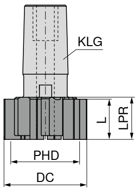
→ v_c Page 57-61

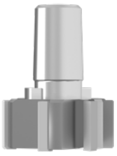
For xxxx please indicate piece part bore diameter and tolerance. (e.g. Ø 1.5000" ±.0005")

Assembly instructions can be found on → **Page 65**

Rapid Set Head

- ▲ PHD = Approximate diameter for face machining geometries (ASG)
- ▲ KLG = Coupling Size
- ▲ ZEFP = Number of cutting edges





DC inch	L inch	LPR inch	PHD inch	KLG	ZEFP	DST 340.93 ◁ 45° ASG3000 CERMET Through hole + blind hole **49 813 ...**	DBG-P 340.65 ◁ 45° ASG3000 HM Through hole + blind hole **49 817 ...**	DBG-P 340.65 ◁ 45° ASG0106 HM Through hole + blind hole **49 816 ...**
0.378 - 0.4957	0.374	0.433	DC-0.1220	1	4	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
0.4961 - 0.6138	0.413	0.433	DC-0.1417	2	4	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
0.6142 - 0.7319	0.413	0.433	DC-0.1417	4	6		**xxxx** 1)	**xxxx** 1)
0.6142 - 0.7319	0.413	0.433	DC-0.1417	3	6	**xxxx** 1)		
0.7323 - 0.9449	0.413	0.433	DC-0.2008	4	6	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
0.9453 - 1.185	0.413	0.433	DC-0.2362	5	6	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
1.1854 - 1.2165	0.629	0.669	DC-0.2953	6	6	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
1.2169 - 1.5748	0.629	0.669	DC-0.2953	6	6	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
1.5752 - 1.9957	0.629	0.669	DC-0.3150	7	6	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
1.9961 - 2.3622	0.629	0.669	DC-0.3150	8	6	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)

	49 813 ...	49 817 ...	49 816 ...
P	●	●	●
M			●
K	●	●	
N	●		
S			
H			
O			

1) Not available from stock, articles are non-returnable and cannot be exchanged / Minimum order 2 pieces

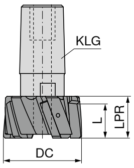
→ v_c Page 57–61

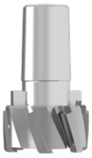
For xxxx please indicate piece part bore diameter and tolerance. (e.g. Ø 1.5000" ±.0005")

Assembly instructions can be found on → **Page 65**

Rapid Set Head

- ▲ KLG = Coupling Size
- ▲ ZEFP = Number of cutting edges





DC inch	L inch	LPR inch	KLG	ZEFP	TiN 340.70 ◁ 25° ASG05 HM Through hole **49 805 ...**	DST 340.92 ◁ 25° ASG05 CERMET Through hole **49 812 ...**
0.378 - 0.4957	0.374	0.433	1	4	**xxxx** 1)	**xxxx** 1)
0.4961 - 0.6138	0.413	0.433	2	4	**xxxx** 1)	**xxxx** 1)
0.6142 - 0.7319	0.413	0.433	3	4	**xxxx** 1)	**xxxx** 1)
0.7323 - 0.9449	0.413	0.433	4	6	**xxxx** 1)	**xxxx** 1)
0.9453 - 1.185	0.413	0.433	5	6	**xxxx** 1)	**xxxx** 1)
1.1854 - 1.2165	0.629	0.669	6	6	**xxxx** 1)	**xxxx** 1)
1.2169 - 1.5748	0.629	0.669	6	6	**xxxx** 1)	**xxxx** 1)
1.5752 - 1.9957	0.629	0.669	7	6	**xxxx** 1)	**xxxx** 1)
1.9961 - 2.3622	0.629	0.669	8	6	**xxxx** 1)	**xxxx** 1)
P					○	●
M						
K						
N						
S						
H						
O						

1) Not available from stock, articles are non-returnable and cannot be exchanged / Minimum order 2 pieces

→ v_c Page 57–61

For xxxx please indicate piece part bore diameter and tolerance. (e.g. Ø 1.5000" ±.0005")

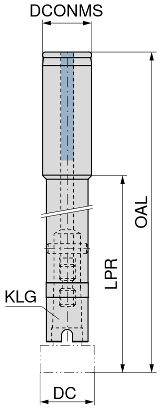
Assembly instructions can be found on → **Page 65**

Holder for Rapid Set Head

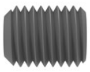
▲ KLG = Coupling Size

Supply details:

Holder includes radial coolant screw for diameters 0.4961"-2.3622".
Solid screw included for diameters 0.3780"- 0.4957".
Axial coolant screw must be ordered separately.

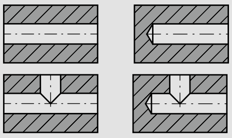
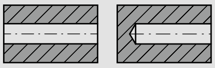
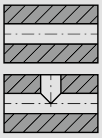
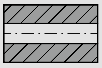


DC inch	KOMET no.	OAL inch	LPR inch	DCONMS h6 inch	DCONMS mm	KLG	49 890 ...	49 891 ...
0.3780 - 0.4957	540.56.001	3.740	1.969	0.500	12.700	1	**01399**	
0.3780 - 0.4957	540.13.001	6.220	4.449	0.500	12.700	1		**01399**
0.4961 - 0.6138	540.56.002	4.252	2.362	0.625	15.875	2	**01699**	
0.4961 - 0.6138	540.13.002	6.260	4.370	0.625	15.875	2		**01699**
0.6142 - 0.7319	540.56.003	4.330	2.362	0.625	15.875	3	**01999**	
0.6142 - 0.7319	540.13.003	6.732	4.764	0.625	15.875	3		**01999**
0.7323 - 0.9449	540.56.004	5.117	3.150	0.750	19.050	4	**02499**	
0.7323 - 0.9449	540.13.004	7.520	5.550	0.750	19.050	4		**02499**
0.9453 - 1.1850	540.56.005	6.220	3.857	1.000	25.400	5	**03099**	
0.9453 - 1.1850	540.13.005	8.622	6.260	1.000	25.400	5		**03099**
1.1854 - 1.5748	540.56.006	6.457	4.094	1.000	25.400	6	**04099**	
1.1854 - 1.5748	540.13.006	8.857	6.495	1.000	25.400	6		**04099**
1.5752 - 1.9957	540.56.007	7.244	4.094	1.000	25.400	7	**05199**	
1.5752 - 1.9957	540.13.007	11.142	7.992	1.000	25.400	7		**05199**
1.9961 - 2.3622	540.56.008	7.420	4.272	1.000	25.400	8	**06099**	
1.9961 - 2.3622	540.13.008	11.355	8.209	1.000	25.400	8		**06099**

Spare parts **DC**	 Differential Axial Coolant 40 950 ...	 Differential Radial Coolant 40 950 ...	 Threaded pin 40 950 ...	 Screw short version 40 950 ...	 Screw long version 40 950 ...	 Bushing 40 950 ...
0.3780 - 0.4957				**41600**		
0.3780 - 0.4957					**41700**	
0.4961 - 0.6138	**40600**	**40100**	**41800**			**41100**
0.6142 - 0.7319	**40700**	**40200**	**41900**			**41200**
0.7323 - 0.9449	**40800**	**40300**	**42000**			**41300**
0.9453 - 1.1850	**40900**	**40400**	**42100**			**41400**
1.1854 - 1.5748	**40900**	**40400**	**42100**			**41400**
1.5752 - 1.9957	**41000**	**40500**	**42200**			**41500**
1.9961 - 2.3622	**41000**	**40500**	**42200**			**41500**

Assembly instructions can be found on → **Page 65**

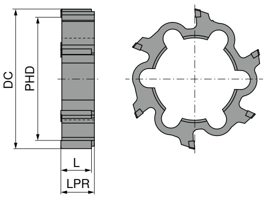
Cutting Ring – Selection guide

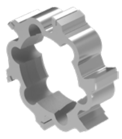
Ø			2.3858 – 4.3543 inch								
KOMET no.			300.65	300.65	300.17	300.05	300.05	300.45	300.25	300.05	300.45
Grind geometry			ASG3000	ASG0106	ASG0706	ASG3000	ASG0106	ASG3000	ASG03	ASG4000	ASG4000
Lead angle			45°	45°	45°/8°	45°	45°	45°	30°/2°	25°	45°
Grade / coating			DBG-P	DBG-P	DBC	TiN	TiN	DST	K10	TiN	DST
Article no.			49 836	49 835	49 839	49 823	49 824	49 827	49 832	49 831	49 828
Application			Through hole + blind hole 							Through hole 	
Material sub-group		**Index**									
P	**Non alloyed steel**	**P.1.1**	●			○		●		●	●
		P.1.2									
		P.1.3									
		P.1.4									
		P.1.5									
	Low alloyed steel	**P.2.1**	●			○		●			●
		P.2.2									
		P.2.3									
		P.2.4	●			○					
	High-alloy steel and high-alloy tool steel	**P.3.1**		●			●				
		P.3.2									
		P.3.3									
	Stainless steel	**P.4.1**		●			○				
		P.4.2									
M	**Stainless steel**	**M.1.1**		●			○				
		M.2.1									
		M.3.1									
K	**Grey cast iron**	**K.1.1**	●			○					
		K.1.2									
	Spherulitic graphite cast iron	**K.2.1**	●					●			
		K.2.2									
	Malleable iron	**K.3.1**	●					●			
		K.3.2									
N	**Aluminum alloys,**	**N.1.1**			●						
		N.1.2									
	Cast Aluminium Alloys	**N.2.1**									
		N.2.2									
		N.2.3									
	Copper and copper alloys (Bronze, Brass)	**N.3.1**				○		●		○	
		N.3.2				○				○	
		N.3.3				○				○	
	Magnesium alloys	**N.4.1**			●						
S	**Heat resistant alloys**	**S.1.1**									
		S.1.2									
		S.2.1									
		S.2.2									
		S.2.3									
	Titanium alloys	**S.3.1**							●		
		S.3.2									
		S.3.3									
O	**Non-metal materials**	**O.1.1**									
		O.1.2									
		O.2.1									
		O.2.2									
		O.3.1									

Applications:		
	Main application	●
	Additional range of application	○

Cutting ring

- ▲ PHD = Approximate diameter for face machining geometries (ASG)
- ▲ ZEFP = Number of cutting edges



					DBG-P	DBG-P	K10	TiN	TiN
									
					300.65 ◁ 45° ASG3000 HM Through hole + blind hole	300.65 ◁ 45° ASG0106 HM Through hole + blind hole	300.25 ◁ 30/2° ASG03 HM Through hole + blind hole	300.05 ◁ 45° ASG3000 HM Through hole + blind hole	300.05 ◁ 45° ASG0106 HM Through hole + blind hole
					49 836 ...	**49 835 ...**	**49 832 ...**	**49 823 ...**	**49 824 ...**
DC inch	L inch	LPR inch	PHD inch	ZEFP					
2.3858 - 2.5823	0.629	0.728	DC-0.3307	6	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
2.5827 - 2.7791	0.629	0.728	DC-0.3307	6	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx**
2.7795 - 2.9760	0.629	0.728	DC-0.3307	6	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx**
2.9764 - 3.1335	0.629	0.728	DC-0.3307	6	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx**
3.1339 - 3.3697	0.629	0.728	DC-0.3307	8	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx**
3.3701 - 3.5665	0.629	0.728	DC-0.3307	8	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx**
3.5669 - 3.7634	0.629	0.728	DC-0.3307	8	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx**
3.7638 - 3.9602	0.629	0.728	DC-0.3307	8	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx**
3.9606 - 4.3539	0.629	0.728	DC-0.3307	10	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx**
P					●	●		○	●
M						●			○
K					●			○	
N								○	
S							●		
H									
O									

1) Not available from stock, articles are non-returnable and cannot be exchanged / Minimum order 2 pieces

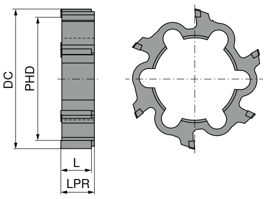
→ v_c Page 52–56

For xxxx please indicate piece part bore diameter and tolerance. (e.g. Ø 2.5000" ±.0005")

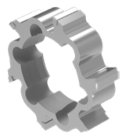
Assembly instructions can be found on → **Page 66+67**

Cutting ring

▲ PHD = Approximate diameter for face machining geometries (ASG)
▲ ZEFP = Number of cutting edges



DST



300.45
◁ 45°
ASG3000
CERMET
Through hole +
blind hole

DBC

300.17
◁ 45°
ASG0706
HM
Through hole +
blind hole

DC inch	L inch	LPR inch	PHD inch	ZEFP	49 827 ...	49 839 ...
2.3858 - 2.5823	0.629	0.688	DC-0.3307	6	xxxx $^{1)}$	
2.3858 - 2.5823	0.629	0.728	DC-0.3307	6		xxxx $^{1)}$
2.5827 - 2.7791	0.629	0.688	DC-0.3307	6	xxxx $^{1)}$	
2.5827 - 2.7791	0.629	0.728	DC-0.3307	6		xxxx $^{1)}$
2.7795 - 2.9760	0.629	0.688	DC-0.3307	6	xxxx $^{1)}$	
2.7795 - 2.9760	0.629	0.728	DC-0.3307	6		xxxx $^{1)}$
2.9764 - 3.1335	0.629	0.688	DC-0.3307	6	xxxx $^{1)}$	
2.9764 - 3.1335	0.629	0.728	DC-0.3307	6		xxxx $^{1)}$
3.1339 - 3.3697	0.629	0.688	DC-0.3307	8	xxxx $^{1)}$	
3.1339 - 3.3697	0.629	0.728	DC-0.3307	8		xxxx $^{1)}$
3.3701 - 3.5665	0.629	0.688	DC-0.3307	8	xxxx $^{1)}$	
3.3701 - 3.5665	0.629	0.728	DC-0.3307	8		xxxx $^{1)}$
3.5669 - 3.7634	0.629	0.688	DC-0.3307	8	xxxx $^{1)}$	
3.5669 - 3.7634	0.629	0.728	DC-0.3307	8		xxxx $^{1)}$
3.7638 - 3.9602	0.629	0.688	DC-0.3307	8	xxxx $^{1)}$	
3.7638 - 3.9602	0.629	0.728	DC-0.3307	8		xxxx $^{1)}$
3.9606 - 4.3539	0.629	0.688	DC-0.3307	10	xxxx $^{1)}$	
3.9606 - 4.3539	0.629	0.728	DC-0.3307	10		xxxx $^{1)}$

	49 827 ...	49 839 ...
P	●	
M		
K	●	
N	●	●
S		
H		
O		

1) Not available from stock, articles are non-returnable and cannot be exchanged / Minimum order 2 pieces

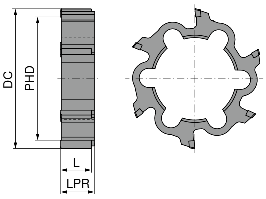
→ v_c Page 52–56

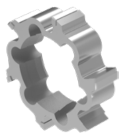
For xxxx please indicate piece part bore diameter and tolerance. (e.g. Ø 2.5000" ±.0005")

Assembly instructions can be found on → **Page 66+67**

Cutting ring

- ▲ PHD = Approximate diameter for face machining geometries (ASG)
- ▲ ZEFP = Number of cutting edges





DC inch	L inch	LPR inch	PHD inch	ZEFP	TiN 300.05 ◁ 25° ASG4000 HM Through hole 49 831 ...	DST 300.45 ◁ 25° ASG4000 CERMET Through hole 49 828 ...
2.3858 - 2.5823	0.629	0.728	DC-0.3307	6	xxxx 1)	
2.3858 - 2.5823	0.629	0.688	DC-0.3307	6		xxxx 1)
2.5827 - 2.7791	0.629	0.728	DC-0.3307	6	xxxx 1)	
2.5827 - 2.7791	0.629	0.688	DC-0.3307	6		xxxx 1)
2.7795 - 2.9760	0.629	0.728	DC-0.3307	6	xxxx 1)	
2.7795 - 2.9760	0.629	0.688	DC-0.3307	6		xxxx 1)
2.9764 - 3.1335	0.629	0.728	DC-0.3307	6	xxxx 1)	
2.9764 - 3.1335	0.629	0.688	DC-0.3307	6		xxxx 1)
3.1339 - 3.3697	0.629	0.728	DC-0.3307	8	xxxx 1)	
3.1339 - 3.3697	0.629	0.688	DC-0.3307	8		xxxx 1)
3.3701 - 3.5665	0.629	0.728	DC-0.3307	8	xxxx 1)	
3.3701 - 3.5665	0.629	0.688	DC-0.3307	8		xxxx 1)
3.5669 - 3.7634	0.629	0.728	DC-0.3307	8	xxxx 1)	
3.5669 - 3.7634	0.629	0.688	DC-0.3307	8		xxxx 1)
3.7638 - 3.9602	0.629	0.728	DC-0.3307	8	xxxx 1)	
3.7638 - 3.9602	0.629	0.688	DC-0.3307	8		xxxx 1)
3.9606 - 4.3539	0.629	0.728	DC-0.3307	10	xxxx 1)	
3.9606 - 4.3539	0.629	0.688	DC-0.3307	10		xxxx 1)

P	●	●
M		
K		
N	○	
S		
H		
O		

1) Not available from stock, articles are non-returnable and cannot be exchanged / Minimum order 2 pieces

→ v_c Page 52-56

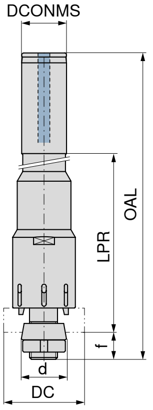
For xxxx please indicate piece part bore diameter and tolerance. (e.g. Ø 2.5000" ±.0005")

Assembly instructions can be found on → **Page 66+67**

Cutting ring holder for through hole machining

Supply details:

Holder includes positioning pin, taper ring and adjusting nut. Does not include cutting ring.



≤ 3xD

≤ 5xD

DC inch	KOMET no.	OAL inch	LPR inch	DCONMS inch	DCONMS mm	d mm	f inch	40 892 ...	40 893 ...
2.3858 - 2.7795	503.76.008	7.460	4.133	1.259	32	40.000	0.964	**07199**	
2.3858 - 2.7795	504.76.009	12.657	9.330	1.259	32	40.000	0.964		**07199**
2.7795 - 3.1338	503.76.009	7.460	4.133	1.259	32	40.000	0.964	**08099**	
2.7795 - 3.1338	504.76.010	12.657	9.330	1.259	32	40.000	0.964		**08099**
3.1339 - 3.5669	503.76.010	8.011	4.133	1.574	40	56.200	1.122	**09199**	
3.1339 - 3.5669	504.76.011	13.326	9.448	1.574	40	56.200	1.122		**09199**
3.5669 - 3.9606	503.76.011	8.011	4.133	1.574	40	56.200	1.122	**10199**	
3.5669 - 3.9606	504.76.012	13.326	9.448	1.574	40	56.200	1.122		**10199**

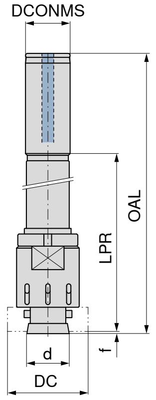
Spare parts **DC**	 Position Pin 40 950 ...	 Taper Ring 40 950 ...	 Adjustic Nut 40 950 ...
2.3858 - 2.7795	**50700**	**50500**	**50100**
2.7795 - 3.1338	**50700**	**50500**	**50100**
3.1339 - 3.5669	**50800**	**50600**	**50200**
3.5669 - 3.9606	**50800**	**50600**	**50200**

Assembly instructions can be found on → **Page 66+67**

Cutting ring holder for blind hole machining

Supply details:

Holder includes bushing, taper screw and adjusting nut. Does not include cutting ring.



DC inch	KOMET no.	OAL inch	LPR inch	DCONMS inch	DCONMS mm	d inch	f inch	A ≤ 3xD 40 895 ...	A ≤ 5xD 40 897 ...
2.3858 - 2.7795	513.81.008	6.555	4.133	1.259	32	1.456	0.059	**07199**	
2.3858 - 2.7795	514.81.008	11.752	9.330	1.259	32	1.456	0.059		**07199**
2.7795 - 3.1338	513.81.009	6.555	4.133	1.259	32	1.456	0.059	**08099**	
2.7795 - 3.1338	514.81.009	11.752	9.330	1.259	32	1.456	0.059		**08099**
3.1339 - 3.5669	513.81.010	6.948	4.133	1.574	40	2.094	0.059	**09199**	
3.1339 - 3.5669	514.81.010	12.263	9.448	1.574	40	2.094	0.059		**09199**
3.5669 - 3.9606	513.81.011	6.948	4.133	1.574	40	2.094	0.059	**10199**	
3.5669 - 3.9606	514.81.011	12.263	9.448	1.574	40	2.094	0.059		**10199**

Bushing

Taper Screw

Adjustic Nut

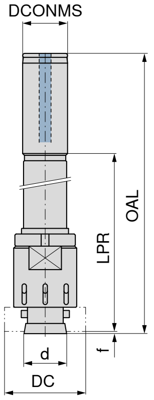
Spare parts **DC**	Bushing 40 950 ...	Taper Screw 40 950 ...	Adjustic Nut 40 950 ...
2.3858 - 2.7795	**51500**	**51300**	**50300**
2.7795 - 3.1338	**51600**	**51300**	**50300**
3.1339 - 3.5669	**51700**	**51400**	**50400**
3.5669 - 3.9606	**51800**	**51400**	**50400**

Assembly instructions can be found on → **Page 66+67**

Cutting ring holder for blind hole machining

Supply details:

Holder includes bushing, taper screw and adjusting nut. Does not include cutting ring.



≤ 3xD

≤ 5xD

DC inch	KOMET no.	OAL inch	LPR inch	DCONMS inch	DCONMS mm	d inch	f inch	40 894 ...	40 896 ...
2.3858 - 2.7795	513.76.008	6.555	4.133	1.259	32	1.456	0.059	**07199**	
2.3858 - 2.7795	514.76.008	11.752	9.330	1.259	32	1.456	0.059		**07199**
2.7795 - 3.1338	513.76.009	6.555	4.133	1.259	32	1.456	0.059	**08099**	
2.7795 - 3.1338	514.76.009	11.752	9.330	1.259	32	1.456	0.059		**08099**
3.1339 - 3.5669	513.76.010	6.948	4.133	1.574	40	2.094	0.059	**09199**	
3.1339 - 3.5669	514.76.010	12.263	9.448	1.574	40	2.094	0.059		**09199**
3.5669 - 3.9606	513.76.011	6.948	4.133	1.574	40	2.094	0.059	**10199**	
3.5669 - 3.9606	514.76.011	12.263	9.448	1.574	40	2.094	0.059		**10199**

Bushing

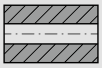
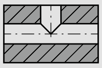
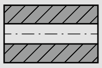
Taper Screw

Adjustic Nut

Spare parts **DC**	40 950 ...	40 950 ...	40 950 ...
2.3858 - 2.7795	**51500**	**51100**	**50300**
2.7795 - 3.1338	**51600**	**51100**	**50300**
3.1339 - 3.5669	**51700**	**51200**	**50400**
3.5669 - 3.9606	**51800**	**51200**	**50400**

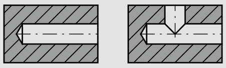
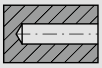
Assembly instructions can be found on → **Page 66+67**

Monomax – Selection guide – Through hole

Ø			.2205 – 1.0196 inch								
KOMET no. (3xD)			56J.65	56.J65	56J.17	56J.71	56J.71	56J.71	56J.93	56J.93	56J.21
KOMET no. (5xD)			56R.65	56.R65	56R.17	56R.71	56R.71	56R.71	56R.93	56R.93	56R.21
Grind geometry			ASG0106	ASG3000	ASG0706	ASG4000	ASG3000	ASG0106	ASG4000	ASG3000	ASG03
Lead angle			45°	45°	45°/8°	45°	45°	45°	25°	45°	30°/2°
Grade / coating			DBG-P	DBG-P	DBC	TiN	TIN	TiN	DST	DST	K10
Article no. (3xD)			49 652	49 676	49 648	49 688	49 605	49 656	49 635	49 625	49 672
Article no. (5xD)			49 653	49 677	49 649	49 689	49 606	49 661	49 636	49 626	49 673
Application			Through hole								
	Material sub-group	**Index**									
P	**Non alloyed steel**	**P.1.1**				●	○		●	●	
		P.1.2									
		P.1.3									
		P.1.4									
		P.1.5									
	Low alloyed steel	**P.2.1**					○		●	●	
		P.2.2									
		P.2.3									
		P.2.4	●								
	High-alloy steel and high-alloy tool steel	**P.3.1**	●					○			
		P.3.2									
		P.3.3									
	Stainless steel	**P.4.1**									
		P.4.2									
M	**Stainless steel**	**M.1.1**	●					○			
		M.2.1									
		M.3.1									
K	**Grey cast iron**	**K.1.1**		●			○				
		K.1.2									
	Spherulitic graphite cast iron	**K.2.1**		●					○	●	
		K.2.2									
	Malleable iron	**K.3.1**		●					○	●	
		K.3.2									
N	**Aluminum alloys,**	**N.1.1**			●						
		N.1.2									
	Aluminium-Gusslegierungen	**N.2.1**									
		N.2.2									
		N.2.3									
	Copper and copper alloys (Bronze, Brass)	**N.3.1**					●			○	
		N.3.2									
		N.3.3									
	Magnesium alloys	**N.4.1**									
S	**Heat resistant alloys**	**S.1.1**									
		S.1.2									
		S.2.1									
		S.2.2									
		S.2.3									
	Titanium alloys	**S.3.1**									●
		S.3.2									
		S.3.3									
O	**Non-metal materials**	**O.1.1**									
		O.1.2									
		O.2.1									
		O.2.2									
		O.3.1			○						

Applications:		
	Main application	●
	Additional range of application	○

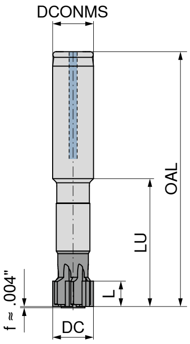
Monomax – Selection guide – Blind hole

Ø			.2205 – 1.0196 inch						
KOMET no. (3xD)			56H.65	56H.65	56H.71	56H.71	56H.17	56H.93	56H.21
KOMET no. (5xD)			56Q.65	56Q.65	56Q.71	56Q.71	56Q.17	56Q.93	56Q.21
Grind geometry			ASG3000	ASG0106	ASG3000	ASG0106	ASG0706	ASG3000	ASG03
Lead angle			45°	45°	45°	45°	45°/8°	45°	30°/2°
Grade / coating			DBG-P	DBG-P	TiN	TiN	DBC	DST	K10
Article no. (3xD)			49 657	49 644	49 684	49 660	49 640	49 680	49 668
Article no. (5xD)			49 665	49 645	49 685	49 664	49 641	49 681	49 669
Application			Blind hole 						
	Material sub-group	**Index**							
P	Non alloyed steel	**P.1.1**	●		○			●	
		P.1.2							
		P.1.3							
		P.1.4							
		P.1.5							
	Low alloyed steel	**P.2.1**	●		○			●	
		P.2.2							
		P.2.3							
		P.2.4	●						
	High-alloy steel and high-alloy tool steel	**P.3.1**		●		○			
		P.3.2							
		P.3.3							
	Stainless steel	**P.4.1**							
		P.4.2							
M	Stainless steel	**M.1.1**		●		○			
		M.2.1							
		M.3.1							
K	Grey cast iron	**K.1.1**	●		○				
		K.1.2							
	Spherulitic graphite cast iron	**K.2.1**	●					●	
		K.2.2							
	Malleable iron	**K.3.1**	●					●	
		K.3.2							
N	Aluminum alloys,	**N.1.1**					●		
		N.1.2							
	Aluminium-Gusslegierungen	**N.2.1**							
		N.2.2							
		N.2.3							
	Copper and copper alloys (Bronze, Brass)	**N.3.1**			●			○	
		N.3.2							
		N.3.3							
	Magnesium alloys	**N.4.1**							
S	Heat resistant alloys	**S.1.1**							
		S.1.2							
		S.2.1							
		S.2.2							
		S.2.3							
	Titanium alloys	**S.3.1**							●
		S.3.2							
		S.3.3							
O	Non-metal materials	**O.1.1**							
		O.1.2							
		O.2.1							
		O.2.2							
		O.3.1					○		

Applications:		
	Main application	●
	Additional range of application	○

Monomax – High-speed reamers, short

- adjustable for smallest bore tolerances
- wear compensation within the tolerance zone
- retraction from the hole at 3–4 times the cutting feed rate
- up to tolerance class IT 5
- ZEFP = number of cutting edges



DST	DBC	DBG-P	DST	TiN
56J.93	56J.17	56J.65	56J.93	56J.71
≤ 3xD	≤ 3xD	≤ 3xD	≤ 3xD	≤ 3xD
◁ 45°	◁ 45/8°	◁ 45°	◁ 25°	◁ 45°
ASG3000	ASG0706	ASG0106	ASG4000	ASG3000
CERMET	HM	HM	CERMET	HM
Through hole	Through hole	Through hole	Through hole	Through hole
49 625 ...	49 648 ...	49 652 ...	49 635 ...	49 605 ...

DC inch	OAL inch	LU inch	L inch	DCONMS h6 inch	DCONMS mm	ZEFP	49 625 ...	49 648 ...	49 652 ...	49 635 ...	49 605 ...
0.2205 - 0.3504	3.346	1.574	0.393	0.472	12	4	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
0.3504 - 0.6259	3.740	1.968	0.393	0.472	12	6	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
0.6260 - 0.7441	3.937	1.968	0.393	0.629	16	6	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
0.7441 - 1.0197	4.724	2.362	0.393	0.787	20	6	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)

	49 625 ...	49 648 ...	49 652 ...	49 635 ...	49 605 ...
P	●		●	●	○
M			●		
K	●			○	○
N	○	●			●
S					
H					
O		○			

1) Not available from stock, articles are non-returnable and cannot be exchanged / Minimum order 2 pieces

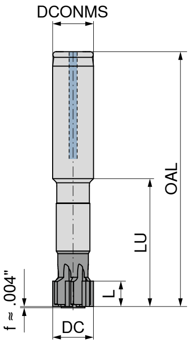
→ v_c Page 46–51

Do not heat shrink tools !

For xxxx please indicate piece part bore diameter and tolerance. (e.g. Ø .5000" ±.0005")

Monomax – High-speed reamers, short

- adjustable for smallest bore tolerances
- wear compensation within the tolerance zone
- retraction from the hole at 3–4 times the cutting feed rate
- up to tolerance class IT 5
- ZEFP = number of cutting edges



K10

56J.21
≤ 3xD
∢ 30/2°
ASG03
HM
Through hole

DBG-P

56J.65
≤ 3xD
∢ 45°
ASG3000
HM
Through hole

TiN

56J.17
≤ 3xD
∢ 25°
ASG4000
HM
Through hole

TiN

56J.71
≤ 3xD
∢ 45°
ASG0106
HM
Through hole

DC inch	OAL inch	LU inch	L inch	DCONMS h6 inch	DCONMS mm	ZEFP	49 672 ...	49 676 ...	49 688 ...	49 656 ...
0.2205 - 0.3504	3.346	1.574	0.393	0.472	12	4	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
0.3504 - 0.6259	3.740	1.968	0.393	0.472	12	6	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
0.6260 - 0.7441	3.937	1.968	0.393	0.629	16	6	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
0.7441 - 1.0197	4.724	2.362	0.393	0.787	20	6	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)

	49 672 ...	49 676 ...	49 688 ...	49 656 ...
P			●	○
M				○
K		●		
N				
S	●			
H				
O				

1) Not available from stock, articles are non-returnable and cannot be exchanged / Minimum order 2 pieces

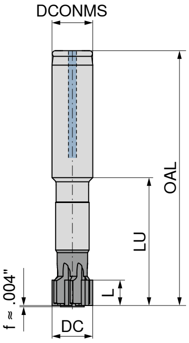
→ v_c Page 46–51

Do not heat shrink tools !

For xxxx please indicate piece part bore diameter and tolerance. (e.g. Ø .5000" ±.0005")

Monomax – High-speed reamers, short

- adjustable for smallest bore tolerances
- wear compensation within the tolerance zone
- retraction from the hole at 3–4 times the cutting feed rate
- up to tolerance class IT 5
- ZEFP = number of cutting edges



DBG-P	DBC	DBG-P
56H.65	56H.17	56H.65
≤ 3xD	≤ 3xD	≤ 3xD
◁ 45°	◁ 45/8°	◁ 45°
ASG0106	ASG0706	ASG3000
HM	HM	HM
Blind hole	Blind hole	Blind hole

DC **inch**	OAL inch	LU inch	L inch	DCONMS $_{h6}$ inch	DCONMS mm	ZEFP	**49 644 ...**	**49 640 ...**	**49 657 ...**
0.2205 - 0.3504	3.346	1.574	0.393	0.472	12	4	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
0.3504 - 0.6259	3.740	1.968	0.393	0.472	12	6	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
0.6260 - 0.7441	3.937	1.968	0.393	0.629	16	6	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
0.7441 - 1.0197	4.724	2.362	0.393	0.787	20	6	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)

	49 644 ...	49 640 ...	49 657 ...
P	●		●
M	●		
K			●
N		●	
S			
H			
O		○	

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→ v_c Page 46–51

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- retraction from the hole at 3–4 times the cutting feed rate
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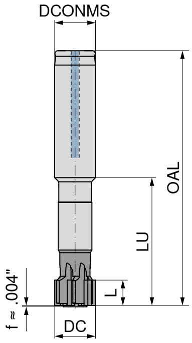
- ZEFP = number of cutting edges






TiN	K10	DST	TiN
56H.71	56H.21	56H.93	56H.71
≤ 3xD	≤ 3xD	≤ 3xD	≤ 3xD
◁ 45°	◁ 30/2°	◁ 45°	◁ 45°
ASG0106	ASG03	ASG3000	ASG3000
HM	HM	CERMET	HM
Blind hole	Blind hole	Blind hole	Blind hole
49 660 ...	**49 668 ...**	**49 680 ...**	**49 684 ...**

DC **inch**	OAL inch	LU inch	L inch	DCONMS $_{h6}$ inch	DCONMS mm	ZEFP	49 660 ...	49 668 ...	49 680 ...	49 684 ...
0.2205 - 0.3504	3.346	1.574	0.393	0.472	12	4	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
0.3504 - 0.6259	3.740	1.968	0.393	0.472	12	6	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
0.6260 - 0.7441	3.937	1.968	0.393	0.629	16	6	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
0.7441 - 1.0197	4.724	2.362	0.393	0.787	20	6	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)

	49 660 ...	49 668 ...	49 680 ...	49 684 ...
P	○		●	○
M	○			
K			●	○
N			○	●
S		●		
H				
O				

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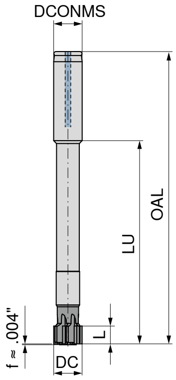
→ v_c Page 46–51

Do not heat shrink tools !

For xxxx please indicate piece part bore diameter and tolerance. (e.g. Ø .5000" ±.0005")

Monomax – High-speed reamers, long

- adjustable for smallest bore tolerances
- wear compensation within the tolerance zone
- retraction from the hole at 3–4 times the cutting feed rate
- up to tolerance class IT 5
- ZEFP = number of cutting edges



DC inch	OAL inch	LU inch	L inch	DCONMS h6 inch	DCONMS mm	ZEFP	DST 56R.93 ≤ 5xD ◁ 45° ASG3000 CERMET Through hole 49 626 ...	DBC 56R.17 ≤ 5xD ◁ 45/8° ASG0706 HM Through hole 49 649 ...	DBG-P 56R.65 ≤ 5xD ◁ 45° ASG0106 HM Through hole 49 653 ...	DST 56R.93 ≤ 5xD ◁ 25° ASG4000 CERMET Through hole 49 636 ...	TiN 56R.71 ≤ 5xD ◁ 45° ASG3000 HM Through hole 49 606 ...
0.2205 - 0.3504	5.118	3.346	0.393	0.472	12	4	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
0.3504 - 0.3897	5.118	3.346	0.393	0.472	12	6	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
0.3898 - 0.6259	6.299	4.527	0.393	0.472	12	6	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
0.6260 - 0.7441	7.086	5.118	0.393	0.629	16	6	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
0.7441 - 1.0197	7.874	5.511	0.393	0.787	20	6	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
P							●		●	●	○
M									●		
K							●			○	○
N							○	●			●
S											
H											
O								○			

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→ v_c Page 46–51

Do not heat shrink tools !

For xxxx please indicate piece part bore diameter and tolerance. (e.g. Ø .5000" ±.0005")

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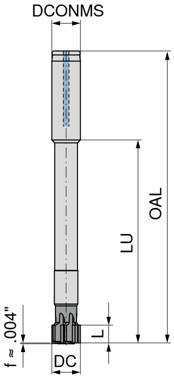
- adjustable for smallest bore tolerances
- wear compensation within the tolerance zone
- retraction from the hole at 3–4 times the cutting feed rate
- up to tolerance class IT 5
- ZEFP = number of cutting edges






TiN	**DBG-P**	**K10**	**TiN**
56R.71	56R.65	56R.21	56R.71
≤ 5xD	≤ 5xD	≤ 5xD	≤ 5xD
◁ 45°	◁ 45°	◁ 30/2°	◁ 45°
ASG4000	ASG3000	ASG03	ASG0106
HM	HM	HM	HM
Through hole	Through hole	Through hole	Through hole

DC inch	OAL inch	LU inch	L inch	DCONMS h6 inch	DCONMS mm	ZEFP	**49 689 ...**	**49 677 ...**	**49 673 ...**	**49 661 ...**
0.2205 - 0.3504	5.118	3.346	0.393	0.472	12	4	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
0.3504 - 0.3897	5.118	3.346	0.393	0.472	12	6	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
0.3898 - 0.6259	6.299	4.527	0.393	0.472	12	6	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
0.6260 - 0.7441	7.086	5.118	0.393	0.629	16	6	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
0.7441 - 1.0197	7.874	5.511	0.393	0.787	20	6	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)	**xxxx** 1)
P							●			○
M										○
K								●		
N										
S									●	
H										
O										

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→ v_c Page 46–51

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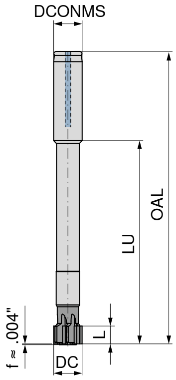
- retraction from the hole at 3–4 times the cutting feed rate
- up to tolerance class IT 5
- ZEFP = number of cutting edges



DC inch	OAL inch	LU inch	L inch	DCONMS h6 inch	DCONMS mm	ZEFP	DBG-P 56Q.65 ≤ 5xD ◁ 45° ASG0106 HM Blind hole 49 645 ...	DBC 56Q.17 ≤ 5xD ◁ 45/8° ASG0706 HM Blind hole 49 641 ...	DBG-P 56Q.65 ≤ 5xD ◁ 45° ASG3000 HM Blind hole 49 665 ...
0.2205 - 0.3504	5.118	3.346	0.393	0.472	12	4	xxxx 1)	xxxx 1)	xxxx 1)
0.3504 - 0.3897	5.118	3.346	0.393	0.472	12	6	xxxx 1)	xxxx 1)	xxxx 1)
0.3898 - 0.6259	6.299	4.527	0.393	0.472	12	6	xxxx 1)	xxxx 1)	xxxx 1)
0.6260 - 0.7441	7.086	5.118	0.393	0.629	16	6	xxxx 1)	xxxx 1)	xxxx 1)
0.7441 - 1.0197	7.874	5.511	0.393	0.787	20	6	xxxx 1)	xxxx 1)	xxxx 1)

	49 645 ...	49 641 ...	49 665 ...
P	●		●
M	●		
K			●
N		●	
S			
H			
O		○	

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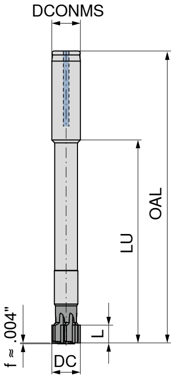
- up to tolerance class IT 5
- ZEFP = number of cutting edges






DST	TiN	K10	TiN
56Q.93	56Q.71	56Q.21	56Q.71
≤ 5xD	≤ 5xD	≤ 5xD	≤ 5xD
◁ 45°	◁ 45°	◁ 30/2°	◁ 45°
ASG3000	ASG3000	ASG03	ASG0106
CERMET	HM	HM	HM
Blind hole	Blind hole	Blind hole	Blind hole
49 681 ...	49 685 ...	49 669 ...	49 664 ...

DC inch	OAL inch	LU inch	L inch	DCONMS h6 inch	DCONMS mm	ZEFP	49 681 ...	49 685 ...	49 669 ...	49 664 ...
0.2205 - 0.3504	5.118	3.346	0.393	0.472	12	4	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
0.3504 - 0.3897	5.118	3.346	0.393	0.472	12	6	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
0.3898 - 0.6259	6.299	4.527	0.393	0.472	12	6	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
0.6260 - 0.7441	7.086	5.118	0.393	0.629	16	6	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)
0.7441 - 1.0197	7.874	5.511	0.393	0.787	20	6	xxxx 1)	xxxx 1)	xxxx 1)	xxxx 1)

	49 681 ...	49 685 ...	49 669 ...	49 664 ...
P	●	○		○
M				○
K	●	○		
N	○	●		
S			●	
H				
O				

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→ v_c Page 46–51

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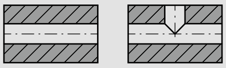
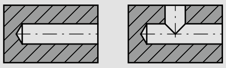
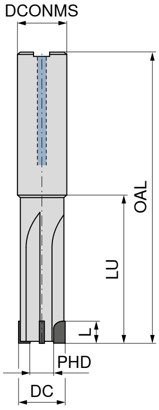
PCD Reamers – Selection guide

Ø			.1575 – .7913 inch			
KOMET no.			690.10	690.11	690.13	690.14
Number of flutes			2	4	2	4
Grind geometry			ASG1101		ASG1101	
Lead angle			45°		45°	
Grade / coating			PCD-U		PCD-U	
Article no.			49 200	49 201	49 204	49 205
Application			Through hole 		Blind hole 	
	Material sub-group	**Index**				
P	**Non alloyed steel**	**P.1.1**				
		P.1.2				
		P.1.3				
		P.1.4				
		P.1.5				
	Low alloyed steel	**P.2.1**				
		P.2.2				
		P.2.3				
		P.2.4				
	High-alloy steel and high-alloy tool steel	**P.3.1**				
		P.3.2				
		P.3.3				
	Stainless steel	**P.4.1**				
		P.4.2				
M	**Stainless steel**	**M.1.1**				
		M.2.1				
		M.3.1				
K	**Grey cast iron**	**K.1.1**				
		K.1.2				
	Spherulitic graphite cast iron	**K.2.1**				
		K.2.2				
	Malleable iron	**K.3.1**				
		K.3.2				
N	**Aluminum alloys,**	**N.1.1**	●		●	
		N.1.2				
	Aluminium-Gusslegierungen	**N.2.1**				
		N.2.2				
		N.2.3				
	Copper and copper alloys (Bronze, Brass)	**N.3.1**				
		N.3.2				
		N.3.3				
	Magnesium alloys	**N.4.1**	●		●	
S	**Heat resistant alloys**	**S.1.1**				
		S.1.2				
		S.2.1				
		S.2.2				
		S.2.3				
	Titanium alloys	**S.3.1**				
		S.3.2				
		S.3.3				
O	**Non-metal materials**	**O.1.1**				
		O.1.2				
		O.2.1				
		O.2.2				
		O.3.1				

Applications:		
	Main application	●
	Additional range of application	○

PCD – Reamers

- Solid Carbide body
- PHD = Diameter for face machining
- ZEFP = Number of cutting edges



PCD-U
690.13
~A
◁ 90°
ASG1101
HM
Blind hole
49 204 ...

PCD-U
690.14
~A
◁ 90°
ASG1101
HM
Blind hole
49 205 ...

DC inch	OAL inch	L inch	LU inch	PHD inch	DCONMS $_{h6}$ inch	DCONMS mm	ZEFP	49 204 ...	49 205 ...
0.1575 - 0.1811	2.519	0.275	1.102	DC-0.0945	0.236	6	2	xxxx 1)	
0.1811 - 0.2008	2.519	0.275	1.102	DC-0.1024	0.236	6	2	xxxx 1)	
0.2008 - 0.2205	2.519	0.275	1.102	DC-0.1063	0.236	6	2	xxxx 1)	
0.2205 - 0.2402	2.795	0.275	1.377	DC-0.1102	0.236	6	2	xxxx 1)	
0.2402 - 0.2598	2.992	0.275	1.574	DC-0.1339	0.314	8	2	xxxx 1)	
0.2599 - 0.2795	2.992	0.275	1.574	DC-0.1339	0.314	8	2	xxxx 1)	
0.2796 - 0.2992	2.992	0.275	1.574	DC-0.1339	0.314	8	2	xxxx 1)	
0.2993 - 0.3189	2.992	0.275	1.574	DC-0.1417	0.314	8	2	xxxx 1)	
0.3189 - 0.3386	3.346	0.275	1.574	DC-0.1417	0.472	12	2	xxxx 1)	
0.3386 - 0.3583	3.346	0.275	1.574	DC-0.1614	0.472	12	2	xxxx 1)	
0.3583 - 0.3976	3.346	0.275	1.574	DC-0.1811	0.472	12	2	xxxx 1)	
0.3780 - 0.3976	3.346	0.275	1.574	DC-0.1496	0.472	12	4		xxxx 1)
0.3977 - 0.4567	3.740	0.275	1.968	DC-0.1969	0.472	12	2	xxxx 1)	
0.3977 - 0.4567	3.740	0.275	1.968	DC-0.1496	0.472	12	4		xxxx 1)
0.4567 - 0.5551	3.740	0.275	1.968	DC-0.2362	0.472	12	2	xxxx 1)	
0.4567 - 0.5551	3.740	0.275	1.968	DC-0.1496	0.472	12	4		xxxx 1)
0.5552 - 0.5945	3.858	0.275	1.968	DC-0.2598	0.629	16	2	xxxx 1)	
0.5552 - 0.5945	3.858	0.275	1.968	DC-0.1535	0.629	16	4		xxxx 1)
0.5945 - 0.6339	3.858	0.275	1.968	DC-0.2795	0.629	16	2	xxxx 1)	
0.5945 - 0.6339	3.858	0.275	1.968	DC-0.1535	0.629	16	4		xxxx 1)
0.6339 - 0.7126	4.251	0.275	2.362	DC-0.3150	0.629	16	2	xxxx 1)	
0.6339 - 0.7126	4.251	0.275	2.362	DC-0.1811	0.629	16	4		xxxx 1)
0.7126 - 0.7913	4.330	0.275	2.362	DC-0.3386	0.787	20	2	xxxx 1)	
0.7126 - 0.7913	4.330	0.275	2.362	DC-0.1811	0.787	20	4		xxxx 1)

	49 204 ...	49 205 ...
P		
M		
K		
N	●	●
S		
H		
O		

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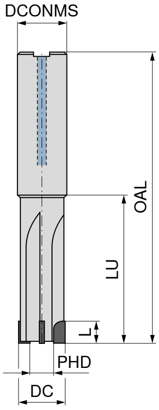
→ v_c Page 62

For xxxx please indicate piece part bore diameter and tolerance. (e.g. Ø .5000" ±.0005")

PCD - Reamers

- ▲ Solid Carbide body
- ▲ PHD = Diameter for face machining
- ▲ ZEFP = Number of cutting edges

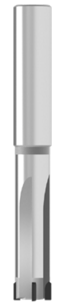


PCD-U

690.10
~A
◁ 90°
ASG1101
HM
Through hole

49 200 ...

PCD-U



690.11
~A
◁ 90°
ASG1101
HM
Through hole

49 201 ...

DC inch	OAL inch	L inch	LU inch	PHD inch	DCONMS $_{h6}$ inch	DCONMS mm	ZEFP	49 200 ...	49 201 ...
0.2205 - 0.2402	2.795	0.275	1.377	DC-0.1102	0.236	6	2	**xxxx** 1)	
0.2402 - 0.2598	2.992	0.275	1.574	DC-0.1339	0.314	8	2	**xxxx** 1)	
0.2599 - 0.2795	2.992	0.275	1.574	DC-0.1339	0.314	8	2	**xxxx** 1)	
0.2796 - 0.2992	2.992	0.275	1.574	DC-0.1339	0.314	8	2	**xxxx** 1)	
0.2993 - 0.3189	2.992	0.275	1.574	DC-0.1417	0.314	8	2	**xxxx** 1)	
0.3189 - 0.3386	3.346	0.275	1.574	DC-0.1417	0.472	12	2	**xxxx** 1)	
0.3386 - 0.3583	3.346	0.275	1.574	DC-0.1614	0.472	12	2	**xxxx** 1)	
0.3583 - 0.3976	3.346	0.275	1.574	DC-0.1811	0.472	12	2	**xxxx** 1)	
0.3780 - 0.3976	3.346	0.275	1.574	DC-0.1417	0.472	12	4		**xxxx** 1)
0.3977 - 0.4567	3.740	0.275	1.968	DC-0.1969	0.472	12	2	**xxxx** 1)	
0.3977 - 0.4567	3.740	0.275	1.968	DC-0.1496	0.472	12	4		**xxxx** 1)
0.4567 - 0.5551	3.740	0.275	1.968	DC-0.2362	0.472	12	2	**xxxx** 1)	
0.4567 - 0.5551	3.740	0.275	1.968	DC-0.1496	0.472	12	4		**xxxx** 1)
0.5552 - 0.5945	3.858	0.275	1.968	DC-0.2598	0.629	16	2	**xxxx** 1)	
0.5552 - 0.5945	3.858	0.275	1.968	DC-0.1535	0.629	16	4		**xxxx** 1)
0.5945 - 0.6339	3.858	0.275	1.968	DC-0.2795	0.629	16	2	**xxxx** 1)	
0.5945 - 0.6339	3.858	0.275	1.968	DC-0.1535	0.629	16	4		**xxxx** 1)
0.6339 - 0.7126	4.251	0.275	2.362	DC-0.3150	0.629	16	2	**xxxx** 1)	
0.6339 - 0.7126	4.251	0.275	2.362	DC-0.1811	0.629	16	4		**xxxx** 1)
0.7126 - 0.7913	4.330	0.275	2.362	DC-0.3386	0.787	20	2	**xxxx** 1)	
0.7126 - 0.7913	4.330	0.275	2.362	DC-0.1811	0.787	20	4		**xxxx** 1)

	49 200 ...	49 201 ...
P		
M		
K		
N	●	●
S		
H		
O		

1) Not available from stock, articles are non-returnable and cannot be exchanged / Minimum order 2 pieces

→ v_c Page 62

For xxxx please indicate piece part bore diameter and tolerance. (e.g. Ø .5000" ±.0005")

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength lbf/in^2* / HB / HRC	Material number	Material designation	Material number	Material designation
P	**Unalloyed steel**	**P.1.1**	< 0.15 % C	Annealed	60900 lbf/in^2 / 125 HB	1.0401	1015	1.0301	1010
		P.1.2	< 0.45 % C	Annealed	92800 lbf/in^2 / 190 HB	1.1191	1045	1.0737	12L14
		P.1.3		Tempered	121800 lbf/in^2 / 250 HB	1.1191	1045	1.0503	1043
		P.1.4	< 0.75 % C	Annealed	132000 lbf/in^2 / 270 HB	1.1223	1060	1.0535	1055
		P.1.5		Tempered	146500 lbf/in^2 / 300 HB	1.1223	1060	1.1274	1095
	Low-alloy steel	**P.2.1**		Annealed	88500 lbf/in^2 / 180 HB	1.7131	5115	1.6523	8620
		P.2.2		Tempered	134900 lbf/in^2 / 275 HB	1.7131	5115	1.6582	4340
		P.2.3		Tempered	146500 lbf/in^2 / 300 HB	1.7225	4142	1.7131	5115
		P.2.4		Tempered	174000 lbf/in^2 / 375 HB	1.7225	4142	17223	4140
	High-alloy steel and high-alloy tool steel	**P.3.1**		Annealed	98600 lbf/in^2 / 200 HB	1.4021	420	1.2379	D2
		P.3.2		Hardened and tempered	159500 lbf/in^2 / 300 HB	1.2343	H11	1.3343	M2
		P.3.3		Hardened and tempered	188500 lbf/in^2 / 400 HB	1.2343	H11	1.2363	A2
	Stainless steel	**P.4.1**	Ferritic / martensitic	Annealed	98600 lbf/in^2 / 200 HB	1.4016	430	1.4125	440C
		P.4.2	Martensitic	Tempered	117500 lbf/in^2 / 250 HB	1.4112	S44003	1.4021	420
M	**Stainless steel**	**M.1.1**	Austenitic / austenitic-ferritic	Quenched	88500 lbf/in^2 / 200 HB	1.4301	304	1.4401	316
		M.2.1	Austenitic	Tempered	300 HB	1.4841	314	1.4568	17-7 PH
		M.3.1	Austenitic / ferritic (Duplex)		113100 lbf/in^2 / 230 HB	1.4462	S32205	1.4410	S32750
K	**Grey cast iron**	**K.1.1**	Pearlitic / ferritic		88500 lbf/in^2 / 180 HB	0.6010	A48-20B	0.6025	A48-40 B
		K.1.2	Pearlitic (martensitic)		127600 lbf/in^2 / 260 HB	0.6030	A48-45B	0.6040	A48-60 B
	Spherulitic graphite cast iron	**K.2.1**	Ferritic		78300 lbf/in^2 / 160 HB	0.7040	60-40-18	0.7050	65-45-12
		K.2.2	Pearlitic		122600 lbf/in^2 / 250 HB	0.7070	100-70-03	0.7660	A439 Type D2
	Malleable iron	**K.3.1**	Ferritic		63800 lbf/in^2 / 130 HB	0.8035	GTW-35-04		
		K.3.2	Pearlitic		113100 lbf/in^2 / 230 HB	0.8170	70003		
N	**Aluminium wrought alloy**	**N.1.1**	Non-hardenable		60 HB	3.0255	A91060	3.0255	A91060
		N.1.2	Hardenable		49300 lbf/in^2 / 100 HB	3.1355	2024	3.1355	2024
	Cast aluminium alloy	**N.2.1**	≤ 12 % Si, non-hardenable		36300 lbf/in^2 / 75 HB	3.2581	A04130 / A413-0	3.2581	A04130 / A413-0
		N.2.2	≤ 12 % Si, hardenable		43500 lbf/in^2 / 90 HB	3.2134	G-AlSi5Cu1Mg		
		N.2.3	> 12 % Si, non-hardenable		63800 lbf/in^2 / 130 HB		G-AlSi17Cu4Mg		
	Copper and copper alloys (bronze/brass)	**N.3.1**	Free-machining alloys, PB > 1 %		54400 lbf/in^2 / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0380	C37700
		N.3.2	CuZn, CuSnZn		43500 lbf/in^2 / 90 HB	2.0331	CuZn15	2.0331	C34000
		N.3.3	CuSn, lead-free copper and electrolytic copper		49300 lbf/in^2 / 100 HB	2.0060	E-Cu57		
	Magnesium alloys	**N.4.1**	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn		
S	**Heat-resistant alloys**	**S.1.1**	Fe - basis	Annealed	98600 lbf/in^2 / 200 HB	1.4864	X12NiCrSi 36-16	1.4864	330
		S.1.2			137800 lbf/in^2 / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4980	S66286
		S.2.1	Ni or Co basis	Annealed	121800 lbf/in^2 / 250 HB	2.4856	Inconel 625	2.4812	Hastelloy C
		S.2.2			171100 lbf/in^2 / 350 HB	2.4952	Nimonic 80A	2.4668	Inconel 718
		S.2.3		Cast	156600 lbf/in^2 / 320 HB	2.4674	Nimocast PK24	2.4670	Nimocast 713
	Titanium alloys	**S.3.1**	Pure titanium		5800 lbf/in^2	3.7025	Ti99,8		
		S.3.2	Alpha + beta alloys		152300 lbf/in^2	3.7165	TiAl6V4		
		S.3.3	Beta alloys		203100 lbf/in^2 / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr		
H	**Hardened steel**	**H.1.1**		Hardened and tempered	46-55 HRC				
		H.1.2		Hardened and tempered	56-60 HRC				
		H.1.3		Hardened and tempered	61-65 HRC				
		H.1.4		Hardened and tempered	66-70 HRC				
	Chilled iron	**H.2.1**		Cast	400 HB				
	Hardened cast iron	**H.3.1**		Hardened and tempered	55 HRC				
O	**Non-metal materials**	**O.1.1**	Plastics, duroplastic		≤ 21800 lbf/in^2				
		O.1.2	Plastics, thermoplastic		≤ 14500 lbf/in^2				
		O.2.1	Aramid fibre-reinforced		≤ 145000 lbf/in^2				
		O.2.2	Glass/carbon-fibre reinforced		≤ 145000 lbf/in^2				
		O.3.1	Graphite						

*** Tensile Strength at Rupture (Rm)**

Cutting data standard values for REAMAX TS

Grade / coating			DBG-P						DBG-P			
Article no. / type			**49 586 ..., 49 585 ... / 75J.65, 75H.65 – ASG3000**						**49 521 ..., 49 571 ... / 75J.65, 75H.65 – ASG0106**			
Nominal Ø in inches			.7086-.8660	.8661-1.2519	1.2520-2.0471	2.0472-2.5590			.7086-.8660	.8661-1.2519	1.2520-2.0471	2.0472-2.5590
Reaming allowance Ø			.008 - .012	.008 - .012	.012 - .016	.012 - .016			.008 - .012	.008 - .012	.012 - .016	.012 - .016
Number of flutes			6	6	8	10			6	6	8	10
Index	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.	f inch/rev.	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.	f inch/rev.
	3xD	5xD					3xD	5xD				
P.1.1	**490** (430–660)	**390** (330–520)	.031–.043	.039–.055	.051–.075	.075–.110						
P.1.2	**490** (430–660)	**390** (330–520)	.031–.043	.039–.055	.051–.075	.075–.110						
P.1.3	**490** (430–660)	**390** (330–520)	.031–.043	.039–.055	.051–.075	.075–.110						
P.1.4	**490** (430–660)	**390** (330–520)	.031–.043	.039–.055	.051–.075	.075–.110						
P.1.5	**490** (430–660)	**390** (330–520)	.031–.043	.039–.055	.051–.075	.075–.110						
P.2.1	**490** (430–660)	**390** (330–520)	.031–.043	.039–.055	.051–.075	.075–.110						
P.2.2	**490** (430–660)	**390** (330–520)	.031–.043	.039–.055	.051–.075	.075–.110						
P.2.3	**490** (430–660)	**390** (330–520)	.031–.043	.039–.055	.051–.075	.075–.110						
P.2.4	**490** (430–660)	**390** (330–520)	.031–.043	.039–.055	.051–.075	.075–.110						
P.3.1							**100** (80–160)	**100** (80–130)	.024–.035	.031–.043	.043–.059	.059–.091
P.3.2							**100** (80–160)	**100** (80–130)	.024–.035	.031–.043	.043–.059	.059–.091
P.3.3							**100** (80–160)	**100** (80–130)	.024–.035	.031–.043	.043–.059	.059–.091
P.4.1							**150** (110–200)	**130** (110–160)	.024–.035	.031–.043	.043–.059	.059–.091
P.4.2							**150** (110–200)	**130** (110–160)	.024–.035	.031–.043	.043–.059	.059–.091
M.1.1							**150** (110–200)	**130** (110–160)	.024–.035	.031–.043	.043–.059	.059–.091
M.2.1							**150** (110–200)	**130** (110–160)	.024–.035	.031–.043	.043–.059	.059–.091
M.3.1							**100** (80–160)	**100** (80–130)	.024–.035	.031–.043	.043–.059	.059–.091
K.1.1	**490** (430–720)	**390** (330–490)	.035–.051	.047–.067	.063–.091	.091–.134						
K.1.2	**490** (430–720)	**390** (330–490)	.035–.051	.047–.067	.063–.091	.091–.134						
K.2.1	**570** (490–980)	**490** (430–590)	.035–.051	.047–.067	.063–.091	.091–.134						
K.2.2	**390** (330–590)	**390** (330–490)	.031–.043	.039–.055	.051–.075	.075–.110						
K.3.1	**390** (330–590)	**390** (330–490)	.031–.043	.039–.055	.051–.075	.075–.110						
K.3.2	**390** (330–590)	**390** (330–490)	.031–.043	.039–.055	.051–.075	.075–.110						
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for REAMAX TS

	Grade / coating		**TiN**						**TiN**			
	Article no. / type		**49 534 ..., 49 535 ... / 75J.71, 75H.71 – ASG3000**						**49 596 ... / 75J.71 – ASG4000**			
	Nominal Ø in inches		.7086-.8660	.8661-1.2519	1.2520-2.0471	2.0472-2.5590			.7086-.8660	.8661-1.2519	1.2520-2.0471	2.0472-2.5590
	Reaming allowance Ø		.008 – .012	.008 – .012	.012 – .016	.012 – .016			.008 – .012	.008 – .012	.012 – .016	.012 – .016
	Number of flutes		6	6	8	10			6	6	8	10
Index	V_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.	f inch/rev.	V_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.	f inch/rev.
	3xD	5xD					3xD	5xD				
P.1.1	330 (260–460)	260 (200–390)	.031–.004	.039–.055	.051–.075	.075–.110	**330** (260–460)	**260** (200–390)	.039–.051	.047–.067	.067–.091	.094–.134
P.1.2	330 (260–460)	260 (200–390)	.031–.004	.039–.055	.051–.075	.075–.110	**330** (260–460)	**260** (200–390)	.039–.051	.047–.067	.067–.091	.094–.134
P.1.3	330 (260–460)	260 (200–390)	.031–.004	.039–.055	.051–.075	.075–.110	**330** (260–460)	**260** (200–390)	.039–.051	.047–.067	.067–.091	.094–.134
P.1.4	330 (260–460)	260 (200–390)	.031–.004	.039–.055	.051–.075	.075–.110	**330** (260–460)	**260** (200–390)	.039–.051	.047–.067	.067–.091	.094–.134
P.1.5	330 (260–460)	260 (200–390)	.031–.004	.039–.055	.051–.075	.075–.110	**330** (260–460)	**260** (200–390)	.039–.051	.047–.067	.067–.091	.094–.134
P.2.1	330 (260–460)	260 (200–390)	.031–.004	.039–.055	.051–.075	.075–.110						
P.2.2	330 (260–460)	260 (200–390)	.031–.004	.039–.055	.051–.075	.075–.110						
P.2.3	330 (260–460)	260 (200–390)	.031–.004	.039–.055	.051–.075	.075–.110						
P.2.4	330 (260–460)	260 (200–390)	.031–.004	.039–.055	.051–.075	.075–.110						
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1	260 (200–430)	260 (200–390)	.035–.051	.047–.067	.063–.091	.091–.134						
K.1.2	260 (200–430)	260 (200–390)	.035–.051	.047–.067	.063–.091	.091–.134						
K.2.1												
K.2.2												
K.3.1												
K.3.2												
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1	**390** (330–660)	**390** (330–660)	.035–.051	.043–.067	.059–.091	.091–.134						
N.3.2	**260** (200–490)	**260** (200–390)	.028–.043	.035–.055	.047–.075	.067–.102						
N.3.3	**390** (330–660)	**390** (330–490)	.028–.043	.035–.055	.047–.075	.067–.102						
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for REAMAX TS

	Grade / coating		**TiN**						**DBC**			
	Article no. / type		**49 520 ..., 49 527 ... / 75J.71, 75H.71 – ASG0106**						**49 526 ..., 49 580 ... / 75J.17, 75H.17 – ASG0706**			
	Nominal Ø in inches		.7086–.8660	.8661–1.2519	1.2520–2.0471	2.0472–2.5590			.7086–.8660	.8661–1.2519	1.2520–2.0471	2.0472–2.5590
	Reaming allowance Ø		.008 – .012	.008 – .012	.012 – .016	.012 – .016			.008 – .012	.008 – .012	.012 – .016	.012 – .016
	Number of flutes		6	6	8	10			6	6	8	10
Index	V_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.	f inch/rev.	V_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.	f inch/rev.
	3xD	5xD					3xD	5xD				
P.1.1												
P.1.2												
P.1.3												
P.1.4												
P.1.5												
P.2.1												
P.2.2												
P.2.3												
P.2.4												
P.3.1	70 (50–110)	70 (50–90)	.024–.035	.031–.043	.043–.059	.059–.091						
P.3.2	70 (50–110)	70 (50–90)	.024–.035	.031–.043	.043–.059	.059–.091						
P.3.3	70 (50–110)	70 (50–90)	.024–.035	.031–.043	.043–.059	.059–.091						
P.4.1	100 (70–130)	90 (70–110)	.024–.035	.031–.043	.043–.059	.059–.091						
P.4.2	100 (70–130)	90 (70–110)	.024–.035	.031–.043	.043–.059	.059–.091						
M.1.1	100 (70–130)	90 (70–110)	.024–.035	.031–.043	.043–.059	.059–.091						
M.2.1	100 (70–130)	90 (70–110)	.024–.035	.031–.043	.043–.059	.059–.091						
M.3.1	70 (50–110)	70 (50–90)	.024–.035	.031–.043	.043–.059	.059–.091						
K.1.1												
K.1.2												
K.2.1												
K.2.2												
K.3.1												
K.3.2												
N.1.1							**490** (430–980)	**490** (430–660)	.035–.051	.043–.067	.059–.091	.087–.134
N.1.2							**490** (430–980)	**490** (430–660)	.035–.051	.043–.067	.059–.091	.087–.134
N.2.1							**660** (590–980)	**490** (430–660)	.035–.051	.043–.067	.059–.091	.087–.134
N.2.2							**660** (590–980)	**490** (430–660)	.035–.051	.043–.067	.059–.091	.087–.134
N.2.3							**660** (590–980)	**490** (430–660)	.035–.051	.043–.067	.059–.091	.087–.134
N.3.1												
N.3.2												
N.3.3												
N.4.1							**490** (430–980)	**490** (430–660)	.035–.051	.043–.067	.059–.091	.087–.134
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1							820 (720–890)	820 (720–890)	.035–.051	.043–.067	.059–.091	.087–.134

3

ℹ The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for REAMAX TS

	Grade / coating		**DST**						**DST**			
	Article no. / type		**49 544 ..., 40 539 ... / 75J.93, 75H.93 – ASG3000**						**49 597 ... / 75J.93 – ASG4000**			
	Nominal Ø in inches		.7086-.8660	.8661-1.2519	1.2520-2.0471	2.0472-2.5590			.7086-.8660	.8661-1.2519	1.2520-2.0471	2.0472-2.5590
	Reaming allowance Ø		.008 - .012	.008 - .012	.012 - .016	.012 - .016			.008 - .012	.008 - .012	.012 - .016	.012 - .016
	Number of flutes		6	6	8	10			6	6	8	10
Index	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.	f inch/rev.	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.	f inch/rev.
	3xD	5xD					3xD	5xD				
P.1.1	**490** (430-660)	**390** (330-520)	.031-.043	.039-.055	.051-.075	.075-.110	**490** (430-660)	**390** (330-520)	.039-.051	.047-.067	.067-.091	.094-.134
P.1.2	**490** (430-660)	**390** (330-520)	.031-.043	.039-.055	.051-.075	.075-.110	**490** (430-660)	**390** (330-520)	.039-.051	.047-.067	.067-.091	.094-.134
P.1.3	**490** (430-660)	**390** (330-520)	.031-.043	.039-.055	.051-.075	.075-.110	**490** (430-660)	**390** (330-520)	.039-.051	.047-.067	.067-.091	.094-.134
P.1.4	**490** (430-660)	**390** (330-520)	.031-.043	.039-.055	.051-.075	.075-.110	**490** (430-660)	**390** (330-520)	.039-.051	.047-.067	.067-.091	.094-.134
P.1.5	**490** (430-660)	**390** (330-520)	.031-.043	.039-.055	.051-.075	.075-.110	**490** (430-660)	**390** (330-520)	.039-.051	.047-.067	.067-.091	.094-.134
P.2.1	**490** (430-660)	**390** (330-520)	.031-.043	.039-.055	.051-.075	.075-.110	**490** (430-660)	**390** (330-520)	.039-.051	.047-.067	.067-.091	.094-.134
P.2.2	**490** (430-660)	**390** (330-520)	.031-.043	.039-.055	.051-.075	.075-.110	**490** (430-660)	**390** (330-520)	.039-.051	.047-.067	.067-.091	.094-.134
P.2.3	**490** (430-660)	**390** (330-520)	.031-.043	.039-.055	.051-.075	.075-.110	**490** (430-660)	**390** (330-520)	.039-.051	.047-.067	.067-.091	.094-.134
P.2.4	**490** (430-660)	**390** (330-520)	.031-.043	.039-.055	.051-.075	.075-.110	**490** (430-660)	**390** (330-520)	.039-.051	.047-.067	.067-.091	.094-.134
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1												
K.1.2												
K.2.1	**570** (490-980)	**490** (430-590)	.035-.051	.047-.067	.063-.091	.091-.134	**740** (660-980)	**590** (520-790)	.047-.063	.059-.079	.079-.106	.114-.161
K.2.2	**380** (330-490)	**330** (260-390)	.031-.043	.039-.055	.051-.075	.075-.110	**390** (330-490)	**330** (260-390)	.047-.063	.059-.079	.079-.106	.114-.161
K.3.1	**390** (330-590)	**390** (330-490)	.031-.043	.039-.055	.051-.075	.075-.110						
K.3.2	**390** (330-590)	**390** (330-490)	.031-.043	.039-.055	.051-.075	.075-.110	**390** (330-590)	**390** (330-490)	.039-.051	.047-.067	.067-.091	.094-.134
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1	490 (430-1050)	490 (430-660)	.035-.051	.043-.067	.059-.091	.083-.122						
N.3.2	490 (430-1050)	490 (430-660)	.035-.051	.043-.067	.059-.091	.083-.122						
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for REAMAX TS

	Grade / coating		DST						K10			
	Article no. / type		49 539 ... / 75H.93 – ASG3000						49 531 ..., 49 530 ... / 75J.21, 75H.21 – ASG03			
	Nominal Ø in inches		.7086-.8660	.8661-1.2519	1.2520-2.0471	2.0472-2.5590			.7086-.8660	.8661-1.2519	1.2520-2.0471	2.0472-2.5590
	Reaming allowance Ø		.008 - .012	.008 - .012	.012 - .016	.012 - .016			.008 - .012	.008 - .012	.012 - .016	.012 - .016
	Number of flutes		6	6	8	10			6	6	8	10
Index	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.	f inch/rev.	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.	f inch/rev.
	3xD	5xD					3xD	5xD				
P.1.1	**490** (430-660)	**390** (330-520)	.031-.043	.043-.055	.051-.075	.075-.110						
P.1.2	**490** (430-660)	**390** (330-520)	.031-.043	.043-.055	.051-.075	.075-.110						
P.1.3	**490** (430-660)	**390** (330-520)	.031-.043	.043-.055	.051-.075	.075-.110						
P.1.4	**490** (430-660)	**390** (330-520)	.031-.043	.043-.055	.051-.075	.075-.110						
P.1.5	**490** (430-660)	**390** (330-520)	.031-.043	.043-.055	.051-.075	.075-.110						
P.2.1	**490** (430-660)	**390** (330-520)	.031-.043	.043-.055	.051-.075	.075-.110						
P.2.2	**490** (430-660)	**390** (330-520)	.031-.043	.043-.055	.051-.075	.075-.110						
P.2.3	**490** (430-660)	**390** (330-520)	.031-.043	.043-.055	.051-.075	.075-.110						
P.2.4	**490** (430-660)	**390** (330-520)	.031-.043	.043-.055	.051-.075	.075-.110						
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1												
K.1.2												
K.2.1	**570** (490-980)	**490** (430-590)	.035-.051	.047-.067	.063-.091	.091-.134						
K.2.2	**390** (330-490)	**330** (260-390)	.031-.043	.043-.055	.051-.075	.075-.110						
K.3.1	**390** (330-590)	**390** (330-490)	.031-.043	.043-.055	.051-.075	.075-.110						
K.3.2	**390** (330-590)	**390** (330-490)	.031-.043	.043-.055	.051-.075	.075-.110						
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1	490 (430-1050)	490 (330-660)	.035-.051	.043-.067	.059-.091	.083-.122						
N.3.2	490 (430-1050)	490 (330-660)	.035-.051	.043-.067	.059-.091	.083-.122						
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1							**30** (20-40)	**30** (20-40)	.024-.035	.031-.047	.043-.063	.063-.094
S.3.2							**30** (20-40)	**30** (20-40)	.024-.035	.031-.047	.043-.063	.063-.094
S.3.3							**30** (20-40)	**30** (20-40)	.024-.035	.031-.047	.043-.063	.063-.094
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for Monomax

	Grade / coating		**DBG-P**						**DBG-P**			
	Article no. / type		**49 657 ..., 49 665 ... / 56H.65, 56Q.65 – ASG3000**						**49 676 ..., 49 677 ... / 56J.65, 56R.65 – ASG3000**			
	Nominal Ø in inches		.2205-.3503	.3504-.4727	.4728-.8664	.8665-1.0196			.2205-.3503	.3504-.4727	.4728-.8664	.8665-1.0196
	Reaming allowance Ø		.004 - .008	.004 - .012	.008 - .012	.008 -. 016			.004 - .008	.004 - .012	.008 - .012	.008 -. 016
	Number of flutes		4	6	6	6			4	6	6	6
Index	V_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.	f inch/rev.	V_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.	f inch/rev.
	3xD	5xD					3xD	5xD				
P.1.1	**490** (430-660)	**390** (330-520)	.012-.020	.020-.028	.028-.039	0.90-1.30						
P.1.2	**490** (430-660)	**390** (330-520)	.012-.020	.020-.028	.028-.039	0.90-1.30						
P.1.3	**490** (430-660)	**390** (330-520)	.012-.020	.020-.028	.028-.039	0.90-1.30						
P.1.4	**490** (430-660)	**390** (330-520)	.012-.020	.020-.028	.028-.039	0.90-1.30						
P.1.5	**490** (430-660)	**390** (330-520)	.012-.020	.020-.028	.028-.039	0.90-1.30						
P.2.1	**490** (430-660)	**390** (330-520)	.012-.020	.020-.028	.028-.039	0.90-1.30						
P.2.2	**490** (430-660)	**390** (330-520)	.012-.020	.020-.028	.028-.039	0.90-1.30						
P.2.3	**490** (430-660)	**390** (330-520)	.012-.020	.020-.028	.028-.039	0.90-1.30						
P.2.4	**200** (160-330)	**390** (330-520)	.008-.012	.016-.020	.020-.028	0.60-0.90						
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1	**490** (430-720)	**390** (330-490)	.016-.024	.028-.035	.035-.047	.043-.059	**490** (430-720)	**390** (330-490)	.016-.024	.028-.035	.035-.047	.043-.059
K.1.2	**490** (430-720)	**390** (330-490)	.016-.024	.028-.035	.035-.047	.043-.059	**490** (430-720)	**390** (330-490)	.016-.024	.028-.035	.035-.047	.043-.059
K.2.1	**570** (490-980)	**490** (430-590)	.016-.024	.028-.035	.035-.047	.043-.059	**570** (490-980)	**490** (430-590)	.016-.024	.028-.035	.035-.047	.043-.059
K.2.2	**390** (330-590)	**390** (330-490)	.012-.020	.020-.028	.028-.039	.035-.051	**390** (330-590)	**390** (330-490)	.012-.020	.020-.028	.028-.039	.035-.051
K.3.1	**490** (430-820)	**390** (330-520)	.016-.024	.028-.035	.035-.047	.043-.059	**490** (430-820)	**390** (330-520)	.016-.024	.028-.035	.035-.047	.043-.059
K.3.2	**390** (330-590)	**390** (330-490)	.012-.020	.020-.028	.028-.039	.035-.051	**390** (330-590)	**390** (330-490)	.012-.020	.020-.028	.028-.039	.035-.051
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for Monomax

	Grade / coating		DBG-P						TiN			
	Article no. / type		**49 652 ..., 49 653... / 56J.65, 56R.65 – ASG0106**						**49 656, 49 661, 49 660, 49 664 / 56J.71, 56R.71, 56H.71, 56Q.71 – ASG0106**			
	Nominal Ø in inches		.2205-.3503	.3504-.4727	.4728-.8664	.8665-1.0196			.2205-.3503	.3504-.4727	.4728-.8664	.8665-1.0196
	Reaming allowance Ø		.004 - .008	.004 - .012	.008 - .012	.008 -. 016			.004 - .008	.004 - .012	.008 - .012	.008 -. 016
	Number of flutes		4	6	6	6			4	6	6	6
Index	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.	f inch/rev.	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.	f inch/rev.
	3xD	5xD					3xD	5xD				
P.1.1												
P.1.2												
P.1.3												
P.1.4												
P.1.5												
P.2.1												
P.2.2												
P.2.3												
P.2.4	**200** (160-330)	**200** (160-330)	.008-.012	.016-.020	.020-.028	.024-.035						
P.3.1	**130** (110-200)	**130** (110-200)	.008-.012	.016-.020	.020-.028	.024-.035	100 (80-160)	100 (80-130)	.012-.016	.016-.024	.024-.031	.028-.039
P.3.2	**130** (110-200)	**130** (110-200)	.008-.012	.016-.020	.020-.028	.024-.035	100 (80-160)	100 (80-130)	.012-.016	.016-.024	.024-.031	.028-.039
P.3.3	**100** (80-160)	**100** (80-130)	.012-.016	.016-.024	.024-.031	.028-.039	100 (80-160)	100 (80-130)	.012-.016	.016-.024	.024-.031	.028-.039
P.4.1	**150** (110-200)	**130** (110-160)	.012-.016	.016-.024	.024-.031	.028-.039	150 (110-200)	130 (110-160)	.012-.016	.016-.024	.024-.031	.028-.039
P.4.2	**150** (110-200)	**130** (110-160)	.012-.016	.016-.024	.024-.031	.028-.039	150 (110-200)	130 (110-160)	.012-.016	.016-.024	.024-.031	.028-.039
M.1.1	**330** (260-520)	**100** (80-130)	.012-.016	.016-.024	.024-.031	.028-.039	150 (110-200)	130 (110-160)	.012-.016	.016-.024	.024-.031	.028-.039
M.2.1	**330** (260-520)	**100** (80-130)	.012-.016	.016-.024	.024-.031	.028-.039	150 (110-200)	130 (110-160)	.012-.016	.016-.024	.024-.031	.028-.039
M.3.1	**330** (260-520)	**100** (80-130)	.012-.016	.016-.024	.024-.031	.028-.039	100 (80-160)	100 (80-130)	.012-.016	.016-.024	.024-.031	.028-.039
K.1.1												
K.1.2												
K.2.1												
K.2.2												
K.3.1												
K.3.2												
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
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S.2.3												
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S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for Monomax

	Grade / coating		TiN						TiN			
	Article no. / type		49 605, 49 606, 49 684, 49 685 / 56J.71, 56R.71, 56H.71, 56Q.71 – ASG3000						49 688 ..., 49 689 ... / 56J.71, 56R.71 – ASG4000			
	Nominal Ø in inch		.2205-.3503	.3504-.4727	.4728-.8664	.8665-1.0196			.2205-.3503	.3504-.4727	.4728-.8664	.8665-1.0196
	Reaming allowance Ø		.004 - .008	.004 - .012	.008 - .012	.008 - .016			.004 - .008	.004 - .012	.008 - .012	.008 - .016
	Number of flutes		4	6	6	6			4	6	6	6
Index	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.	f inch/rev.	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.	f inch/rev.
	3xD	5xD					3xD	5xD				
P.1.1	330 (260-460)	260 (200-390)	.012-.020	.020-.028	.028-.039	.035-.051	**330** (260-460)	**260** (200-390)	.016-.024	.028-.035	.035-.047	.047-.059
P.1.2	330 (260-460)	260 (200-390)	.012-.020	.020-.028	.028-.039	.035-.051	**330** (260-460)	**260** (200-390)	.016-.024	.028-.035	.035-.047	.047-.059
P.1.3	330 (260-460)	260 (200-390)	.012-.020	.020-.028	.028-.039	.035-.051	**330** (260-460)	**260** (200-390)	.016-.024	.028-.035	.035-.047	.047-.059
P.1.4	330 (260-460)	260 (200-390)	.012-.020	.020-.028	.028-.039	.035-.051	**330** (260-460)	**260** (200-390)	.016-.024	.028-.035	.035-.047	.047-.059
P.1.5	330 (260-460)	260 (200-390)	.012-.020	.020-.028	.028-.039	.035-.051	**330** (260-460)	**260** (200-390)	.016-.024	.028-.035	.035-.047	.047-.059
P.2.1	330 (260-460)	260 (200-390)	.012-.020	.020-.028	.028-.039	.035-.051						
P.2.2	330 (260-460)	260 (200-390)	.012-.020	.020-.028	.028-.039	.035-.051						
P.2.3	330 (260-460)	260 (200-390)	.012-.020	.020-.028	.028-.039	.035-.051						
P.2.4												
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1	260 (200-430)	260 (200-390)	.016-.024	.028-.035	.035-.047	.043-.059						
K.1.2	260 (200-430)	260 (200-390)	.016-.024	.028-.035	.035-.047	.043-.059						
K.2.1												
K.2.2												
K.3.1												
K.3.2												
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1	**390** (330-660)	**390** (330-490)	.016-.024	.024-.035	.031-.047	.043-.059						
N.3.2	**390** (330-660)	**390** (330-490)	.016-.024	.024-.035	.031-.047	.043-.059						
N.3.3	**260** (200-490)	**260** (200-390)	.016-.024	.024-.035	.031-.047	.043-.059						
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
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S.3.3												
H.1.1												
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H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for Monomax

	Grade / coating		TiN						DBC			
	Article no. / type		**49 656, 49 661, 49 660, 49 664 / 56J.71, 56R.71, 56H.71, 56Q.71 – ASG0106**						**49 648, 49 649, 49 640, 49 641 / 56J.17, 56R.17, 56H.17, 56Q.17 – ASG0706**			
	Nominal Ø in inches		.2205–.3503	.3504–.4727	.4728–.8664	.8665–1.0196			.2205–.3503	.3504–.4727	.4728–.8664	.8665–1.0196
	Reaming allowance Ø		.004 – .008	.004 – .012	.008 – .012	.008 –. 016			.004 – .008	.004 – .012	.008 – .012	.008 –. 016
	Number of flutes		4	6	6	6			4	6	6	6
Index	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.	f inch/rev.	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.	f inch/rev.
	3xD	5xD					3xD	5xD				
P.1.1												
P.1.2												
P.1.3												
P.1.4												
P.1.5												
P.2.1												
P.2.2												
P.2.3												
P.2.4												
P.3.1	100 (80–160)	100 (80–130)	.012–.016	.016–.024	.024–.031	.028–.039						
P.3.2	100 (80–160)	100 (80–130)	.012–.016	.016–.024	.024–.031	.028–.039						
P.3.3	100 (80–160)	100 (80–130)	.012–.016	.016–.024	.024–.031	.028–.039						
P.4.1	150 (110–200)	130 (110–160)	.012–.016	.016–.024	.024–.031	.028–.039						
P.4.2	150 (110–200)	130 (110–160)	.012–.016	.016–.024	.024–.031	.028–.039						
M.1.1	150 (110–200)	130 (110–160)	.012–.016	.016–.024	.024–.031	.028–.039						
M.2.1	150 (110–200)	130 (110–160)	.012–.016	.016–.024	.024–.031	.028–.039						
M.3.1	100 (80–160)	100 (80–130)	.012–.016	.016–.024	.024–.031	.028–.039						
K.1.1												
K.1.2												
K.2.1												
K.2.2												
K.3.1												
K.3.2												
N.1.1							**490** (430–980)	**490** (430–660)	.016–.024	.016–.024	.031–.047	.031–.059
N.1.2							**490** (430–980)	**490** (430–660)	.016–.024	.016–.024	.031–.047	.031–.059
N.2.1							**660** (590–980)	**490** (430–660)	.016–.024	.016–.024	.031–.047	.031–.059
N.2.2							**660** (590–980)	**490** (430–660)	.016–.024	.016–.024	.031–.047	.031–.059
N.2.3							**660** (590–980)	**490** (430–660)	.016–.024	.016–.024	.031–.047	.031–.059
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1							820 (720–890)	820 (720–890)	.016–.024	.016–.024	.031–.047	.031–.059

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for Monomax

	Grade / coating		**DST**						**DST**			
	Article no. / type		**49 625, 49 626, 49 680, 49 681 / 56J.93, 56R.93, 56H.93, 56Q.93 – ASG3000**						**49 635 ..., 49 636 ... / 56J.93. 56R.93 – ASG4000**			
	Nominal Ø in inches		.2205-.3503	.3504-.4727	.4728-.8664	.8665-1.0196			.2205-.3503	.3504-.4727	.4728-.8664	.8665-1.0196
	Reaming allowance Ø		.004 - .008	.004 - .012	.008 - .012	.008 -. 016			.004 - .008	.004 - .012	.008 - .012	.008 -. 016
	Number of flutes		4	6	6	6			4	6	6	6
Index	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.	f inch/rev.	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.	f inch/rev.
	3xD	5xD					3xD	5xD				
P.1.1	**490** (430-660)	**390** (330-520)	.012-.020	.020-.028	.028-.039	.035-.051	**490** (430-660)	**390** (330-520)	.016-.024	.028-.035	.035-.047	.047-.059
P.1.2	**490** (430-660)	**390** (330-520)	.012-.020	.020-.028	.028-.039	.035-.051	**490** (430-660)	**390** (330-520)	.016-.024	.028-.035	.035-.047	.047-.059
P.1.3	**490** (430-660)	**390** (330-520)	.012-.020	.020-.028	.028-.039	.035-.051	**490** (430-660)	**390** (330-520)	.016-.024	.028-.035	.035-.047	.047-.059
P.1.4	**490** (430-660)	**390** (330-520)	.012-.020	.020-.028	.028-.039	.035-.051	**490** (430-660)	**390** (330-520)	.016-.024	.028-.035	.035-.047	.047-.059
P.1.5	**490** (430-660)	**390** (330-520)	.012-.020	.020-.028	.028-.039	.035-.051	**490** (430-660)	**390** (330-520)	.016-.024	.028-.035	.035-.047	.047-.059
P.2.1	**490** (430-660)	**390** (330-520)	.012-.020	.020-.028	.028-.039	.035-.051	**490** (430-660)	**390** (330-520)	.016-.024	.028-.035	.035-.047	.047-.059
P.2.2	**490** (430-660)	**390** (330-520)	.012-.020	.020-.028	.028-.039	.035-.051	**490** (430-660)	**390** (330-520)	.016-.024	.028-.035	.035-.047	.047-.059
P.2.3	**490** (430-660)	**390** (330-520)	.012-.020	.020-.028	.028-.039	.035-.051	**490** (430-660)	**390** (330-520)	.016-.024	.028-.035	.035-.047	.047-.059
P.2.4												
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1												
K.1.2												
K.2.1	**570** (490-980)	**490** (430-590)	.016-.024	.028-.035	.035-.047	.043-.059	570 (490-980)	490 (430-590)	.016-.024	.028-.035	.035-.047	.043-.059
K.2.2	**390** (330-490)	**330** (260-390)	.012-.020	.020-.028	.028-.039	.035-.051	390 (330-590)	390 (330-490)	.012-.020	.020-.028	.028-.039	.035-.051
K.3.1	**490** (430-820	**390** (330-660)	.016-.024	.028-.035	.035-.047	.043-.059	390 (330-590)	390 (330-490)	.012-.020	.020-.028	.028-.039	.035-.051
K.3.2	**390** (330-590)	**390** (330-490)	.012-.020	.020-.028	.028-.039	.035-.051	390 (330-590)	390 (330-490)	.012-.020	.020-.028	.028-.039	.035-.051
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1	490 (430-980)	490 (430-660)	.016-.024	.024-.035	.031-.047	.043-.059						
N.3.2	490 (430-980)	490 (430-660)	.016-.024	.024-.035	.031-.047	.043-.059						
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting data standard values for Monomax

	Grade / coating		**K10**			
	Article no. / type		**49 672, 49 673, 49 668, 49 669 / 56J.21, 56Q.21, 56H.21, 56R.21 – ASG03**			
	Nominal Ø in inches		.2205–.3503	.3504–.4727	.4728–.8664	.8665–1.0196
	Reaming allowance Ø		.004 – .008	.004 – .012	.008 – .012	.008 –. 016
	Number of flutes		4	6	6	6
Index	V_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.	f inch/rev.
	3xD	5xD				
P.1.1						
P.1.2						
P.1.3						
P.1.4						
P.1.5						
P.2.1						
P.2.2						
P.2.3						
P.2.4						
P.3.1						
P.3.2						
P.3.3						
P.4.1						
P.4.2						
M.1.1						
M.2.1						
M.3.1						
K.1.1						
K.1.2						
K.2.1						
K.2.2						
K.3.1						
K.3.2						
N.1.1						
N.1.2						
N.2.1						
N.2.2						
N.2.3						
N.3.1						
N.3.2						
N.3.3						
N.4.1						
S.1.1						
S.1.2						
S.2.1						
S.2.2						
S.2.3						
S.3.1	**30** (20–40)	**30** (20–40)	.012–.016	.016–.024	.024–.031	.031–.043
S.3.2	**30** (20–40)	**30** (20–40)	.012–.016	.016–.024	.024–.031	.031–.043
S.3.3	**30** (20–40)	**30** (20–40)	.012–.016	.016–.024	.024–.031	.031–.043
H.1.1						
H.1.2						
H.1.3						
H.1.4						
H.2.1						
H.3.1						
O.1.1						
O.1.2						
O.2.1						
O.2.2						
O.3.1						

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting Data Standard Values for Cutting Ring

	Grade / coating		DBG-P					DBG-P		
	Article no. / type		49 836 ... / 300.65 – ASG3000					49 835 ... / 300.65 – ASG0106		
	Nominal Ø in inches		2.3858–3.1338	3.1339–3.9605	3.9606–4.3543			2.3858–3.1338	3.1339–3.9605	3.9606–4.3543
	Reaming allowance Ø		.012 - .020	.012 - .020	.012 - .020			.012 - .020	.012 - .020	.012 - .020
	Number of flutes		6	8	10			6	8	10
Index	v_c ft/min 3xD	v_c ft/min 5xD	f inch/rev.	f inch/rev.	f inch/rev.	v_c ft/min 3xD	v_c ft/min 5xD	f inch/rev.	f inch/rev.	f inch/rev.
P.1.1	**490** (430–660)	**390** (330–520)	.043-.067	.059-.091	.075-.110					
P.1.2	**490** (430–660)	**390** (330–520)	.043-.067	.059-.091	.075-.110					
P.1.3	**490** (430–660)	**390** (330–520)	.043-.067	.059-.091	.075-.110					
P.1.4	**490** (430–660)	**390** (330–520)	.043-.067	.059-.091	.075-.110					
P.1.5	**490** (430–660)	**390** (330–520)	.043-.067	.059-.091	.075-.110					
P.2.1	**490** (430–660)	**390** (330–520)	.043-.067	.059-.091	.075-.110					
P.2.2	**490** (430–660)	**390** (330–520)	.043-.067	.059-.091	.075-.110					
P.2.3	**490** (430–660)	**390** (330–520)	.043-.067	.059-.091	.075-.110					
P.2.4	**490** (430–660)	**390** (330–520)	.043-.067	.059-.091	.075-.110					
P.3.1						**100** (80–160)	**100** (80–130)	.035-.051	.047-.071	.059-.091
P.3.2						**100** (80–160)	**100** (80–130)	.035-.051	.047-.071	.059-.091
P.3.3						**100** (80–160)	**100** (80–130)	.035-.051	.047-.071	.059-.091
P.4.1						**150** (110–200)	**130** (110–160)	.035-.051	.047-.071	.059-.091
P.4.2						**150** (110–200)	**130** (110–160)	.035-.051	.047-.071	.059-.091
M.1.1						**150** (110–200)	**130** (110–160)	.035-.051	.047-.071	.059-.091
M.2.1						**150** (110–200)	**130** (110–160)	.035-.051	.047-.071	.059-.091
M.3.1						**100** (80–160)	**100** (80–130)	.035-.051	.047-.071	.059-.091
K.1.1	**490** (430–720)	**390** (330–490)	.085-.080	.073-.107	.091-.134					
K.1.2	**490** (430–720)	**390** (330–490)	.085-.080	.073-.107	.091-.134					
K.2.1	**570** (490–980)	**490** (430–590)	.085-.080	.073-.107	.091-.134					
K.2.2	**390** (330–590)	**390** (330–490)	.045-.066	.060-.088	.075-.110					
K.3.1	**390** (330–590)	**390** (330–490)	.045-.066	.060-.088	.075-.110					
K.3.2	**390** (330–590)	**390** (330–490)	.045-.066	.060-.088	.075-.110					
N.1.1										
N.1.2										
N.2.1										
N.2.2										
N.2.3										
N.3.1										
N.3.2										
N.3.3										
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting Data Standard Values for Cutting Ring

	Grade / coating		TiN					TiN		
	Article no. / type		49 823 ... / 300.05 – ASG3000					49 824 ... / 300.05 – ASG0106		
	Nominal Ø in inches		2.3858–3.1338	3.1339–3.9605	3.9606–4.3543			2.3858–3.1338	3.1339–3.9605	3.9606–4.3543
	Reaming allowance Ø		.012 – .020	.012 – .020	.012 – .020			.012 – .020	.012 – .020	.012 – .020
	Number of flutes		6	8	10			6	8	10
Index	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.
	3xD	5xD				3xD	5xD			
P.1.1	330 (260–460)	260 (200–390)	.043–.067	.059–.091	.075–.110					
P.1.2	330 (260–460)	260 (200–390)	.043–.067	.059–.091	.075–.110					
P.1.3	330 (260–460)	260 (200–390)	.043–.067	.059–.091	.075–.110					
P.1.4	330 (260–460)	260 (200–390)	.043–.067	.059–.091	.075–.110					
P.1.5	330 (260–460)	260 (200–390)	.043–.067	.059–.091	.075–.110					
P.2.1	330 (260–460)	260 (200–390)	.043–.067	.059–.091	.075–.110					
P.2.2	330 (260–460)	260 (200–390)	.043–.067	.059–.091	.075–.110					
P.2.3	330 (260–460)	260 (200–390)	.043–.067	.059–.091	.075–.110					
P.2.4	330 (260–460)	260 (200–390)	.043–.067	.059–.091	.075–.110					
P.3.1						**100** (80–150)	**100** (80–150)	.031–.047	.043–.063	.051–.079
P.3.2						**100** (80–150)	**100** (80–150)	.031–.047	.043–.063	.051–.079
P.3.3										
P.4.1						**100** (80–150)	**100** (80–150)	.031–.047	.043–.063	.051–.079
P.4.2						**100** (80–150)	**100** (80–150)	.031–.047	.043–.063	.051–.079
M.1.1						**100** (80–150)	**100** (80–130)	.035–.051	.047–.071	.059–.091
M.2.1						**70** (50–110)	**70** (50–110)	.035–.051	.047–.071	.059–.091
M.3.1						**70** (50–110)	**70** (50–110)	.035–.051	.047–.071	.059–.091
K.1.1	260 (200–430)	260 (200–390)	.055–.079	.075–.079	.091–.134					
K.1.2	260 (200–430)	260 (200–390)	.055–.079	.075–.079	.091–.134					
K.2.1										
K.2.2										
K.3.1										
K.3.2										
N.1.1										
N.1.2										
N.2.1										
N.2.2										
N.2.3										
N.3.1	390 (330–660)	390 (330–660)	.047–.075	.067–.098	.083–.122					
N.3.2	390 (330–660)	390 (330–660)	.039–.059	.055–.083	.067–.102					
N.3.3	260 (200–490)	260 (200–390)	.039–.059	.055–.083	.067–.102					
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting Data Standard Values for Cutting Ring

Grade / coating			TiN					DBC		
Article no. / type			**49 831 ... / 300.05 – ASG4000**					**49 839 ... / 300.17 - ASG0706**		
Nominal Ø in inches			2.3858–3.1338	3.1339–3.9605	3.9606–4.3543			2.3858–3.1338	3.1339–3.9605	3.9606–4.3543
Reaming allowance Ø			.012 – .020	.012 – .020	.012 – .020			.012 – .020	.012 – .020	.012 – .020
Number of flutes			6	8	10			6	8	10
Index	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.
	3xD	5xD				3xD	5xD			
P.1.1	**330** (260–460)	**260** (200–390)	.055–.079	.012–.020	.012–.020					
P.1.2	**330** (260–460)	**260** (200–390)	.055–.079	.012–.020	.012–.020					
P.1.3	**330** (260–460)	**260** (200–390)	.055–.079	.012–.020	.012–.020					
P.1.4	**330** (260–460)	**260** (200–390)	.055–.079	.012–.020	.012–.020					
P.1.5	**330** (260–460)	**260** (200–390)	.055–.079	.012–.020	.012–.020					
P.2.1										
P.2.2										
P.2.3										
P.2.4										
P.3.1										
P.3.2										
P.3.3										
P.4.1										
P.4.2										
M.1.1										
M.2.1										
M.3.1										
K.1.1										
K.1.2										
K.2.1										
K.2.2										
K.3.1										
K.3.2										
N.1.1						**490** (430–980)	**490** (430–660)	.052–.080	.070–.107	.087–.134
N.1.2						**490** (430–980)	**490** (430–660)	.052–.080	.070–.107	.087–.134
N.2.1						**660** (590–980)	**490** (430–660)	.052–.080	.070–.107	.087–.134
N.2.2						**660** (590–980)	**490** (430–660)	.052–.080	.070–.107	.087–.134
N.2.3						**660** (590–980)	**490** (430–660)	.052–.080	.070–.107	.087–.134
N.3.1	390 (330–660)	390 (330–660)	.047–.075	.067–.098	.083–.122					
N.3.2	390 (330–660)	390 (330–660)	.039–.059	.055–.083	.067–.102					
N.3.3	260 (200–490)	260 (200–390)	.039–.059	.055–.083	.067–.102					
N.4.1						**490** (430–980)	**490** (430–660)	.052–.080	.070–.107	.087–.134
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting Data Standard Values for Cutting Ring

	Grade / coating		DST					DST		
	Article no. / type		49 827 ... / 300.45 – ASG3000					49 828 ... / 300.45 – ASG4000		
	Nominal Ø in inches		2.3858-3.1338	3.1339-3.9605	3.9606-4.3543			2.3858-3.1338	3.1339-3.9605	3.9606-4.3543
	Reaming allowance Ø		.012 - .020	.012 - .020	.012 - .020			.012 - .020	.012 - .020	.012 - .020
	Number of flutes		6	8	10			6	8	10
Index	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.
	3xD	5xD				3xD	5xD			
P.1.1	**490** (390–660)	**390** (330–520)	.043–.067	.059–.091	.075–.110	**490** (390–660)	**390** (330–520)	.055–.079	.075–.106	.094–.134
P.1.2	**490** (390–660)	**390** (330–520)	.043–.067	.059–.091	.075–.110	**490** (390–660)	**390** (330–520)	.055–.079	.075–.106	.094–.134
P.1.3	**490** (390–660)	**390** (330–520)	.043–.067	.059–.091	.075–.110	**490** (390–660)	**390** (330–520)	.055–.079	.075–.106	.094–.134
P.1.4	**490** (390–660)	**390** (330–520)	.043–.067	.059–.091	.075–.110	**490** (390–660)	**390** (330–520)	.055–.079	.075–.106	.094–.134
P.1.5	**490** (390–660)	**390** (330–520)	.043–.067	.059–.091	.075–.110	**490** (390–660)	**390** (330–520)	.055–.079	.075–.106	.094–.134
P.2.1	**490** (390–660)	**390** (330–520)	.043–.067	.059–.091	.075–.110	**490** (390–660)	**390** (330–520)	.055–.079	.075–.106	.094–.134
P.2.2	**490** (390–660)	**390** (330–520)	.043–.067	.059–.091	.075–.110	**490** (390–660)	**390** (330–520)	.055–.079	.075–.106	.094–.134
P.2.3	**490** (390–660)	**390** (330–520)	.043–.067	.059–.091	.075–.110	**490** (390–660)	**390** (330–520)	.055–.079	.075–.106	.094–.134
P.2.4										
P.3.1										
P.3.2										
P.3.3										
P.4.1										
P.4.2										
M.1.1										
M.2.1										
M.3.1										
K.1.1										
K.1.2										
K.2.1	**570** (390–980)	**490** (390–590)	.055–.079	.075–.106	.091–.134					
K.2.2	**490** (390–820)	**390** (260–490)	.043–.067	.059–.091	.075–.110					
K.3.1	**390** (330–590)	**390** (260–490)	.055–.079	.075–.106	.091–.134					
K.3.2	**390** (330–590)	**390** (260–490)	.043–.067	.059–.091	.075–.110					
N.1.1										
N.1.2										
N.2.1										
N.2.2										
N.2.3										
N.3.1	**490** (390–1050)	**490** (390–660)	.047–.075	.067–.098	.083–.122					
N.3.2										
N.3.3										
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting Data Standard Values for Cutting Ring

	Grade / coating		K10		
	Article no. / type		49 832 ... / 300.25 – ASG03		
	Nominal Ø in inches		2.3858–3.1338	3.1339–3.9605	3.9606–4.3543
	Reaming allowance Ø		.012 – .020	.012 – .020	.012 – .020
	Number of flutes		6	8	10
Index	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.
	3xD	5xD			
P.1.1					
P.1.2					
P.1.3					
P.1.4					
P.1.5					
P.2.1					
P.2.2					
P.2.3					
P.2.4					
P.3.1					
P.3.2					
P.3.3					
P.4.1					
P.4.2					
M.1.1					
M.2.1					
M.3.1					
K.1.1					
K.1.2					
K.2.1					
K.2.2					
K.3.1					
K.3.2					
N.1.1					
N.1.2					
N.2.1					
N.2.2					
N.2.3					
N.3.1					
N.3.2					
N.3.3					
N.4.1					
S.1.1					
S.1.2					
S.2.1					
S.2.2					
S.2.3					
S.3.1	**30** (20–40)	**30** (20–40)	.031–.043	.041–.057	.052–.072
S.3.2	**30** (20–40)	**30** (20–40)	.031–.043	.041–.057	.052–.072
S.3.3	**30** (20–40)	**30** (20–40)	.031–.043	.041–.057	.052–.072
H.1.1					
H.1.2					
H.1.3					
H.1.4					
H.2.1					
H.3.1					
O.1.1					
O.1.2					
O.2.1					
O.2.2					
O.3.1					

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting Data Standard Values for Rapid Set Head

	Grade / coating		DBG-P					DBG-P		
	Article no. / type		49 816 ... / 340.65 – ASG0106					49 817 ... / 340.65 – ASG3000		
	Nominal Ø in inches		.3779 - .6138	.6139 - 1.1850	1.1851 - 2.3622			.3779 - .6138	.6139 - 1.1850	1.1851 - 2.3622
	Reaming allowance Ø		.004 - .012	.008 - .016	.008 - .016			.004 - .012	.008 - .016	.008 - .016
	Number of flutes		4	6	6			4	6	6
Index	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.
	3xD	5xD				3xD	5xD			
P.1.1						**490** (430–660)	**390** (330–520)	.012–.020	.035–.051	.043–.059
P.1.2						**490** (430–660)	**390** (330–520)	.012–.020	.035–.051	.043–.059
P.1.3						**490** (430–660)	**390** (330–520)	.012–.020	.035–.051	.043–.059
P.1.4						**490** (430–660)	**390** (330–520)	.012–.020	.035–.051	.043–.059
P.1.5						**490** (430–660)	**390** (330–520)	.012–.020	.035–.051	.043–.059
P.2.1						**490** (430–660)	**390** (330–520)	.012–.020	.035–.051	.043–.059
P.2.2						**490** (430–660)	**390** (330–520)	.012–.020	.035–.051	.043–.059
P.2.3						**490** (430–660)	**390** (330–520)	.012–.020	.035–.051	.043–.059
P.2.4						**490** (430–660)	**390** (330–520)	.012–.020	.035–.051	.043–.059
P.3.1	**100** (80–160)	**100** (80–130)	.012–.016	.028–.039	.035–.047					
P.3.2	**100** (80–160)	**100** (80–130)	.012–.016	.028–.039	.035–.047					
P.3.3	**100** (80–160)	**100** (80–130)	.012–.016	.028–.039	.035–.047					
P.4.1	**150** (110–200)	**130** (110–160)	.012–.016	.028–.039	.035–.047					
P.4.2	**150** (110–200)	**130** (110–160)	.012–.016	.028–.039	.035–.047					
M.1.1	**150** (110–200)	**130** (110–160)	.012–.016	.028–.039	.035–.047					
M.2.1	**150** (110–200)	**130** (110–160)	.012–.016	.028–.039	.035–.047					
M.3.1	**100** (80–160)	**100** (80–130)	.012–.016	.028–.039	.035–.047					
K.1.1						**490** (430–720)	**390** (330–490)	.016–.024	.043–.059	.051–.075
K.1.2						**490** (430–720)	**390** (330–490)	.016–.024	.043–.059	.051–.075
K.2.1						**570** (490–980)	**490** (430–590)	.016–.024	.043–.059	.051–.075
K.2.2						**390** (330–590)	**390** (330–490)	.012–.020	.035–.051	.043–.059
K.3.1						**390** (330–590)	**390** (330–490)	.012–.020	.035–.051	.043–.059
K.3.2						**390** (330–590)	**390** (330–490)	.012–.020	.035–.051	.043–.059
N.1.1										
N.1.2										
N.2.1										
N.2.2										
N.2.3										
N.3.1										
N.3.2										
N.3.3										
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting Data Standard Values for Rapid Set Head

	Grade / coating		DST					DST		
	Article no. / type		49 812 ... / 340.92 – ASG05					49 813 ... / 340.93 – ASG3000		
	Nominal Ø in inches		.3779 – .6138	.6139 – 1.1850	1.1851 – 2.3622			.3779 – .6138	.6139 – 1.1850	1.1851 – 2.3622
	Reaming allowance Ø		.004 – .012	.008 – .016	.008 – .016			.004 – .012	.008 – .016	.008 – .016
	Number of flutes		4	6	6			4	6	6
Index	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.
	3xD	5xD				3xD	5xD			
P.1.1	**490** (390–660)	**490** (390–520)	.024–.031	.047–.059	.055–.075	**490** (390–660)	**490** (390–520)	.012–.020	.035–.051	.043–.059
P.1.2	**490** (390–660)	**490** (390–520)	.024–.031	.047–.059	.055–.075	**490** (390–660)	**490** (390–520)	.012–.020	.035–.051	.043–.059
P.1.3	**490** (390–660)	**490** (390–520)	.024–.031	.047–.059	.055–.075	**490** (390–660)	**490** (390–520)	.012–.020	.035–.051	.043–.059
P.1.4	**490** (390–660)	**490** (390–520)	.024–.031	.047–.059	.055–.075	**490** (390–660)	**490** (390–520)	.012–.020	.035–.051	.043–.059
P.1.5	**490** (390–660)	**490** (390–520)	.024–.031	.047–.059	.055–.075	**490** (390–660)	**490** (390–520)	.012–.020	.035–.051	.043–.059
P.2.1	**490** (390–660)	**490** (390–520)	.024–.031	.047–.059	.055–.075	**490** (390–660)	**490** (390–520)	.012–.020	.035–.051	.043–.059
P.2.2	**490** (390–660)	**490** (390–520)	.024–.031	.047–.059	.055–.075	**490** (390–660)	**490** (390–520)	.012–.020	.035–.051	.043–.059
P.2.3	**490** (390–660)	**490** (390–520)	.024–.031	.047–.059	.055–.075	**490** (390–660)	**490** (390–520)	.012–.020	.035–.051	.043–.059
P.2.4										
P.3.1										
P.3.2										
P.3.3										
P.4.1										
P.4.2										
M.1.1										
M.2.1										
M.3.1										
K.1.1										
K.1.2										
K.2.1						**570** (490–980)	**570** (490–980)	.016–.024	.043–.024	.051–.075
K.2.2						**490** (390–820)	**490** (390–820)	.016–.024	.043–.024	.051–.075
K.3.1						**390** (330–590)	**390** (330–590)	.016–.024	.043–.024	.051–.075
K.3.2						**390** (330–590)	**390** (330–590)	.016–.024	.043–.024	.051–.075
N.1.1										
N.1.2										
N.2.1										
N.2.2										
N.2.3										
N.3.1						**490** (390–1050)	**490** (390–1050)	.016–.024	.043–.059	.047–.067
N.3.2										
N.3.3										
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting Data Standard Values for Rapid Set Head

	Grade / coating		TiN					TiN		
	Article no. / type		49 805 ... / 340.70 – ASG05					49 808 ... / 340.71 – ASG3000		
	Nominal Ø in inches		.3779 – .6138	.6139 – 1.1850	1.1851 – 2.3622			.3779 – .6138	.6139 – 1.1850	1.1851 – 2.3622
	Reaming allowance Ø		.004 – .012	.008 – .016	.008 – .016			.004 – .012	.008 – .016	.008 – .016
	Number of flutes		4	6	6			4	6	6
Index	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.
	3xD	5xD				3xD	5xD			
P.1.1	330 (260–460)	260 (200–390)	.024–.031	.047–.059	.055–.075	330 (260–460)	260 (200–390)	.012–.020	.035–.051	.043–.059
P.1.2	330 (260–460)	260 (200–390)	.024–.031	.047–.059	.055–.075	330 (260–460)	260 (200–390)	.012–.020	.035–.051	.043–.059
P.1.3	330 (260–460)	260 (200–390)	.024–.031	.047–.059	.055–.075	330 (260–460)	260 (200–390)	.012–.020	.035–.051	.043–.059
P.1.4	330 (260–460)	260 (200–390)	.024–.031	.047–.059	.055–.075	330 (260–460)	260 (200–390)	.012–.020	.035–.051	.043–.059
P.1.5	330 (260–460)	260 (200–390)	.024–.031	.047–.059	.055–.075	330 (260–460)	260 (200–390)	.012–.020	.035–.051	.043–.059
P.2.1	330 (260–460)	260 (200–390)	.024–.031	.047–.059	.055–.075	330 (260–460)	260 (200–390)	.012–.020	.035–.051	.043–.059
P.2.2	330 (260–460)	260 (200–390)	.024–.031	.047–.059	.055–.075	330 (260–460)	260 (200–390)	.012–.020	.035–.051	.043–.059
P.2.3	330 (260–460)	260 (200–390)	.024–.031	.047–.059	.055–.075	330 (260–460)	260 (200–390)	.012–.020	.035–.051	.043–.059
P.2.4	**330** (260–460)	**260** (200–390)	.024–.031	.047–.059	.055–.075	**330** (260–460)	**260** (200–390)	.012–.020	.035–.051	.043–.059
P.3.1										
P.3.2										
P.3.3										
P.4.1										
P.4.2										
M.1.1										
M.2.1										
M.3.1										
K.1.1						**260** (200–430)	**260** (200–390)	.016–.024	.043–.059	.051–.075
K.1.2						**260** (200–430)	**260** (200–390)	.016–.024	.043–.059	.051–.075
K.2.1										
K.2.2										
K.3.1										
K.3.2										
N.1.1										
N.1.2										
N.2.1										
N.2.2										
N.2.3										
N.3.1						390 (330–660)	390 (330–660)	.016–.024	.043–.059	.047–.067
N.3.2						260 (200–490)	260 (200–490)	.012–.020	.035–.051	.039–.055
N.3.3						260 (200–490)	260 (200–490)	.012–.020	.035–.051	.039–.055
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting Data Standard Values for Rapid Set Head

	Grade / coating			TiN					K10	
	Article no. / type			49 809 ... / 340.71 – ASG0106					49 800 ... / 340.21 – ASG03	
	Nominal Ø in inches		.3779 - .6138	.6139 - 1.1850	1.1851 - 2.3622			.3779 - .6138	.6139 - 1.1850	1.1851 - 2.3622
	Reaming allowance Ø		.004 - .012	.008 - .016	.008 - .016			.004 - .012	.008 - .016	.008 - .016
	Number of flutes		4	6	6			4	6	6
Index	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.
	3xD	5xD				3xD	5xD			
P.1.1										
P.1.2										
P.1.3										
P.1.4										
P.1.5										
P.2.1										
P.2.2										
P.2.3										
P.2.4										
P.3.1	**100** (70–130)	**100** (70–130)	.012–.016	.028–.039	.035–.047					
P.3.2	**100** (70–130)	**100** (70–130)	.012–.016	.028–.039	.035–.047					
P.3.3	**100** (70–130)	**100** (70–130)	.012–.016	.028–.039	.035–.047					
P.4.1	**100** (70–130)	**100** (70–130)	.012–.016	.028–.039	.035–.047					
P.4.2	**100** (70–130)	**100** (70–130)	.012–.016	.028–.039	.035–.047					
M.1.1	**100** (70–130)	**100** (70–130)	.012–.016	.028–.039	.035–.047					
M.2.1	**70** (50–110)	**70** (50–110)	.012–.016	.028–.039	.035–.047					
M.3.1	**100** (70–130)	**100** (70–130)	.012–.016	.028–.039	.035–.047					
K.1.1										
K.1.2										
K.2.1										
K.2.2										
K.3.1										
K.3.2										
N.1.1										
N.1.2										
N.2.1										
N.2.2										
N.2.3										
N.3.1										
N.3.2										
N.3.3										
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1						**30** (20–40)	**30** (20–40)	.012–.016	.031–.043	.035–.051
S.3.2						**30** (20–40)	**30** (20–40)	.012–.016	.031–.043	.035–.051
S.3.3						**30** (20–40)	**30** (20–40)	.012–.016	.031–.043	.035–.051
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting Data Standard Values for Rapid Set Head

	Grade / coating		K10					K10		
	Article no. / type		49 804 ... / 340.21 – ASG02					49 801 ... / 340.21 – ASG3000		
	Nominal Ø in inches		.3779 – .6138	.6139 – 1.1850	1.1851 – 2.3622			.3779 – .6138	.6139 – 1.1850	1.1851 – 2.3622
	Reaming allowance Ø		.004 – .012	.008 – .016	.008 – .016			.004 – .012	.008 – .016	.008 – .016
	Number of flutes		4	6	6			4	6	6
Index	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.	v_c ft/min		f inch/rev.	f inch/rev.	f inch/rev.
	3xD	5xD				3xD	5xD			
P.1.1						30 (20–30)	30 (20–30)	.012–.020	.035–.051	.043–.059
P.1.2						100 (50–150)	100 (50–150)	.012–.020	.035–.051	.043–.059
P.1.3						30 (20–30)	30 (20–30)	.012–.020	.035–.051	.043–.059
P.1.4						30 (20–30)	30 (20–30)	.012–.020	.035–.051	.043–.059
P.1.5						30 (20–30)	30 (20–30)	.012–.020	.035–.051	.043–.059
P.2.1						30 (20–30)	30 (20–30)	.012–.020	.035–.051	.043–.059
P.2.2						30 (20–30)	30 (20–30)	.012–.020	.035–.051	.043–.059
P.2.3						30 (20–30)	30 (20–30)	.012–.020	.035–.051	.043–.059
P.2.4										
P.3.1										
P.3.2										
P.3.3										
P.4.1										
P.4.2										
M.1.1										
M.2.1										
M.3.1										
K.1.1						50 (40–80)	50 (40–80)	.016–.024	.043–.059	.051–.075
K.1.2						50 (40–80)	50 (40–80)	.016–.024	.043–.059	.051–.075
K.2.1						40 (30–60)	40 (30–60)	.016–.024	.043–.059	.051–.075
K.2.2						40 (30–50)	40 (30–50)	.012–.020	.035–.051	.043–.059
K.3.1						40 (30–60)	40 (30–60)	.012–.020	.035–.051	.043–.059
K.3.2						40 (30–60)	40 (30–60)	.012–.020	.035–.051	.043–.059
N.1.1	**50** (30–100)	**50** (30–100)	.012–.020	.035–.051	.043–.059	50 (40–100)	50 (40–100)	.012–.020	.035–.051	.043–.059
N.1.2	**50** (30–100)	**50** (30–100)	.012–.020	.035–.051	.043–.059	50 (40–100)	50 (40–100)	.012–.020	.035–.051	.043–.059
N.2.1	**40** (30–70)	**12** (10–20)	.016–.024	.043–.059	.047–.075	50 (40–100)	50 (40–100)	.016–.024	.043–.059	.047–.075
N.2.2	**40** (30–70)	**40** (30–70)	.016–.024	.043–.059	.047–.075	50 (40–100)	50 (40–100)	.016–.024	.043–.059	.047–.075
N.2.3	**40** (30–70)	**40** (30–70)	.016–.024	.043–.059	.047–.075	40 (30–70)	40 (30–70)	.016–.024	.043–.059	.047–.075
N.3.1	**50** (30–100)	**50** (30–100)	.016–.024	.043–.059	.047–.075	50 (40–100)	50 (40–100)	.016–.024	.043–.059	.047–.067
N.3.2	**50** (30–100)	**50** (30–100)	.016–.024	.043–.059	.047–.075	40 (30–70)	40 (30–70)	.012–.020	.035–.051	.039–.055
N.3.3	**40** (30–70)	**40** (30–70)	.012–.020	.035–.051	.039–.055	40 (30–70)	40 (30–70)	.012–.020	.035–.051	.039–.055
N.4.1	**50** (30–100)	**50** (30–100)	.016–.024	.043–.059	.047–.075	50 (40–100)	50 (40–100)	.016–.024	.043–.059	.047–.075
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

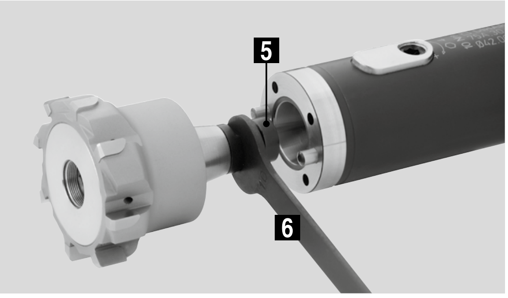
The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

Cutting Data Standard Values for PCD Reamers

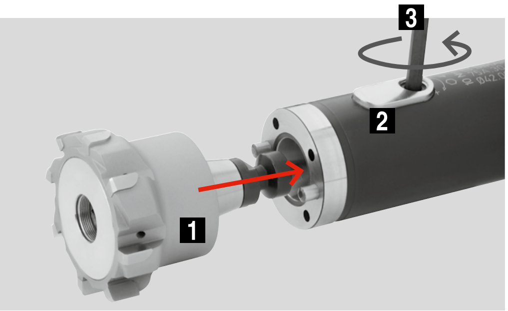
	Grade / coating	PCD			PCD
	Article no. / type	49 200 ..., 49 204 ... / 690.10, 690.13 – ASG1101			49 201..., 49 205 ... / 690.11, 690.14 – ASG1101
	Nominal Ø in inches	.1575 – .3150	.3151 – .7913		.3780 – .7913
	Reaming allowance Ø	.004 – .012	.004 – .016		.004 – .016
	Number of flutes	2	2		4
Index	v_c ft/min	f inch/rev.	f inch/rev.	v_c ft/min	f inch/rev.
P.1.1					
P.1.2					
P.1.3					
P.1.4					
P.1.5					
P.2.1					
P.2.2					
P.2.3					
P.2.4					
P.3.1					
P.3.2					
P.3.3					
P.4.1					
P.4.2					
M.1.1					
M.2.1					
M.3.1					
K.1.1					
K.1.2					
K.2.1					
K.2.2					
K.3.1					
K.3.2					
N.1.1	**490** (360 – 1080)	.005 – .016	.005 – .016	**490** (360 – 1080)	.009 – .031
N.1.2	**490** (360 – 1080)	.005 – .016	.005 – .016	**490** (360 – 1080)	.009 – .031
N.2.1	**660** (360 – 1800)	.005 – .016	.005 – .016	**660** (360 – 1800)	.009 – .031
N.2.2	**660** (360 – 1800)	.005 – .016	.005 – .016	**660** (360 – 1800)	.009 – .031
N.2.3	**660** (360 – 1440)	.005 – .016	.005 – .016	**660** (360 – 1440)	.009 – .031
N.3.1					
N.3.2					
N.3.3					
N.4.1	**490** (360 – 1080)	.005 – .016	.005 – .016	**490** (360 – 1080)	.009 – .031
S.1.1					
S.1.2					
S.2.1					
S.2.2					
S.2.3					
S.3.1					
S.3.2					
S.3.3					
H.1.1					
H.1.2					
H.1.3					
H.1.4					
H.2.1					
H.3.1					
O.1.1					
O.1.2					
O.2.1					
O.2.2					
O.3.1					

The cutting data depend extremely on the external conditions, the material and machine type. The indicated values are possible values which have to be increased or reduced, inside the bracket, according to the application conditions.

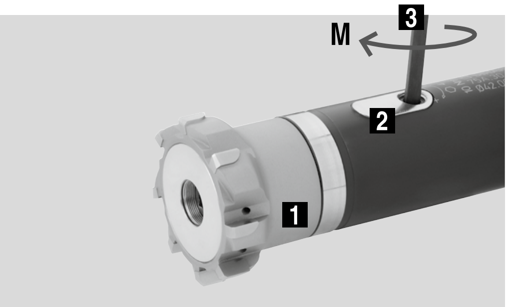
REAMAX TS – Assembly instructions



Clean the Morse taper adapter/face contact → grease-free.
Screw the pull stud (5) into the reaming head and tighten using the open-ended spanner (6).

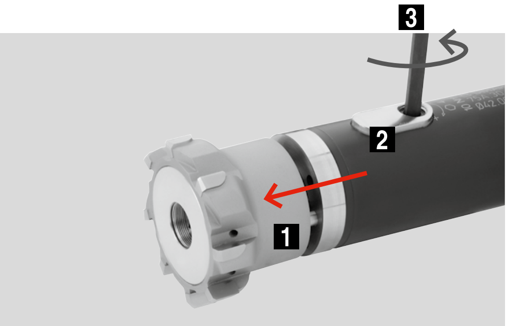


Use key (3) to open jaws (2), but do not fully release, and insert reaming head (1).

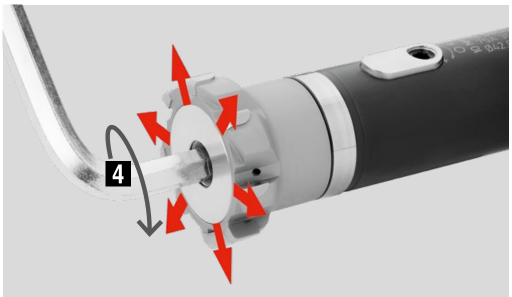


Use the key (3) to close the jaws (2), observe the recommended tightening torque.
When inserting the reaming head (1), this is pulled into its final position when the jaws (2) are closed.

Ø Range	Tightening torque (M)
.7087 – .7873	13 in-lbs
.7874 – .8661	22 in-lbs
.8662 – 1.0629	35 in-lbs
1.0630 – 1.3779	44 in-lbs
1.3780 – 1.6535	53 in-lbs
1.6536 – 2.0472	89 in-lbs
2.0473 – 2.7560	115 in-lbs



When removing the reamer head (1), it is pressed out of its position by the jaws (2) and can thus be easily removed from the holder:
Use key (3) to open the jaws (2) but do not fully release, and remove reamer head (1).



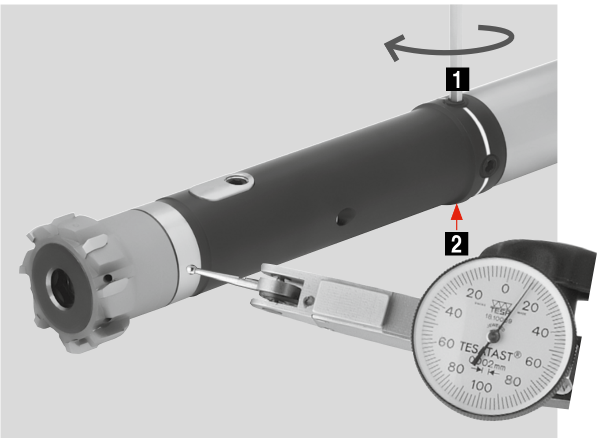
Expansion for wear compensation:
The smallest drilling tolerances up to IT4 can be achieved through adjustment with the hex key (4).

REAMAX TS – Operating instructions

Aligning the DAH Zero holder

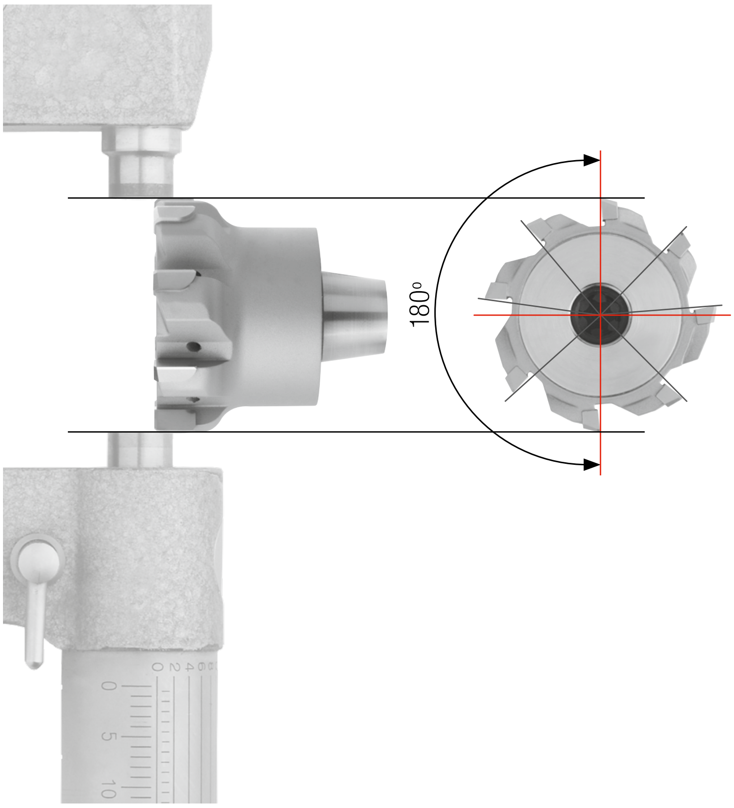
The tool is recommended for radial alignment of max. .0008".

1. Loosen all adjustment screws and pre-load with 9 in-lbs. (new tools are already supplied like this).
2. Place dial gauge with .0001" display on the ground indicating band diameter.
3. Turn the tool to determine the point with the largest runout error using the dial gauge.
4. Adjust the corresponding adjustment screw with the hex key clockwise (1) until half the runout error has been corrected. In doing so, over-tighten by approx. .0002".
5. Release the opposite adjustment screw (2) by the over-tightened amount.
6. Adjust all 4 adjustment screws until the runout is < .0001".

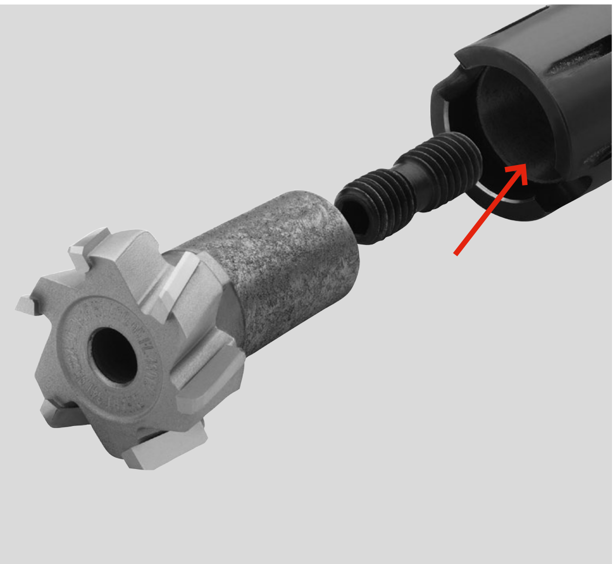


Please note:
- ▲ The run-out must be checked and if necessary, re-aligned after an adapter changeover, change of application, and after any adjustment for wear compensation, using adjustment steps 1 to 6.
- ▲ Adjustment screws must always be tightened during usage with at least 9 in-lbs.
- ▲ The max. re-adjustment torque is 40 in-lbs.

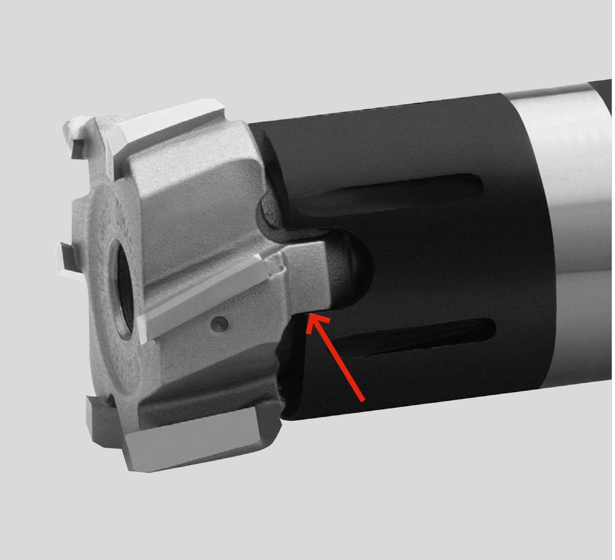
Caution!
- ▲ Uneven angle distribution!
- ▲ There are 2 cutting edges 180° opposite each other = measuring teeth
- ▲ Measure the diameter at the front on the cutting edge (due to back taper, see diagram)
- ▲ Avoid damage to the cutting edge



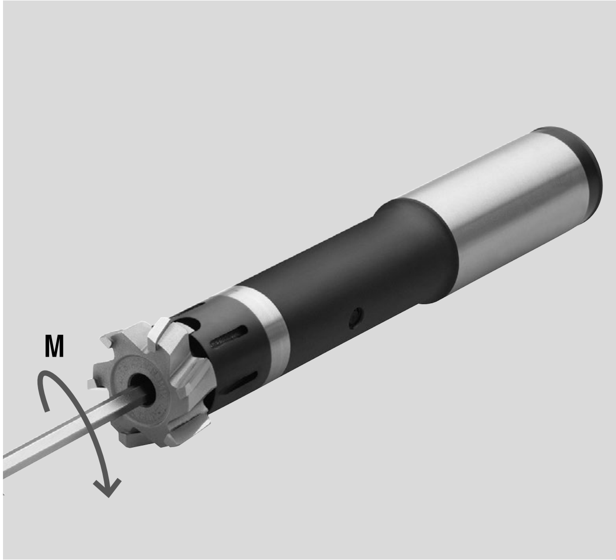
Rapid Set Head – Assembly instructions



Each rapid set head is delivered with slightly greased taper.
Do not wipe off!
Taper must be slightly greased with copper grease!
Clean taper in holder thoroughly → free of grease.
Turn the differential screw one rotation into the head (counter-clockwise thread).



Before tightening turn the drive keys of the rapid set head against the direction of machining until it hits the holder.

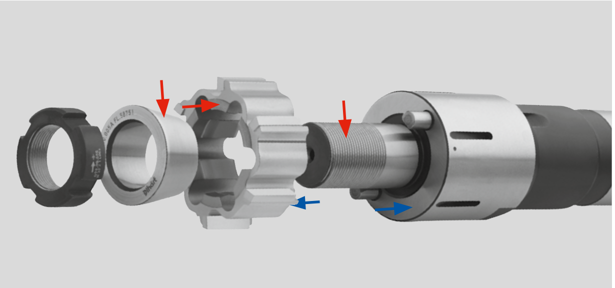


Tightening the left-/right screw.
Observe the specified tightening torque M in the index table.

Ø range	Tightening torque (M)
0.496 – 0.614	6 – 8 in-lbs
0.615 – 0.732	10 – 12 in-lbs
0.733 – 0.945	16 – 20 in-lbs
0.946 – 1.575	27 – 34 in-lbs
1.576 – 2.362	46 – 58 in-lbs

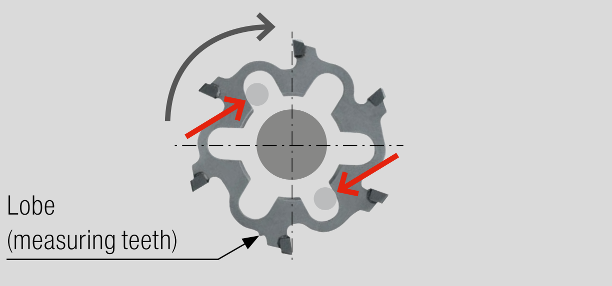
Rapid set heads up to diameter 0.496" are assembled with a clamping screw at the back of the holder. The screw has a counter-clockwise thread.

Cutting Ring – Assembly Instructions on Holder for Through Hole Machining

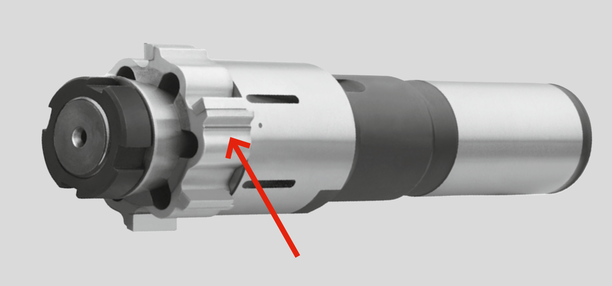


Arrow markings:

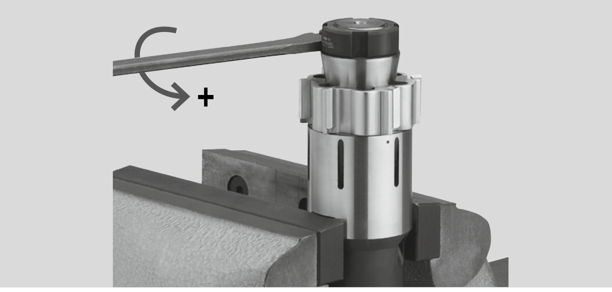
- → light grease
- → face surfaces on holder and cutting ring are grease-free



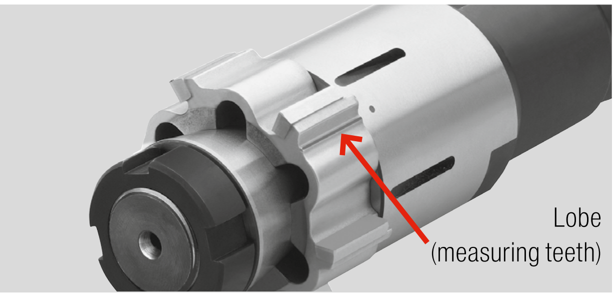
The position for the drive pins is marked with a lobe or in red. Before tightening and adjusting turn the cutting ring against the direction of machining until hitting the drive pins.



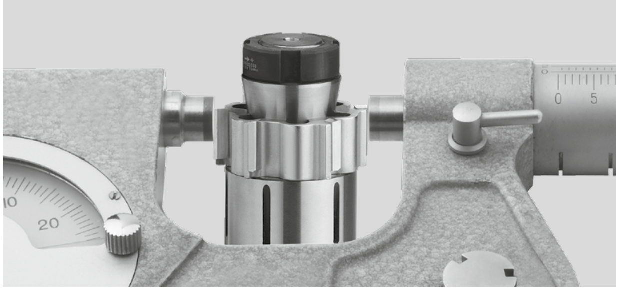
Please observe the marking on holder and cutting ring, check alignment of the coolant bores.



Adjust the diameter to the middle of the tolerance (counter-clockwise thread).

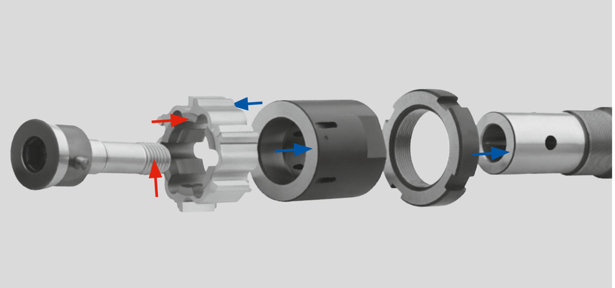


The diameter can only be measured at the marked cutting edges due to unequal angular position!

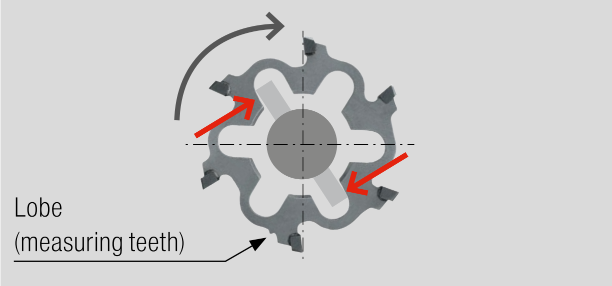


Measure the diameter. If the diameter was set too large, the conical ring must be loosened and the cutting ring readjusted.

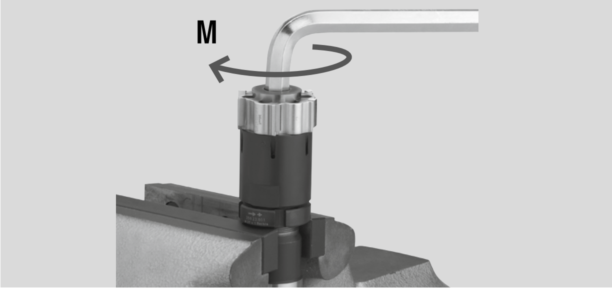
Cutting Ring – Assembly Instructions on Holder for Blind Hole Machining



Arrow markings:
→ light grease
→ face surfaces on holder and cutting ring are grease-free

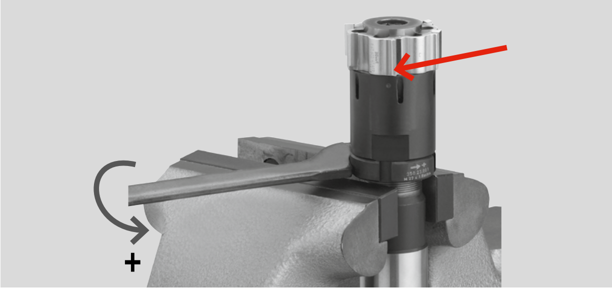


The position for the drive pins is marked with a lobe or in red. Before tightening and adjusting turn the cutting ring against the direction of machining until hitting the drive pin.

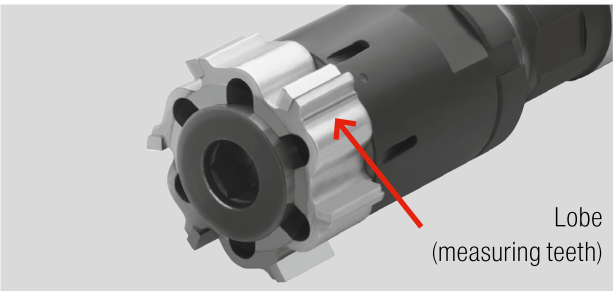


Screw the nut onto the holder with the smooth face against the bushing. Mount the cutting ring with the conical screw.
After fastening the conical screw check that there is space between bushing and ring.
Fasten conical screw according to index table.

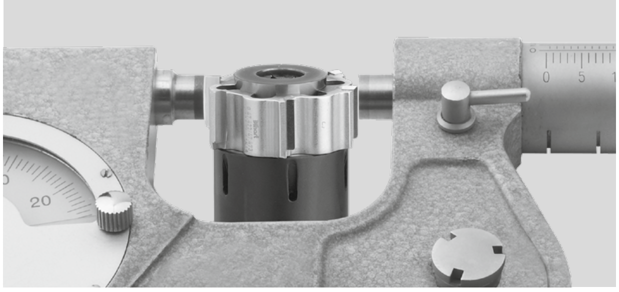
Ø range	Tightening torque (M)
2.3622	796 – 974 in-lbs.
2.4016 – 3.1102	1062 – 1239 in-lbs.
3.1496 – 3.9370	1593 – 1947 in-lbs.



Please observe the marking on holder and cutting ring, check alignment of the coolant bores. Adjust the diameter to the middle of the tolerance.

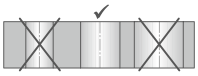


The diameter can only be measured at the marked cutting edges due to unequal angular position!



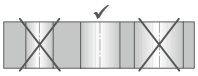
Measure the diameter. If the diameter was set too large, the nut must be loosened and the cutting ring readjusted.

Problems / possible causes / solutions



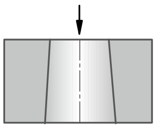
Hole too large

- ▲ Runout error for reamer in the spindle (rotating tool) → use DAH compensation system and correct runout
- ▲ Inaccurate alignment, reamer cuts at the back end (stationary tool) → correct alignment and use DPS floating holder
- ▲ Built-up edge → reduce cutting speed v_c for uncoated carbide cutting material, increase it for DST and coated cutting material or increase the oil content of the coolant
- ▲ Reamer too large → have reamer repaired



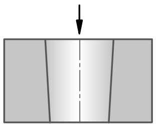
Hole too small

- ▲ Worn reamer → have reamer adjusted, replaced or repaired
- ▲ Reaming allowance too small → increase reaming allowance
- ▲ Cutting force too high → reduce feed or select other lead geometry (ASG)
- ▲ Reamer too small → have reamer adjusted, replaced or repaired



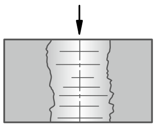
Conical hole, tapered backwards

- ▲ Inaccurate alignment → correct alignment and use DPS floating holder
- ▲ Misalignment between headstock and turret → correct turret and use DPS floating holder



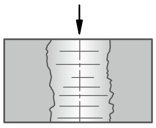
Conical hole, tapered forwards

- ▲ Poor alignment, cutting edges push at start → correct alignment and use DPS floating holder



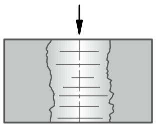
Hole is not round

- ▲ Reamer runout error too large → correct the runout with DAH compensation system
- ▲ Alignment error → correct alignment error and use DPS floating holder
- ▲ Asymmetric initial cutting through angled entry surface → countersink hole
- ▲ Workpiece deforming due to clamping → correct clamping of the workpiece
- ▲ Poor pre-machining → optimize pre-machining
- ▲ Feed too high → reduce feed



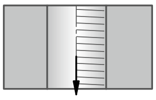
Hole exhibits chatter marks

- ▲ Cutting speed v_c too high → reduce cutting speed
- ▲ L to D ratio too high→ reduce the speed of entry, pilot the bore or select other lead geometry (ASG)



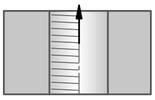
Poor surface quality

- ▲ Built-up edge → reduce cutting speed v_c for uncoated carbide cutting material, increase it for DST and coated cutting material or increase the oil content of the coolant
- ▲ Cutting edge worn→ have cutting edge repaired or replace the tool
- ▲ Reamer runout error → correct the runout with DAH compensation system
- ▲ No or insufficient cooling, chips are getting trapped → use thru coolant supply and increase coolant pressure
- ▲ Unsuitable coolant → increase the oil content of the coolant
- ▲ Incorrect cutting data→ use data according to catalog recommendation



Grooves in the hole "Feed marks"

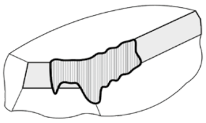
- ▲ Faulty cutting edge (edge breakage) → have reamer replaced or repaired
- ▲ Built-up edges → reduce cutting speed v_c for uncoated carbide cutting material, increase it for DST and coated cutting material or increase the oil content of the coolant



Grooves in the hole "Retraction marks"

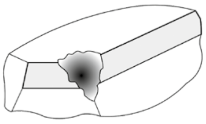
- ▲ Cutting edges moved too far out of the hole → move no more than lead length + .079" out of the hole
- ▲ Material springs back → do not retract at high speed but with increased (2-3 times) feed rate

Types of wear



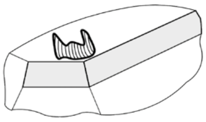
Wear on clearance face

Reduce the cutting speed and select a more wear resistant cutting material or coating.



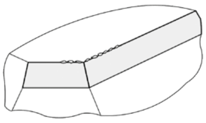
Cutting edge breakage

Reduce feed and reaming allowance. In the case of interrupted holes, use coated carbide instead of DST.



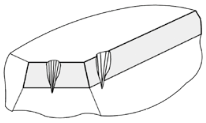
Cratering

Reduce the cutting speed and use a positive cutting edge geometry.



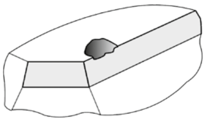
Edge breakages

Increase the cutting speed and use larger rake angle.



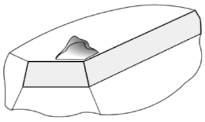
Notch wear

Reduce the cutting speed and select a more wear resistant cutting material or coating.



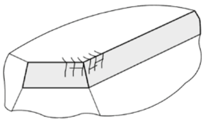
Fatigue fracture

Reduce feed, increase reamer stability.



Built-up edge

Use positive cutting edge geometry, increase the oil content of the coolant, reduce the cutting speed v_c for uncoated carbide cutting material, increase it for DST and coated cutting material.

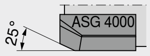
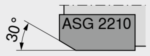
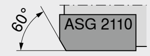
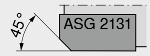
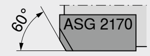


Cracks at right angles to the cutting edge

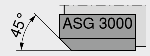
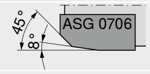
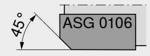
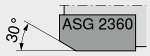
Use sufficient coolant and thru coolant, reduce the cutting speed.

Common cutting edge geometries in the performance area

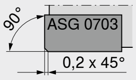
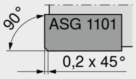
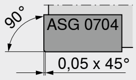
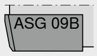
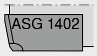
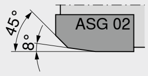
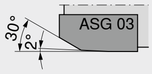
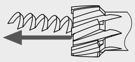
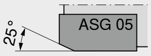
Standard geometries

Geometry	Flute type	Chip flow	Lead angle	
ASG4000	straight	←		Through hole
ASG2210	left-hand helix	←		
ASG2231	left-hand helix	←		
ASG2270	straight	←		
ASG2110	straight	→		Blind hole
ASG2131	straight	→		
ASG2170	straight	→		

Standard geometries

Geometry	Flute type	Chip flow	Lead angle	
ASG3000	straight	↔		Through hole-Blind hole
ASG0706	straight	↔		
ASG0106	straight	↔		
ASG2350	straight	↔		
ASG2360	straight	↔		

Special geometries

Geometry	Flute type	Chip flow Comments	Lead angle
ASG0703	straight	Face cutting	
ASG1101	straight	Face cutting	
ASG0704	straight	Face cutting with increased positional accuracy	
ASG09B	straight	Chip control < Ø 1.26 inch	
ASG1402	straight	Chip control > Ø 1.26 inch	
ASG02	straight	↔	
ASG03	straight	↔	
ASG05	left-handed		

Achievable surface quality

Material group		Roughness	N11	N10	N9	N8		N7	N6		N5	N4	N3	N2	N1
		Average roughness R_a	25	12,5	6,3	3,2		1,6	0,8		0,4	0,2	0,1	0,05	0,025
		Surface roughness R_z	100	63	40	25	16	10	6,3	4	2,5	1,6	1	0,63	0,25
P	1.0 – 4.2						▶	▶	▶	▶	▶				
M	1.1 – 3.1						▶	▶	▶	▶	▶				
K	1.1 + 2.1 + 3.1		▶	▶	▶	▶	▶	▶							
	1.2 + 2.2 + 3.2			▶	▶	▶	▶	▶	▶	▶					
N	1.1 – 2.3						▶	▶	▶	▶	▶	▶			
	3.1 – 3.3				▶	▶	▶	▶	▶	▶	▶				
S	1.1 – 3.3				▶	▶	▶	▶	▶	▶					
H	1.1 – 1.3						▶	▶	▶	▶					

reachable ▶ conditionally reachable

This information is based on experience and may vary from case to case, depending on the prevailing conditions.
(all other surface values on request)

Tolerances

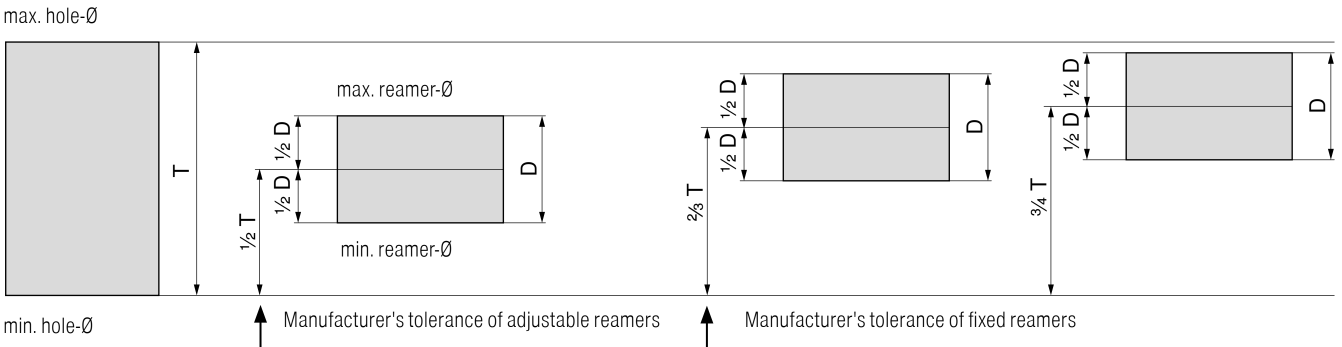
IT tolerance class DIN 7151

Nominal dimension range (inch)	IT tolerance class (inch)											
	IT 1	IT 2	IT 3	IT 4	IT 5	IT 6	IT 7	IT 8	IT 9	IT 10	IT 11	IT 12
.039 – .118	.00003	.00005	.00008	.00012	.00016	.00024	.00039	.00055	.00098	.00158	.00236	.00394
> .118 – .236	.00004	.00006	.00010	.00016	.00020	.00032	.00047	.00071	.00118	.00189	.00295	.00472
> .236 – .394	.00004	.00006	.00010	.00016	.00024	.00035	.00059	.00087	.00142	.00228	.00354	.00591
> .394 – .709	.00005	.00008	.00012	.00020	.00032	.00043	.00071	.00106	.00169	.00276	.00433	.00709
> .709 – 1.181	.00006	.00010	.00016	.00024	.00035	.00051	.00083	.00130	.00205	.00331	.00512	.00827
> 1.181 – 1.969	.00006	.00010	.00016	.00028	.00043	.00063	.00098	.00154	.00244	.00394	.00630	.00984
> 1.969 – 3.150	.00008	.00012	.00020	.00032	.00051	.00075	.00118	.00181	.00291	.00472	.00748	.01181
> 3.150 – 4.724	.00010	.00016	.00024	.00039	.00059	.00087	.00138	.00213	.00343	.00551	.00866	.01378
> 4.724 – 7.087	.00014	.00020	.00032	.00047	.00071	.00098	.00158	.00248	.00394	.00630	.00984	.01575
> 7.087 – 9.843	.00018	.00028	.00039	.00055	.00079	.00114	.00181	.00284	.00453	.00728	.01142	.01811
> 9.843 – 12.402	.00024	.00032	.00047	.00063	.00091	.00126	.00205	.00319	.00512	.00827	.01260	.02047

Nominal dimension range (mm)	IT tolerance class (metric) (in 0.001 mm)											
	IT 1	IT 2	IT 3	IT 4	IT 5	IT 6	IT 7	IT 8	IT 9	IT 10	IT 11	IT 12
1 – 3	0.8	1.2	2	3	4	6	10	14	25	40	60	100
> 3 – 6	1	1.5	2.5	4	5	8	12	18	30	48	75	120
> 6 – 10	1	1.5	2.5	4	6	9	15	22	36	58	90	150
> 10 – 18	1.2	2	3	5	8	11	18	27	43	70	110	180
> 18 – 30	1.5	2.5	4	6	9	13	21	33	52	84	130	210
> 30 – 50	1.5	2.5	4	7	11	16	25	39	62	100	160	250
> 50 – 80	2	3	5	8	13	19	30	46	74	120	190	300
> 80 – 120	2.5	4	6	10	15	22	35	54	87	140	220	350
> 120 – 180	3.5	5	8	12	18	25	40	63	100	160	250	400
> 180 – 250	4.5	7	10	14	20	29	46	72	115	185	290	460
> 250 – 315	6	8	12	16	23	32	52	81	130	210	320	520

Manufacturer's tolerance of the reamer

T = Hole tolerance range
D = Manufacturer's tolerance of the reamer



Manufacturer's tolerance of adjustable reamers

The diameter of an adjustable reamer is ground to the middle of drilling tolerance T (REAMAX TS / Monomax). The adjustment capability of the reamer facilitates wear compensation.

Manufacturer's tolerance of fixed reamers

The manufacturer tolerance D of fixed reamers is two thirds (REAMAX) or three quarters (Fullmax) of the drilling tolerance T.

Coatings – Reaming

DBC

- Diamond-like carbon coating
- Specially for machining non-ferrous metals
- Maximum application temperature: 400 °C

TiN

- TiN coating
- Maximum application temperature: 450°C

DBG-P

- AlTiN Multilayer coating
- Especially for universal use in a variety of materials at high cutting speeds
- Suitable for MMS application
- Maximum application temperature: 1000 °C

Grade description – Reamers

DST

- Cermet, uncoated
- ISO | **P15** | **M10** | K10
- The uncoated cermet grade for finish machining stainless and hardened steel
- Particularly wear resistant thanks to high heat resistance

K10

- Carbide, uncoated
- ISO | **K10**
- Uncoated carbide grade for machining grey cast iron or non-ferrous metals, depending on the cutting edge geometry

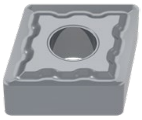
PCD-U

- Polycrystalline diamond cutting material, uncoated
- Particularly wear-resistant PCD grade for process reliable machining of aluminium


ø16
/DL/BSP 101

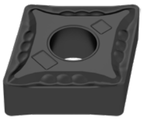
New products for machining technicians

NEW CTPX710 and CTPX715 the universal multi-material grade



CTPX710 and CTPX715 are the first multi-application grade for turning from CERATIZIT. It impresses thanks to outstanding performance in the processing of steel, stainless steel, super alloys and non-ferrous metals.

NEW CTCM120 and CTCM130 for stainless turning

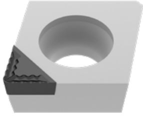


In addition to the all-rounder CTPM125 grade, the CTCM120 and CTCM130 stainless turning grades now provide a tougher and a more wear-resistant option for finer adjustment to the material to be machined. What's more, the stainless range offers geometric compatibility across all three grades.

NEW Standard line

Attractively priced indexable inserts for steel machining – our ISO turning standard line not only impresses on price but also by providing the best levels of performance!

NEW CBN/PCD update



Various cutting edge finishes and chip breakers are being added to the CBN and PCD range to provide a specialist for every application.

Table of contents

CERATIZIT \ Performance

Premium quality tools for high performance.

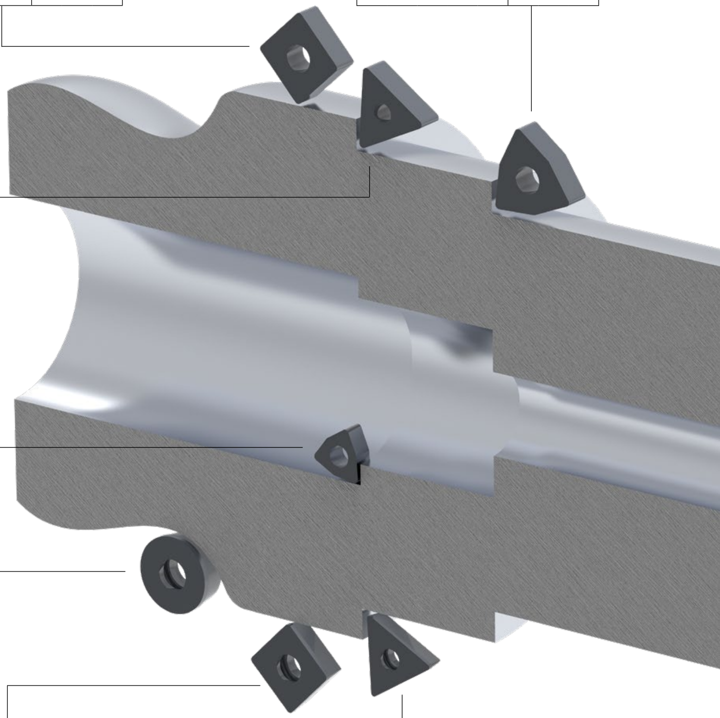
The premium quality tools from the **CERATIZIT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

CERATIZIT \ Standard

Quality tools for standard applications.

The quality tools of the **CERATIZIT Standard** product line are high quality, powerful and reliable and enjoy the highest trust of our customers worldwide. Tools from this product line are the first choice for many standard applications and guarantee optimal results.

Toolfinder – Application



SN..							
Carbide					CBN		
P	M	K	N	S	K	S	H
41–44							

WN..							
Carbide					CBN		
P	M	K	N	S	K	S	H
71–74					75		

TN..							
Carbide					CBN		
P	M	K	N	S	K	S	H
51–53					54		

WC..									
Carbide					CBN			Diamond	
P	M	K	N	S	K	S	H	N	S
158					159			159	

RC..									
Carbide					CBN			Diamond	
P	M	K	N	S	K	S	H	N	S
118+119					120			121	

SC..									
Carbide					CBN			Diamond	
P	M	K	N	S	K	S	H	N	S
124+125					126			127+128	

TC..									
Carbide					CBN			Diamond	
P	M	K	N	S	K	S	H	N	S
131–133					134–137			138+139	

Coding of the chip breakers

All new chip breakers are coded according to the following key:

-M50

Inserts – Basic Type	Application range	Material		Chip breaker width
	F = Fine	1 = Steel	5 = Heat Resistant alloys	↑ 1 = Narrow
0 | N = Negative Inserts	M = Medium	2 = Stainless steel	6 = Hard	
5 | P = Positive Inserts	R = Rough	3 = Cast Iron	7 = Universal	
		4 = Non Ferrous Metals		↓ 9 = Wide

Detailed information on the chip breakers can be found in the technical appendix → **pages 184–191**.

Symbol explanation

CTCP125 *Carbide Grade*

F	Fine Machining
M	Medium Machining
R	Rough Machining

○ ○ ◌

○	Smooth cut
○	Irregular cutting depth
◌	Interrupted cut

A detailed overview of grades can be found in the technical appendix on → **page 202**.

CN..

Carbide	CBN	Diamond
P M K N S	K S H	N S
9–14	15–18	19

DN..

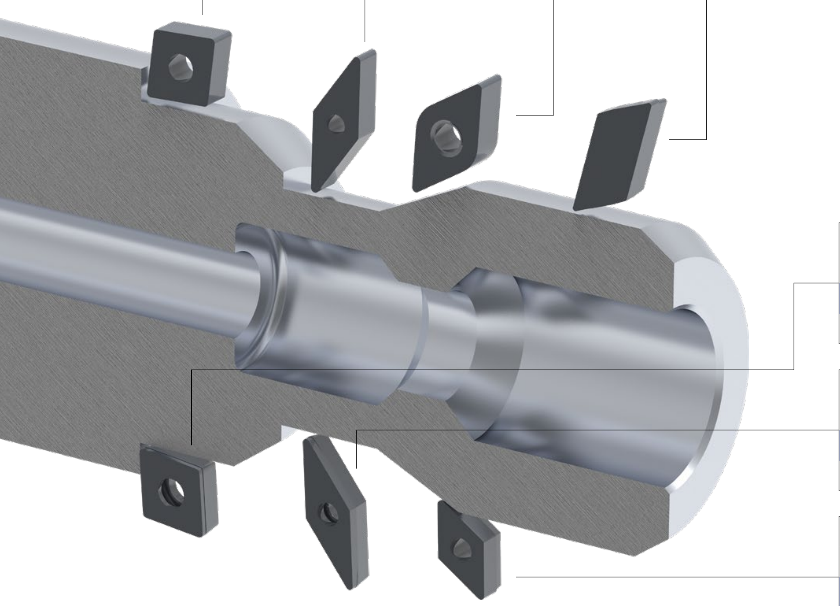
Carbide	CBN	Diamond
P M K N S	K S H	N S
28–32	33+34	35

VN..

Carbide	CBN
P M K N S	K S H
64–66	67

KN..

Carbide	CBN
P M K N S	K S H
metric	



CC..

Carbide	CBN	Diamond
P M K N S	K S H	N S
78–83	84–90	91–95

VC..

Carbide	CBN	Diamond
P M K N S	K S H	N S
143–146	148–151	152–154

DC..

Carbide	CBN	Diamond
P M K N S	K S H	N S
98–102	103–110	111–115

metric
Additional metric items are available in our Online-Shop at cuttingtools.ceratizit.com and in the metric main catalog

Toolfinder – negative inserts

					Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials	Geometry						
					P	M	K	N	S	H	O	CN..	DN..	KN..	SN..	TN..	VN..	WN..
Main application: **Steel and cast iron**	Sharp	Fine	-CF / -CF20		●	○	○					9	28			51		71
			-F40		●		○										64	
			-F50		●		○					9	28		41	51	64	71
			-TFQ		●	○	○					9+10	28+29					71
		Medium	-XU		●		○					10	29				64	72
			-FMS		●		○					14	32				66	74
			-M40		●		○										64	
			-M50		●	○	○					10	29+30		41	51	64	72
			-TMQ		●		○					10	30					72
			-MRS		●	○						14	32					74
			-M70 | -11, -12		●	○	○					10+11	30	metric	41+42	52		72
		Rough	.NMA		●	○						11	30		42+43	52		73
			-R28		●	○	○					11	30		43	52		
			-R58		●	○	○					11+12	30+31		43	52+53		
	stable		-R88		●	○	○					12			44			
Main application: **Stainless**	Sharp	Fine	-F30		○	●			○			13	31		44	53	64	73
		Medium	-M30		○	●			○			13	31		44	53	64+65	73
			-M42		○	●			●			metric	metric		metric	metric		metric
	stable		-M60		○	●			○			13	31		44	53		73
Main application: **Heat-resistant**	Sharp	Fine	-F32			●		○	●			metric	metric				metric	
		Medium	-M34		●	●		○	●			13	31		44	53	65	73
			-M42		○	●		○	●			metric	metric			metric		metric
	stable		-M52			●		○	●			metric	metric		metric	metric		metric

metric Additional metric items are available in our Online-Shop at cuttingtools.ceratizit.com and in the metric main catalog.

Toolfinder – negative inserts

				Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials	Geometry						
				P	M	K	N	S	H	O	**CN..**	**DN..**	**KN..**	**SN..**	**TN..**	**VN..**	**WN..**
Main application: **Cast iron, sintered steels, heat resistant, hardened**	Fine	CTBS05U				●											75
		CTBS10U				●		●			15+16						
		CTBS10C				●		●			15+16						
		CTBS20U				●		●			15+16	33					
		CTBS20C				●		●			15+16	33					75
		CTBH15U							●								
		CTBH15C							●		17	33					
		CTBH20U							●		17	33			54		
		CTBH20C	48–62 HRC						●		17	34			54	67	75
		CTBH21U	52–65 HRC						●								
	Rough	CTBH40U	54–65 HRC						●		18	34			54	67	
		CTBH40C	48–65 HRC						●		18	34			54	67	75
		CTBH41U	48–65 HRC						●		18						
	Diamond	CTD PD20					●			●	19	35					
		CTD PS30					●			●	19						

With the PCBN grades CTB S10 and CTB S20, sintered steels can also be machined. You can find the cutting data on → **page 164–166**.

Toolfinder – positive inserts

					Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O	Geometry CC..	 DC..	 RC..	 SC..	 SP..	 TC..	 TP..	 VC..	 WC..
Main application: **Steel and cast iron**	Sharp	Fine	-CF05		●	○	○					78	98		124		131		143	
			-SF		●	○	○					78+79	98		124		131		143	158
		Medium	-CF55		●	○	○					78	98		124		131		143	
			-SMF		●	○	○					78+79	98	118	124		131+132		143+144	
			-FMS		●	○						82	102						146	
			-SM		●	○	●					79	98+99	118	124		132		144	
			-SMQ		●		○					79+80	99							
			-MRS		●	○						82	102						146	
	stable		EN, EL, ER		●	○	●								124	metric		metric		
Main application: **Stainless**	Sharp	Fine	-F43		○	●			●			metric	metric				metric			
			-M81		○	●			○			metric	metric						metric	
		Medium	-M25		○	●			●			80	99				132		144	
	stable		-M55		○	●			●			80	99		125		132		144	
Main application: **Non-ferrous metals**	Sharp	Fine	-23P				○	●			○	80	100							
		Medium	-25P		●	●	○	●	●		○	80	100		125				145	
			-25Q		●	●	○	●	●		○	80	100						145	
			-27		●	●	○	●	●		○	80+81	100+101	119	125		133		145	
	stable		-29				○	●			○	81	101						145	
Main application: **Heat-resistant**	Sharp	Fine	-F05		●	●		●	●				101						145	
	stable		-F23			●	○	○	●			metric	metric						metric	

metric Additional metric items are available in our Online-Shop at cuttingtools.ceratizit.com and in the metric main catalog.

Toolfinder – positive inserts

				Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials	Geometry								
				P	M	K	N	S	H	O	CC..	DC..	RC..	SC..	SP..	TC..	TP..	VC..	WC..
Main application: **Cast iron, sintered steels, heat resistant, hardened**	Fine	CTBS10U				●		●			84	103	120	126		134+135		148+149	159
		CTBS10C				●		●				104+105							
		CTBS20U				●		●			85+86	104+105				134+135		148+149	
		CTBS20C				●		●			85+86	104+105				134+135		148+149	
		CTBH15U	< 32 HRC						●		87	104–106				134+135		148+149	159
		CTBH15C	< 32 HRC						●		87	106				136+137		148+149	
		CTBH21U	52–65 HRC						●		88	106–108						150	
		CTBH21C	52–65 HRC						●			107+108							
		CTBH20U							●		88	107+108				134+135		150	159
		CTBH20C	48–62 HRC						●		85–89	106–108				136+137		150	
	Rough	CTBH40U	54–65 HRC						●		89	107–110				136+137		151	159
		CTBH40C	48–65 HRC						●		90	109+110				136+137		151	
		CTBH41U	48–65 HRC						●									151	
		CTBH41C	48–65 HRC						●			109+110							
	Diamond	CTD PD20					●			●	91+92	111+113	121	127		138		152+153	159
		CTD PS30					●			●	93+94	112–114	121	127+128		138+139		153	
		CTD PU20					●			●	94	112–115		128		139		153+154	
		CTD CD10					●			●	95	115				139		154	
		CTD MD05					●			●	91	111						152	

With the PCBN grades CTB S10 and CTB S20, sintered steels can also be machined. You can find the cutting data on → **page 164–166**.

Toolfinder – holders

Toolholders and boring bars for negative inserts

Geometry	Tool holder	Boring bars	Metric Tool holders and boring bars	HSK-T	PSC	Exchangeable head system	
						Exchangeable cutting heads	Basic holder
CN..	20–25	26+27	metric	metric	metric	metric	metric
DN..	36–38	39+40	metric	metric	metric	metric	metric
SN..	45–50	50	metric	metric			
TN..	55–61	62+63	metric				
VN..	68+69	70		metric	metric		
WN..	76	77	metric	metric	metric	metric	metric

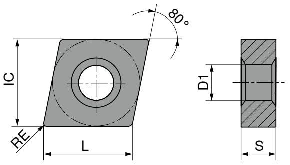
Toolholders and boring bars for positive inserts

Geometry	Tool holder	Boring bars	Metric Tool holders and boring bars	HSK-T	PSC	Exchangeable head system	
						Exchangeable cutting heads	Basic holder
CC..	96	97	metric	metric	metric	metric	metric
DC..	116	117	metric	metric	metric	metric	metric
RC..	122+123			metric			
SC..	129	130	metric				
TC..	140+141	142	metric				
VC..	155+156	157	metric	metric	metric		
WC..		metric	metric				

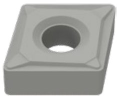
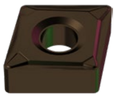
metric Additional metric items are available in our Online-Shop at cuttingtools.ceratizit.com and in the metric main catalog.

CNMG / CNMA / CNMM

Designation	L inch	S inch	D1 inch	IC inch
CNMG 32..	0.382	0.125	0.150	0.375
CNM. 43..	0.508	0.187	0.203	0.500
CNM. 54..	0.634	0.250	0.250	0.625
CNM. 64..	0.760	0.250	0.313	0.750
CNMM 86..	1.016	0.375	0.359	1.000



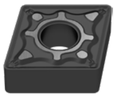
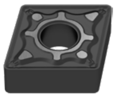
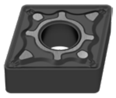
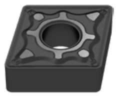
CNMG

		-CF TCM10	**-CF20** CTEP110	**-TFQ** CTEP110	**-F50** CTCP115	**-F50** CTCP125	**-F50** CTCP135	**-TFQ** CTCP115
			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		F	**F**	**F**	**F**	**F**	**F**	**F**
		CERMET CNMG	**CERMET** CNMG	**CERMET** CNMG	CNMG	CNMG	CNMG	CNMG
		70 101 ...	**76 101 ...**	**76 110 ...**	**76 132 ...**	**76 132 ...**	**76 132 ...**	**76 110 ...**
ANSI	RE inch							
321EN	0.016				**316**	**516**	**716**	
322EN	0.031				**318**	**518**	**718**	
431EN	0.016	**904**	**028**	**028**	**328**	**528**	**728**	**328**
432EN	0.031	**908**	**030**	**030**	**330**	**530**	**730**	**330**
433EN	0.047			**032**	**332**	**532**	**732**	**320**
P		●	●	●	●	●	●	●
M		○	○	○			○	
K		○	○	○	○	○		○
N								
S								
H								
O								

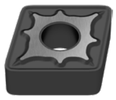
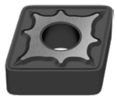
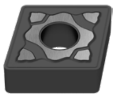
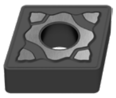
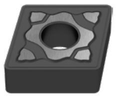
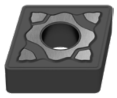
4

→ v_c Page 160–181

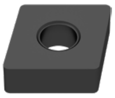
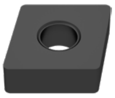
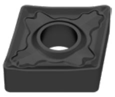
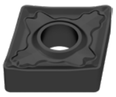
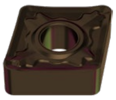
CNMG

ANSI	RE inch	-TFQ CTCP125	-XU CTCP115	-XU CTCP125	-M50 CTCK110	-M50 CTCK120	-M50 CTCP115	-M50 CTCP125
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		F	**M**	**M**	**M**	**M**	**M**	**M**
		CNMG	CNMG	CNMG	CNMG	CNMG	CNMG	CNMG
		76 110 ...	**76 290 ...**	**76 290 ...**	**70 132 ...**	**70 132 ...**	**76 135 ...**	**76 135 ...**
431EN	0.016	528	328	528	028		328	528
432EN	0.031	530	330	530	030	530	330	530
433EN	0.047	532	332	532	032	532	320	532
434EN	0.063						334	534
542EN	0.031						342	542
543EN	0.047						344	544
544EN	0.063						346	546
P		●	●	●	○	○	●	●
M								
K		○	○	○	●	●	○	○
N								
S								
H								
O								

CNMG

ANSI	RE inch	-M50 CTCP135	-TMQ CTCP115	-TMQ CTCP125	-M70 CTCK110	-M70 CTCK120	-M70 CTCP115	-M70 CTCP125
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		M	**M**	**M**	**M**	**M**	**M**	**M**
		CNMG	CNMG	CNMG	CNMG	CNMG	CNMG	CNMG
		76 135 ...	**76 196 ...**	**76 196 ...**	**70 119 ...**	**70 119 ...**	**76 119 ...**	**76 119 ...**
431EN	0.016	728						
432EN	0.031	730	33000	530	030	530	330	530
433EN	0.047	732	320	532	032	532	320	532
434EN	0.063	734			034	534	334	534
542EN	0.031	742			042	542	342	542
543EN	0.047	744			044	544	344	544
544EN	0.063	746			046	546	346	546
546EN	0.094						348	548
642EN	0.031						354	554
643EN	0.047				056	556	356	556
644EN	0.063				058	558	358	558
646EN	0.094						360	560
P		●	●	●	○	○	●	●
M		○						
K			○	○	●	●	○	○
N								
S								
H								
O								

CNMG / CNMA / CNMM

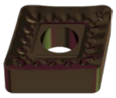
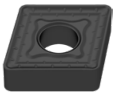
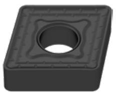
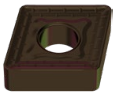
		-M70 CTCP135	CTCK110	CTCK120	**-R28** CTCP115	**-R28** CTCP125	**-R28** CTCP135	**-R58** CTCP115
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		M CNMG	**R** CNMA	**R** CNMA	**R** CNMM	**R** CNMM	**R** CNMM	**R** CNMM
		76 119 ...	**70 100 ...**	**70 100 ...**	**76 114 ...**	**76 114 ...**	**76 114 ...**	**76 115 ...**
ANSI	RE inch							
431EN	0.016		**028**	**528**				
432EN	0.031	**730**	**030**	**530**	**330**	**530**		**330**
433EN	0.047	**732**	**032**	**532**	**332**	**532**	**732**	**332**
434EN	0.063	**734**	**034**	**534**	**334**	**534**	**734**	**334**
542EN	0.031	**742**	**042**	**542**				
543EN	0.047	**744**	**044**	**544**	**344**	**544**	**744**	**344**
544EN	0.063	**746**	**046**	**546**	**346**	**546**	**746**	**346**
546EN	0.094	**748**						**348**
642EN	0.031	**754**						
643EN	0.047	**756**	**056**	**556**	**356**	**556**	**756**	**356**
644EN	0.063	**758**	**058**	**558**	**358**	**558**	**758**	**358**
646EN	0.094	**760**			**360**	**560**	**760**	**360**
866EN	0.094				**38400**	**58400**	**78400**	**384**

P	●	○	○	●	●	●	●
M	○					○	
K		●	●	○	○		○
N							
S							
H							
O							

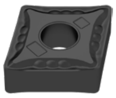
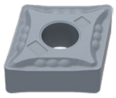
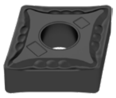
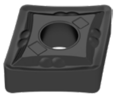
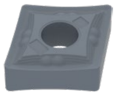
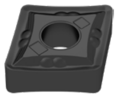
4

→ v_c Page 160–181

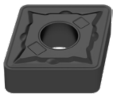
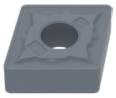
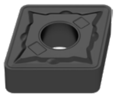
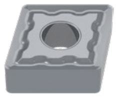
CNMM

ANSI	RE inch	-R58 CTCP125 DRAGONSKIN  R CNMM 76 115 ...	-R58 CTCP135 DRAGONSKIN  R CNMM 76 115 ...	-R88 CTCP115 DRAGONSKIN  R CNMM 76 133 ...	-R88 CTCP125 DRAGONSKIN  R CNMM 76 133 ...	-R88 CTCP135 DRAGONSKIN  R CNMM 76 133 ...
432EN	0.031	530	730			
433EN	0.047	532	732			
434EN	0.063	534	734			
543EN	0.047	544	744			
544EN	0.063	546	746			
546EN	0.094	548	748			
546SN	0.094			348	548	748
643EN	0.047	556	756			
644EN	0.063	558	758			
644SN	0.063			358	558	758
646EN	0.094	524	760			
646SN	0.094			360	560	760
866EN	0.094	584	784			
866SN	0.094			384	584	784
P		●	●	●	●	●
M			○			○
K		○		○	○	
N						
S						
H						
O						

CNMG

		NEW		NEW	NEW		NEW
		-F30 CTCM120	**-F30** CTPM125	**-F30** CTCM130	**-M30** CTCM120	**-M30** CTPM125	**-M30** CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		○ ○ ○	○ **○** ○	○ ○ **○**	**○** ○ ○	○ **○** ○	○ ○ **○**
							
		F CNMG	**F** CNMG	**F** CNMG	**M** CNMG	**M** CNMG	**M** CNMG
		75 010 ...	**75 010 ...**	**75 010 ...**	**75 011 ...**	**75 011 ...**	**75 011 ...**
ANSI	RE inch						
431EN	0.016	12800	280	32800			
432EN	0.031	13000	230	33000	13000	230	33000
433EN	0.047				13200	232	33200
434EN	0.063				13400	234	33400
P		○	○	○	○	○	○
M		●	●	●	●	●	●
K							
N							
S				○			○
H							
O							

CNMG

		NEW		NEW	NEW
		-M60 CTCM120	**-M60** CTPM125	**-M60** CTCM130	**-M34** CTPX710
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		○ ○ ○	○ **○** ○	○ ○ **○**	**○** ○ ○
					
		M CNMG	**M** CNMG	**M** CNMG	**M** CNMG
		75 012 ...	**75 012 ...**	**75 012 ...**	**75 003 ...**
ANSI	RE inch				
431EN	0.016				62800
432EN	0.031	13000	230	33000	63000
433EN	0.047	13200	232	33200	63200
434EN	0.063	13400	234	33400	63400
P		○	○	○	●
M		●	●	●	●
K					
N					○
S				○	●
H					
O					

→ v_c Page 160–181

CNMG

ANSI	RE inch	NEW	NEW	NEW	NEW	NEW
		-FMS CT-P15	**-FMS** CT-P25	**-MRS** CT-P15	**-MRS** CT-P25	**-MRS** CT-P35
		● ○ ○	○ ● ○	● ○ ○	○ ● ○	○ ○ ●
						
		F	**F**	**M**	**M**	**M**
		CNMG	CNMG	CNMG	CNMG	CNMG
		75 302 ...	75 302 ...	75 303 ...	75 303 ...	75 303 ...
431EN	0.016	**02809**	**12809**			
432EN	0.031	**03009**	**13009**	**03009**	**13009**	**23009**
433EN	0.047	**03209**	**13209**	**03209**	**13209**	**23209**
434EN	0.063			**03409**	**13409**	**23409**
543EN	0.047			**04409**	**14409**	**24409**
544EN	0.063			**04609**	**14609**	**24609**
643EN	0.047			**05609**	**15609**	**25609**
644EN	0.063			**05809**	**15809**	**25809**

P	●	●	●	●	●
M	○	○	○	○	○
K					
N					
S					
H					
O					

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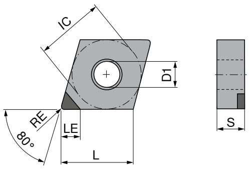
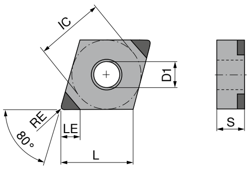
CNGA

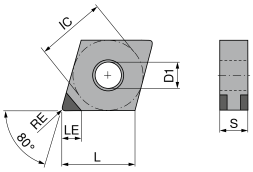
Designation	L inch	S inch	D1 inch	IC inch
CNGA 43..	0.508	0.187	0.202	0.500



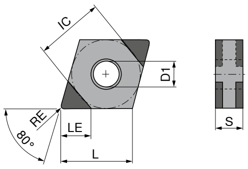
CNGA A



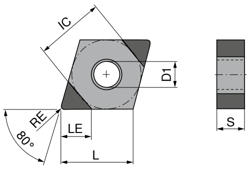
CNGA B



CNGA K



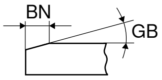
CNGA L

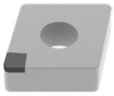
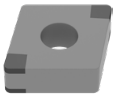
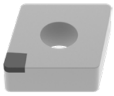
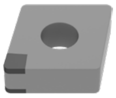
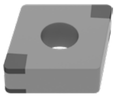


CNGA U

CNGA

▲ TCE(NOI) = Design and number of equipped cutting edge corners



NEW	NEW	NEW		
CTBS10U	CTBS10C	CTBS20U	CTBS20C	CTBS20C
				
F	**F**	**F**	**F**	**F**
CBN	**CBN**	**CBN**	**CBN**	**CBN**
CNGA	CNGA	CNGA	CNGA	CNGA
71 406 ...	71 408 ...	71 406 ...	71 400 ...	71 401 ...

ANSI	RE inch	BN inch	GB	**TCE (NOI)**	LE inch	71 406 ...	71 408 ...	71 406 ...	71 400 ...	71 401 ...
43.5FN	0.008			**A (1)**	0.134	**10000**				
43.5TN	0.008	0.005	20°	**A (1)**	0.134	**10100**				
431SN	0.016	0.004	10°	**L (4)**	0.110					**122**
431TN	0.016	0.004	15°	**A (1)**	0.122			**20000**		
431SN	0.016	0.004	15°	**L (4)**	0.110					**132**
431TN	0.016	0.004	15°	**L (4)**	0.110		**80000**			
431SN	0.016	0.004	15°	**K (2)**	0.110				**142**	
431SN	0.016	0.004	15°	**L (4)**	0.110					**16200**
431SN	0.016	0.004	20°	**L (4)**	0.110					**152**
431TN	0.016	0.005	20°	**A (1)**	0.122	**10300**				
431SN	0.016	0.006	20°	**K (2)**	0.110				**162**	
431SN	0.016	0.006	20°	**L (4)**	0.110					**17100**
431FN	0.016			**A (1)**	0.122	**10200**				
431TN	0.016	0.006	25°	**L (4)**	0.110		**80100**			
431SN	0.016	0.007	30°	**K (2)**	0.110				**182**	
431SN	0.016	0.007	30°	**L (4)**	0.110					**182**
432TN	0.031	0.004	10°	**L (4)**	0.098		**80200**			
432SN	0.031	0.004	10°	**L (4)**	0.098					**124**
432TN	0.031	0.004	15°	**L (4)**	0.098		**80300**			
432SN	0.031	0.004	15°	**L (4)**	0.098					**134**
432SN	0.031	0.004	15°	**K (2)**	0.098				**144**	
P										
M										
K						●	●	●	●	●
N										
S						●	●	●	●	●
H										
O										

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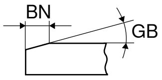
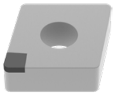
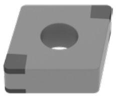
Continued on next page

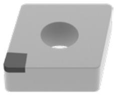
CNGA

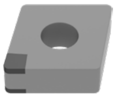
▲ TCE(NOI) = Design and number of equipped cutting edge corners

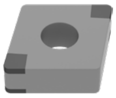












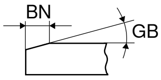
ANSI	RE inch	BN inch	GB	TCE (NOI)	LE inch	NEW CTBS10U F CBN CNGA 71 406 ...	NEW CTBS10C F CBN CNGA 71 408 ...	NEW CTBS20U F CBN CNGA 71 406 ...	CTBS20C F CBN CNGA 71 400 ...	CTBS20C F CBN CNGA 71 401 ...
432SN	0.031	0.004	15°	**L (4)**	0.098					**16300**
432SN	0.031	0.004	20°	**L (4)**	0.098					**154**
432TN	0.031	0.004	20°	**L (4)**	0.098		**80400**			
432TN	0.031	0.005	20°	**A (1)**	0.110	**10500**				
432SN	0.031	0.006	20°	**K (2)**	0.098				**164**	
432SN	0.031	0.006	20°	**L (4)**	0.098					**17200**
432FN	0.031			**A (1)**	0.110	**10400**				
432TN	0.031	0.006	25°	**L (4)**	0.098		**80500**			
432SN	0.031	0.006	25°	**L (4)**	0.098					**18000**
432SN	0.031	0.007	30°	**L (4)**	0.098					**184**
432SN	0.031	0.007	30°	**K (2)**	0.098				**184**	
433SN	0.047	0.004	10°	**L (4)**	0.087					**126**
433SN	0.047	0.004	15°	**L (4)**	0.087					**136**
433TN	0.047	0.004	15°	**L (4)**	0.087		**80600**			
433SN	0.047	0.004	15°	**K (2)**	0.087				**146**	
433SN	0.047	0.004	15°	**L (4)**	0.087					**16400**
433FN	0.047			**A (1)**	0.098	**10600**		**20100**		
433SN	0.047	0.004	20°	**L (4)**	0.087					**156**
433TN	0.047	0.005	20°	**A (1)**	0.098	**10700**				
433SN	0.047	0.006	20°	**K (2)**	0.087				**166**	
433SN	0.047	0.006	20°	**L (4)**	0.087					**17300**
433TN	0.047	0.006	25°	**L (4)**	0.087		**80700**			
433SN	0.047	0.007	30°	**K (2)**	0.087				**186**	
433SN	0.047	0.007	30°	**L (4)**	0.087					**186**

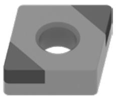
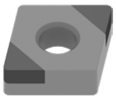
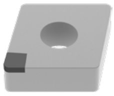
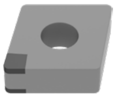
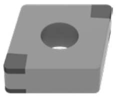
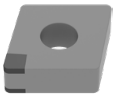
P					
M					
K	●	●	●	●	●
N					
S	●	●	●	●	●
H					
O					

→ v_c Page 164–171

CNGA

▲ TCE(NOI) = Design and number of equipped cutting edge corners



ANSI	RE inch	BN inch	GB	TCE (NOI)	LE inch	CTBH15C  F CBN CNGA 71 003 ...	CTBH15C  F CBN CNGA 71 005 ...	NEW CTBH20U  F CBN CNGA 71 406 ...	CTBH20C  F CBN CNGA 71 400 ...	CTBH20C  F CBN CNGA 71 401 ...	NEW -Q CTBH20C  F CBN CNGA 71 407 ...
43.5FN	0.008			**A (1)**	0.134			**40000**			
43.5TN	0.008	0.005	20°	**A (1)**	0.134			**40100**			
431TN	0.016	0.004	15°	**K (2)**	0.110				**222**		
431TN	0.016	0.004	15°	**L (4)**	0.110					**21200**	
431SN	0.016	0.004	15°	**B (2)**	0.118	**32814**					
431SN	0.016	0.004	20°	**K (2)**	0.110				**25800**		
431SN	0.016	0.004	20°	**L (4)**	0.110					**242**	
431TN	0.016	0.005	20°	**A (1)**	0.122			**40300**			
431TN	0.016	0.004	25°	**K (2)**	0.110				**252**		
431FN	0.016			**L (4)**	0.110					**20200**	
431TN	0.016	0.004	25°	**L (4)**	0.110					**25200**	
431FN	0.016			**K (2)**	0.110				**212**		
431FN	0.016			**A (1)**	0.122			**40200**			
431RN	0.016			**B (2)**	0.118	**22800**					
431SN	0.016	0.005	25°	**L (4)**	0.110					**262**	
431SN	0.016	0.006	25°	**B (2)**	0.118	**32829**					
432TN	0.031	0.004	15°	**K (2)**	0.098				**224**		
432SN	0.031	0.004	15°	**B (2)**	0.106	**33014**					
432TN	0.031	0.004	20°	**K (2)**	0.098				**234**		
432FN	0.031			**K (2)**	0.098						**30000**
432FN	0.031			**L (4)**	0.098					**20300**	
432FN	0.031			**A (1)**	0.110			**40400**			
432RN	0.031			**B (2)**	0.106	**23000**					
432SN	0.031	0.004	20°	**K (2)**	0.098				**26000**		
432SN	0.031	0.004	20°	**L (4)**	0.098					**244**	
432TN	0.031	0.005	20°	**A (1)**	0.110			**40500**			
432TN	0.031	0.004	25°	**K (2)**	0.098				**254**		
432TN	0.031	0.004	25°	**L (4)**	0.098					**25300**	
432SN	0.031	0.005	25°	**L (4)**	0.098					**264**	
432SN	0.031	0.006	25°	**B (2)**	0.106	**33029**					
432SN	0.031	0.006	30°	**L (4)**	0.098					**274**	
433TN	0.047	0.004	15°	**K (2)**	0.087				**226**		
433FN	0.047			**K (2)**	0.087				**216**		
433RN	0.047			**B (2)**	0.094		**23200**				
433SN	0.047	0.004	15°	**B (2)**	0.094		**33214**				
433SN	0.047	0.004	20°	**K (2)**	0.087				**26200**		
433SN	0.047	0.004	20°	**L (4)**	0.087					**246**	
433TN	0.047	0.004	25°	**K (2)**	0.087				**256**		
433TN	0.047	0.004	25°	**L (4)**	0.087					**25400**	
433SN	0.047	0.005	25°	**L (4)**	0.087					**266**	
433SN	0.047	0.006	25°	**B (2)**	0.094		**33229**				

P						
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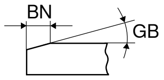
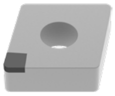
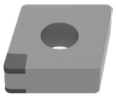
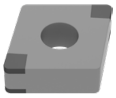
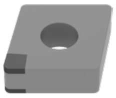
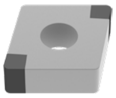
→ v_c Page 164–171

CNGA

▲ TCE(NOI) = Design and number of equipped cutting edge corners



NEW			NEW	NEW
			-Q	
CTBH40U	CTBH40C	CTBH40C	CTBH40C	CTBH41U
○ ○ ○	○ ○ ○	○ ○ ○	○ ○ ○	○ ○ ○
				
F	**F**	**F**	**F**	**F**
CBN	**CBN**	**CBN**	**CBN**	**CBN**
CNGA	CNGA	CNGA	CNGA	CNGA
71 406 ...	**71 400 ...**	**71 401 ...**	**71 407 ...**	**71 409 ...**

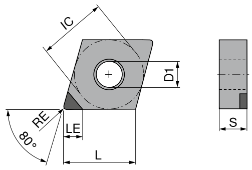
ANSI	RE inch	BN inch	GB	TCE (NOI)	LE inch	71 406 ...	71 400 ...	71 401 ...	71 407 ...	71 409 ...
43.5FN	0.008			**A (1)**	0.134	**50000**				
43.5TN	0.008	0.005	25°	**A (1)**	0.134	**50100**				
431SN	0.016	0.004	20°	**L (4)**	0.110			**332**		
431SN	0.016	0.004	20°	**L (4)**	0.110			**34200**		
431SN	0.016	0.004	25°	**K (2)**	0.110		**352**			
431SN	0.016	0.004	25°	**L (4)**	0.110			**352**		
431FN	0.016			**A (1)**	0.122	**50200**				
431TN	0.016	0.005	25°	**A (1)**	0.122	**50300**				
431TN	0.016	0.003	30°	**U (2)**	0.110					**70000**
431SN	0.016	0.006	30°	**L (4)**	0.110			**372**		
431SN	0.016	0.006	35°	**L (4)**	0.110			**38000**		
431SN	0.016	0.006	35°	**K (2)**	0.110		**382**			
432SN	0.031	0.004	15°	**L (4)**	0.098			**31200**		
432EN	0.031			**L (4)**	0.098			**30200**		
432EN	0.031			**K (2)**	0.098		**314**			
432FN	0.031			**A (1)**	0.110	**50400**				
432SN	0.031	0.004	20°	**L (4)**	0.098			**334**		
432SN	0.031	0.004	20°	**L (4)**	0.098			**34300**		
432SN	0.031	0.004	20°	**K (2)**	0.098		**35800**			
432SN	0.031	0.004	25°	**K (2)**	0.098		**354**			
432SN	0.031	0.004	25°	**L (4)**	0.098			**354**		
432TN	0.031	0.005	25°	**A (1)**	0.110	**50500**				
432SN	0.031	0.005	25°	**K (2)**	0.098		**36200**			
432SN	0.031	0.005	25°	**L (4)**	0.098			**364**		
432TN	0.031	0.003	30°	**U (2)**	0.102					**70100**
432SN	0.031	0.006	30°	**L (4)**	0.098			**374**		
432SN	0.031	0.006	30°	**K (2)**	0.098		**38800**		**60000**	
432SN	0.031	0.006	35°	**L (4)**	0.098			**38100**		
432SN	0.031	0.006	35°	**K (2)**	0.098		**384**		**60100**	
433SN	0.047	0.004	20°	**L (4)**	0.087			**336**		
433SN	0.047	0.004	25°	**K (2)**	0.087		**356**			
433SN	0.047	0.004	25°	**L (4)**	0.087			**356**		
433TN	0.047	0.005	25°	**A (1)**	0.098	**50700**				
433SN	0.047	0.005	25°	**L (4)**	0.087			**366**		
433TN	0.047	0.003	30°	**U (2)**	0.094					**70200**
433SN	0.047	0.006	30°	**L (4)**	0.087			**376**		
433FN	0.047			**A (1)**	0.098	**50600**				
433SN	0.047	0.006	35°	**K (2)**	0.087		**386**			

	71 406 ...	71 400 ...	71 401 ...	71 407 ...	71 409 ...
P					
M					
K					
N					
S					
H	●	●	●	●	●
O					

For fast and efficient determination of the most appropriate edge preparation CNGA test inserts are available. → **Page 182**

CNGA

Designation	L inch	S inch	D1 inch	IC inch
CNGA 43..	0.508	0.187	0.202	0.500



CNGA A

CNGA

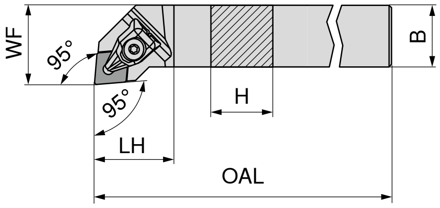
▲ TCE(NOI) = Design and number of equipped cutting edge corners

ANSI	RE inch	TCE (NOI)	LE inch	NEW CTDPD20 ○ ○ ○  F DIAMOND CNGA 71 127 ...	NEW CTDPS30 ○ ○ ○  F DIAMOND CNGA 71 127 ...
431FN	0.016	**A (1)**	0.248	**10001**	**20001**
432FN	0.031	**A (1)**	0.236	**10101**	**20101**
433FN	0.047	**A (1)**	0.224	**10201**	**20201**
P					
M					
K					
N				●	●
S					
H					
O				●	●

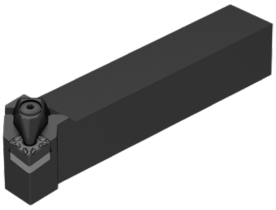
→ v_c Page 164–171

MaxiLock-D – DCLN 95° – Toolholder with top clamping

▲ A... = with thru coolant



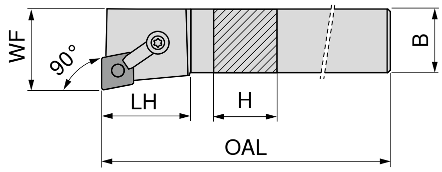
Illustrations show right-hand versions

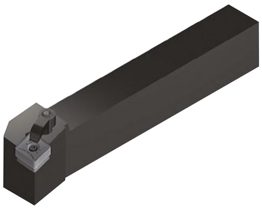


Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand 78 501 ...	Right-hand 78 500 ...
DCLN R/L 12-4B-N	0.750	0.750	4.500	1.250	1.000	CN..43..	**01293**	**01293**
DCLN R/L 16-4D-N	1.000	1.000	6.000	1.250	1.250	CN..43..	**01689**	**01689**
DCLN R/L 16-4DA-N	1.000	1.000	6.000	1.250	1.250	CN..43..	**01690**	**01690**
DCLN R/L 20-4D-N	1.250	1.250	6.000	1.250	1.500	CN..43..	**02089**	**02089**
DCLN R/L 20-4DA-N	1.250	1.250	6.000	1.250	1.500	CN..43..	**02090**	**02090**
DCLN L 20-5DA-N	1.250	1.250	6.000	1.380	1.500	CN..54..	**02085**	**02085**
DCLN R/L 20-5D-N	1.250	1.250	6.000	1.380	1.500	CN..54..	**02084**	**02084**
DCLN R/L 24-5E-N	1.500	1.500	7.000	1.380	2.000	CN..54..	**02482**	**02482**
DCLN R/L 24-5EA-N	1.500	1.500	7.000	1.380	2.000	CN..54..	**02483**	**02483**
DCLN L 20-6D-N	1.250	1.250	6.000	1.650	1.500	CN..64..	**02080**	**02080**
DCLN R/L 20-6DA-N	1.250	1.250	6.000	1.650	1.500	CN..64..	**02081**	**02081**
DCLN R/L 24-6EA-N	1.500	1.500	7.000	1.650	2.000	CN..64..	**02478**	**02478**
DCLN R/L 24-6E-N	1.500	1.500	7.000	1.650	2.000	CN..64..	**02477**	**02477**

Spare parts for Article no.	 Clamping claw 78 950 ...	 Key I 78 950 ...	 Clamping screw 78 950 ...	 Carbide type C 78 950 ...	 Threaded bush 78 950 ...	 Spring 78 950 ...
78 500 01293 / 78 501 01293	**07600**	**08100**	**08300**	**08800**	**08500**	**04900**
78 500 01689 / 78 501 01689	**07600**	**08100**	**08300**	**08800**	**08500**	**04900**
78 500 01690 / 78 501 01690	**07600**	**08100**	**08300**	**08800**	**08500**	**04900**
78 500 02089 / 78 501 02089	**07600**	**08100**	**08300**	**08800**	**08500**	**04900**
78 500 02090 / 78 501 02090	**07600**	**08100**	**08300**	**08800**	**08500**	**04900**
78 500 02085 / 78 501 02085	**07700**	**08100**	**08300**	**04100**	**08600**	**04900**
78 500 02084 / 78 501 02084	**07700**	**08100**	**08300**	**04100**	**08600**	**04900**
78 500 02482 / 78 501 02482	**07700**	**08100**	**08300**	**04100**	**08600**	**04900**
78 500 02483 / 78 501 02483	**07700**	**08100**	**08300**	**04100**	**08600**	**04900**
78 500 02080 / 78 501 02080	**07800**	**08100**	**08300**	**00900**	**08700**	**04900**
78 500 02081 / 78 501 02081	**07800**	**08100**	**08300**	**00900**	**08700**	**04900**
78 500 02478 / 78 501 02478	**07800**	**08100**	**08300**	**00900**	**08700**	**04900**
78 500 02477 / 78 501 02477	**07800**	**08100**	**08300**	**00900**	**08700**	**04900**

MaxiLock-M – MCFN 90° – Toolholder with top clamping



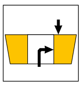


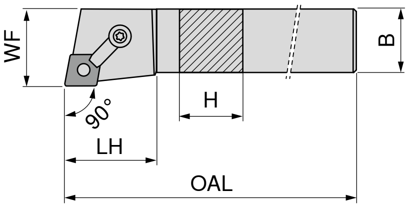
Illustrations show right-hand versions

Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand 78 517 ...	Right-hand 78 516 ...
MCFN R/L 12-4B	0.750	0.750	4.500	1.120	1.000	CN..43..	**01224**	**01224**
MCFN R/L 16-4D	1.000	1.000	6.000	1.120	1.250	CN..43..	**01644**	**01644**
MCFN R/L 20-4D	1.250	1.250	6.000	1.120	1.500	CN..43..	**02044**	**02044**
MCFN R/L 85-4D	1.250	1.000	6.000	1.120	1.250	CN..43..	**08544**	**08544**
MCFN R/L 16-5D	1.000	1.000	6.000	1.250	1.250	CN..54..	**01645**	**01645**
MCFN R/L 20-5D	1.250	1.250	6.000	1.250	1.500	CN..54..	**02045**	**02045**
MCFN R/L 24-5D	1.500	1.500	6.000	1.250	2.000	CN..54..	**02445**	**02445**
MCFN R/L 16-6D	1.000	1.000	6.000	1.310	1.250	CN..64..	**01646**	**01646**
MCFN R/L 20-6D	1.250	1.250	6.000	1.310	1.500	CN..64..	**02046**	**02046**
MCFN R/L 24-6D	1.500	1.500	6.000	1.250	2.000	CN..64..	**02446**	**02446**

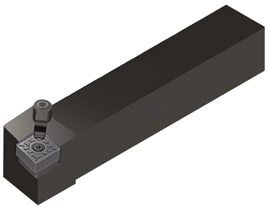
Spare parts for Article no.	 Clamp 78 950 ...	 Key I 78 950 ...	 Dowel pin 78 950 ...	 Clamping screw 78 950 ...	 Carbide type C 78 950 ...
78 516 01224 / 78 517 01224	**00400**	**06900**	**03100**	**03800**	**00800**
78 516 01644 / 78 517 01644	**00400**	**06900**	**03100**	**03800**	**00800**
78 516 02044 / 78 517 02044	**00400**	**06900**	**03100**	**03800**	**00800**
78 516 08544 / 78 517 08544	**00400**	**06900**	**03100**	**03800**	**00800**
78 516 01645 / 78 517 01645	**00300**	**08100**	**03200**	**03900**	**04100**
78 516 02045 / 78 517 02045	**00300**	**08100**	**03200**	**03900**	**04100**
78 516 02445 / 78 517 02445	**00300**	**08100**	**03200**	**03900**	**04100**
78 516 01646 / 78 517 01646	**00300**	**08100**	**03300**	**03900**	**00900**
78 516 02046 / 78 517 02046	**00300**	**08100**	**03300**	**03900**	**00900**
78 516 02446 / 78 517 02446	**00300**	**08100**	**03300**	**03900**	**00900**

MaxiLock-M – MCGN 90° – Toolholder with top clamping





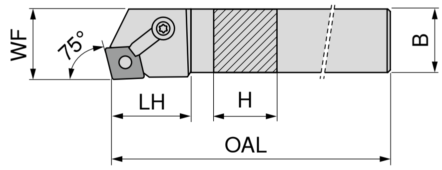
Illustrations show right-hand versions

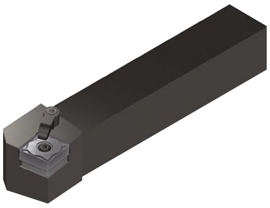


Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand 78 519 ...	Right-hand 78 518 ...
MCGN R/L 12-4B	0.750	0.750	4.500	1.120	1.000	CN..43..	**01224**	**01224**
MCGN R/L 16-4D	1.000	1.000	6.000	1.120	1.250	CN..43..	**01644**	**01644**
MCGN R/L 20-4D	1.250	1.250	6.000	1.120	1.500	CN..43..	**02044**	**02044**
MCGN R/L 24-4D	1.500	1.500	6.000	1.250	2.000	CN..43..	**02444**	**02444**
MCGN R/L 16-5D	1.000	1.000	6.000	1.500	1.250	CN..54..	**01645**	**01645**
MCGN R/L 20-5D	1.250	1.250	6.000	1.500	1.500	CN..54..	**02045**	**02045**
MCGN R/L 24-5D	1.500	1.500	6.000	1.500	2.000	CN..54..	**02445**	**02445**
MCGN R/L 20-6D	1.250	1.250	6.000	1.650	1.500	CN..64..	**02046**	**02046**
MCGN R/L 24-6D	1.500	1.500	6.000	1.650	2.000	CN..64..	**02446**	**02446**

Spare parts for Article no.	 Clamp 78 950 ...	 Key I 78 950 ...	 Dowel pin 78 950 ...	 Clamping screw 78 950 ...	 Carbide type C 78 950 ...
78 518 01224 / 78 519 01224	**00400**	**06900**	**03100**	**03800**	**00800**
78 518 01644 / 78 519 01644	**00400**	**06900**	**03100**	**03800**	**00800**
78 518 02044 / 78 519 02044	**00400**	**06900**	**03100**	**03800**	**00800**
78 518 02444 / 78 519 02444	**00400**	**06900**	**03100**	**03800**	**00800**
78 518 01645 / 78 519 01645	**00300**	**08100**	**03200**	**03900**	**04100**
78 518 02045 / 78 519 02045	**00300**	**08100**	**03200**	**03900**	**04100**
78 518 02445 / 78 519 02445	**00300**	**08100**	**03200**	**03900**	**04100**
78 518 02046 / 78 519 02046	**00300**	**08100**	**03300**	**03900**	**00900**
78 518 02446 / 78 519 02446	**00300**	**08100**	**03300**	**03900**	**00900**

MaxiLock-M – MCKN 75° – Toolholder with top clamping



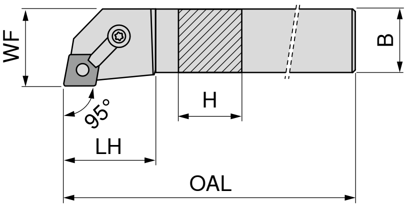


Illustrations show right-hand versions

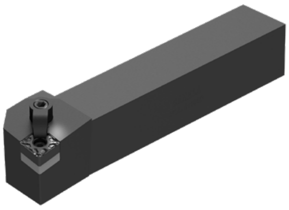
Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand **78 521 ...**	Right-hand **78 520 ...**
MCKN R/L 12-4B	0.750	0.750	4.500	1.200	1.000	CN..43..	**01224**	**01224**
MCKN R/L 16-4D	1.000	1.000	6.000	1.200	1.250	CN..43..	**01644**	**01644**
MCKN R/L 20-4D	1.250	1.250	6.000	1.200	1.500	CN..43..	**02044**	**02044**
MCKN R/L 16-5D	1.000	1.000	6.000	1.350	1.250	CN..54..	**01645**	**01645**
MCKN R/L 20-5D	1.250	1.250	6.000	1.350	1.500	CN..54..	**02045**	**02045**
MCKN R/L 16-6D	1.000	1.000	6.000	1.470	1.250	CN..64..	**01646**	**01646**
MCKN R/L 20-6D	1.250	1.250	6.000	1.470	1.500	CN..64..	**02046**	**02046**
MCKN R/L 24-6D	1.500	1.500	6.000	1.470	2.000	CN..64..	**02446**	**02446**

Spare parts for Article no.	 Clamp **78 950 ...**	 Key I **78 950 ...**	 Dowel pin **78 950 ...**	 Clamping screw **78 950 ...**	 Carbide type C **78 950 ...**
78 520 01224 / 78 521 01224	**00400**	**06900**	**03100**	**03800**	**00800**
78 520 01644 / 78 521 01644	**00400**	**06900**	**03100**	**03800**	**00800**
78 520 02044 / 78 521 02044	**00400**	**06900**	**03100**	**03800**	**00800**
78 520 01645 / 78 521 01645	**00300**	**08100**	**03200**	**03900**	**04100**
78 520 02045 / 78 521 02045	**00300**	**08100**	**03200**	**03900**	**04100**
78 520 01646 / 78 521 01646	**00300**	**08100**	**03300**	**03900**	**00900**
78 520 02046 / 78 521 02046	**00300**	**08100**	**03300**	**03900**	**00900**
78 520 02446 / 78 521 02446	**00300**	**08100**	**03300**	**03900**	**00900**

MaxiLock-M – MCLN 95° – Toolholder with top clamping



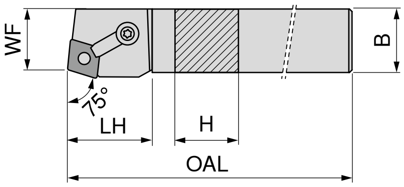
Illustrations show right-hand versions



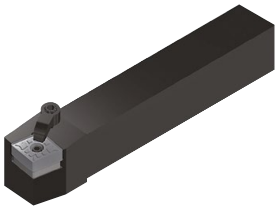
Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand 78 523 ...	Right-hand 78 522 ...
MCLN R/L 12-4B	0.750	0.750	4.500	1.130	1.000	CN..43..	**01224**	**01224**
MCLN R/L 16-4D	1.000	1.000	6.000	1.130	1.250	CN..43..	**01644**	**01644**
MCLN R/L 85-4D	1.250	1.000	6.000	1.130	1.250	CN..43..	**08544**	**08544**
MCLN R/L 20-4D	1.250	1.250	6.000	1.130	1.500	CN..43..	**02044**	**02044**
MCLN R/L 16-5D	1.000	1.000	6.000	1.470	1.250	CN..54..	**01645**	**01645**
MCLN R/L 20-5D	1.250	1.250	6.000	1.470	1.500	CN..54..	**02045**	**02045**
MCLN R/L 24-5D	1.500	1.500	6.000	1.470	2.000	CN..54..	**02445**	**02445**
MCLN R/L 16-6D	1.000	1.000	6.000	1.510	1.250	CN..64..	**01646**	**01646**
MCLN R/L 20-6D	1.250	1.250	6.000	1.510	1.500	CN..64..	**02046**	**02046**
MCLN R/L 85-6D	1.250	1.000	6.000	1.510	1.250	CN..64..	**08546**	**08546**
MCLN R/L 24-6D	1.500	1.500	6.000	1.510	2.000	CN..64..	**02446**	**02446**
MCLN R/L 24-6E	1.500	1.500	7.000	1.500	2.000	CN..64..	**02456**	**02456**
MCLN R/L 86-6E	1.500	1.000	7.000	1.510	1.250	CN..64..	**08656**	**08656**

Spare parts **for Article no.**	 Clamp 78 950 ...	 Key I 78 950 ...	 Dowel pin 78 950 ...	 Clamping screw 78 950 ...	 Carbide type C 78 950 ...
78 522 01224 / 78 523 01224	**00400**	**06900**	**03100**	**03800**	**00800**
78 522 01644 / 78 523 01644	**00400**	**06900**	**03100**	**03800**	**00800**
78 522 08544 / 78 523 08544	**00400**	**06900**	**03100**	**03800**	**00800**
78 522 02044 / 78 523 02044	**00400**	**06900**	**03100**	**03800**	**00800**
78 522 01645 / 78 523 01645	**00300**	**08100**	**03200**	**03900**	**04100**
78 522 02045 / 78 523 02045	**00300**	**08100**	**03200**	**03900**	**04100**
78 522 02445 / 78 523 02445	**00300**	**08100**	**03200**	**03900**	**04100**
78 522 01646 / 78 523 01646	**00300**	**08100**	**03300**	**03900**	**00900**
78 522 02046 / 78 523 02046	**00300**	**08100**	**03300**	**03900**	**00900**
78 522 08546 / 78 523 08546	**00300**	**08100**	**03300**	**03900**	**00900**
78 522 02446 / 78 523 02446	**00300**	**08100**	**03300**	**03900**	**00900**
78 522 02456 / 78 523 02456	**00300**	**08100**	**03300**	**03900**	**00900**
78 522 08656 / 78 523 08656	**00300**	**08100**	**03300**	**03900**	**00900**

MaxiLock-M – MCRN 75° – Toolholder with top clamping



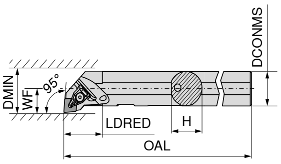
Illustrations show right-hand versions



Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand 78 525 ...	Right-hand 78 524 ...
MCRN R/L 12-4B	0.750	0.750	4.500	1.180	0.878	CN..43..	**01224**	**01224**
MCRN R/L 16-4D	1.000	1.000	6.000	1.180	1.128	CN..43..	**01644**	**01644**
MCRN R/L 20-4D	1.250	1.250	6.000	1.180	1.318	CN..43..	**02044**	**02044**
MCRN R/L 16-5D	1.000	1.000	6.000	1.100	1.101	CN..54..	**01645**	**01645**
MCRN R/L 20-5D	1.250	1.250	6.000	1.350	1.351	CN..54..	**02045**	**02045**
MCRN R/L 20-6D	1.250	1.250	6.000	1.318	1.318	CN..64..	**02046**	**02046**
MCRN R/L 24-6D	1.500	1.500	6.000	1.818	1.818	CN..64..	**02446**	**02446**

Spare parts for Article no.	 Clamp 78 950 ...	 Key I 78 950 ...	 Dowel pin 78 950 ...	 Clamping screw 78 950 ...	 Carbide type C 78 950 ...
78 524 01224 / 78 525 01224	**00400**	**06900**	**03100**	**03800**	**00800**
78 524 01644 / 78 525 01644	**00400**	**06900**	**03100**	**03800**	**00800**
78 524 02044 / 78 525 02044	**00400**	**06900**	**03100**	**03800**	**00800**
78 524 01645 / 78 525 01645	**00300**	**08100**	**03200**	**03900**	**04100**
78 524 02045 / 78 525 02045	**00300**	**08100**	**03200**	**03900**	**04100**
78 524 02046 / 78 525 02046	**00300**	**08100**	**03300**	**03900**	**00900**
78 524 02446 / 78 525 02446	**00300**	**08100**	**03300**	**03900**	**00900**

MaxiLock-D – DCLN 95° – Boring bar with top clamping

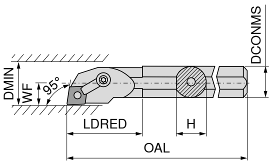


Illustrations show right-hand versions

Designation	DCONMS inch	H inch	OAL inch	LDRED inch	WF inch	DMIN inch	Insert	Left-hand 78 701 ...	Right-hand 78 700 ...
S16T DCLN R/L 4N	1.000	0.900	12.000	1.575	0.640	1.280	CN..43..	**41626**	**41626**
S20U DCLN R/L 4N	1.250	1.180	14.000	1.771	0.765	1.530	CN..43..	**42030**	**42030**
S24U DCLN R/L 4N	1.500	1.370	14.000	1.968	0.890	1.780	DN..43..	**42434**	**42434**

Spare parts for Article no.	 Clamping claw 78 950 ...	 Key I 78 950 ...	 Clamping screw 78 950 ...	 Carbide type C 78 950 ...	 Threaded bush 78 950 ...	 Spring 78 950 ...
78 700 41626 / 78 701 41626	**07600**	**08100**	**08300**	**07200**	**08500**	**04900**
78 700 42030 / 78 701 42030	**07600**	**08100**	**08300**	**07200**	**08500**	**04900**
78 700 42434 / 78 701 42434	**07600**	**08100**	**08300**	**07200**	**08500**	**04900**

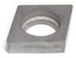
MaxiLock-M – MCLN 95° – Boring bar with top clamping



Illustrations show right-hand versions

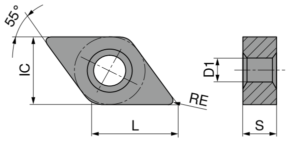
Designation	DCONMS inch	H inch	OAL inch	LDRED inch	WF inch	DMIN inch	Insert	Left-hand 78 705 ...	Right-hand 78 704 ...
A16T MCLN R/L 4	1.000	0.900	12.000	2.500	0.640	1.280	CN..32..	**41616**	**41616**
S16T MCLN R/L 4	1.000	0.900	12.000	2.500	0.640	1.280	CN..43..	**41626**	**41626**
S20U MCLN R/L 4	1.250	1.118	14.000	3.000	0.765	1.530	CN..43..	**42030**	**42030**
A20U MCLN R/L 4	1.250	1.118	14.000	3.000	0.765	1.530	CN..43..	**42020**	**42020**
S24U MCLN R/L 4	1.500	1.370	14.000	3.000	0.890	1.780	CN..43..	**42434**	**42434**
A24U MCLN R/L 4	1.500	1.370	14.000	3.000	0.890	1.780	CN..43..	**42424**	**42424**
S28U MCLN R/L 4	1.750	1.630	14.000	4.000	1.015	2.030	CN..43..	**42838**	**42838**
A28U MCLN R/L 4	1.750	1.630	14.000	4.000	1.015	2.030	CN..43..	**42828**	**42828**
S32V MCLN R/L 4	2.000	1.870	16.000	4.000	1.281	2.562	CN..43..	**43242**	**43242**
S40V MCLN R/L 4	2.500	2.380	16.000	4.000	1.531	3.062	CN..43..	**44050**	**44050**
S32V MCLN R/L 5	2.000	1.870	16.000	4.000	1.281	2.562	CN..54..	**53242**	**53242**
A32V MCLN R/L 5	2.000	1.870	16.000	4.000	1.281	2.562	CN..54..	**53233**	**53233**
S40V MCLN R/L 5	2.500	2.380	16.000	4.000	1.531	3.062	CN..54..	**54050**	**54050**
A32V MCLN R/L 6	2.000	1.870	16.000	4.000	1.281	2.562	CN..64..	**63233**	**63233**
S32V MCLN R/L 6	2.000	1.870	16.000	4.000	1.281	2.562	CN..64..	**63242**	**63242**
S40V MCLN R/L 6	2.500	2.380	16.000	4.000	1.531	3.062	CN..64..	**64050**	**64050**

4

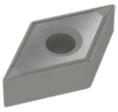
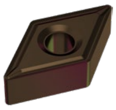
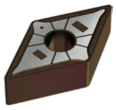
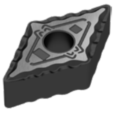
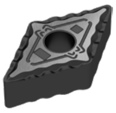
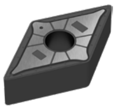
Spare parts for Article no.	 Clamp 78 950 ...	 Key I 78 950 ...	 Dowel pin 78 950 ...	 Clamping screw 78 950 ...	 Carbide type C 78 950 ...
78 704 41616 / 78 705 41616	**00400**	**06900**	**03000**	**03700**	
78 704 41626 / 78 705 41626	**00400**	**06900**	**03000**	**03700**	
78 704 42030 / 78 705 42030	**00400**	**06900**	**03100**	**03800**	**00800**
78 704 42020 / 78 705 42020	**00400**	**06900**	**03100**	**03800**	**00800**
78 704 42434 / 78 705 42434	**00400**	**06900**	**03100**	**03800**	**00800**
78 704 42424 / 78 705 42424	**00400**	**06900**	**03100**	**03800**	**00800**
78 704 42838 / 78 705 42838	**00400**	**06900**	**03100**	**03800**	**00800**
78 704 42828 / 78 705 42828	**00400**	**06900**	**03100**	**03800**	**00800**
78 704 43242 / 78 705 43242	**00400**	**06900**	**03100**	**03800**	**00800**
78 704 44050 / 78 705 44050	**00400**	**06900**	**03100**	**03800**	**00800**
78 704 53242 / 78 705 53242	**00300**	**08100**	**03200**	**03900**	**04100**
78 704 53233 / 78 705 53233	**00300**	**08100**	**03200**	**03900**	**04100**
78 704 54050 / 78 705 54050	**00300**	**08100**	**03200**	**03900**	**04100**
78 704 63233 / 78 705 63233	**00300**	**08100**	**03300**	**03900**	**00900**
78 704 63242 / 78 705 63242	**00300**	**08100**	**03300**	**03900**	**00900**
78 704 64050 / 78 705 64050	**00300**	**08100**	**03300**	**03900**	**00900**

DNMG / DNMA / DNMM

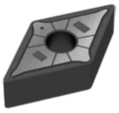
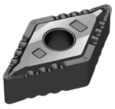
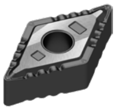
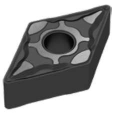
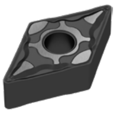
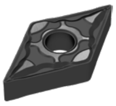
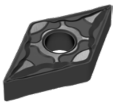
Designation	L inch	S inch	D1 inch	IC inch
DNMG 33..	0.457	0.187	0.150	0.375
DNM. 43..	0.610	0.187	0.203	0.500
DNM. 44..	0.610	0.250	0.203	0.500



DNMG

		-CF TCM10	**-CF20** CTEP110	**-TFQ** CTEP110	**-F50** CTCP115	**-F50** CTCP125	**-F50** CTCP135	**-TFQ** CTCP115
			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		● ○ ○	● ○ ○	● ○ ○	● ○ ○	○ ● ○	○ ○ ●	● ○ ○
								
		F	**F**	**F**	**F**	**F**	**F**	**F**
		CERMET DNMG	**CERMET** DNMG	**CERMET** DNMG	DNMG	DNMG	DNMG	DNMG
		70 155 ...	**76 102 ...**	**76 153 ...**	**76 134 ...**	**76 134 ...**	**76 134 ...**	**76 153 ...**
ANSI	RE inch							
33.5EN	0.008				**302**	**502**	**702**	
331EN	0.016	**904**	**004**		**304**	**504**	**704**	
332EN	0.031		**006**		**306**	**506**	**706**	
333EN	0.047				**308**	**508**	**708**	
431EN	0.016				**316**	**516**	**716**	
432EN	0.031				**318**	**518**	**718**	
433EN	0.047				**320**	**520**	**720**	
441EN	0.016	**914**	**028**	**028**	**328**	**528**	**728**	**32800**
442EN	0.031		**030**	**030**	**330**	**530**	**730**	**330**
443EN	0.047		**032**		**332**	**532**	**732**	
P		●	●	●	●	●	●	●
M		○	○	○			○	
K		○	○	○	○	○		○
N								
S								
H								
O								

DNMG

		-TFQ CTCP125	-XU CTCP115	-XU CTCP125	-M50 CTCK110	-M50 CTCK120	-M50 CTCP115	-M50 CTCP125
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		○ ● ○	● ○ ○	○ ● ○	● ○ ○	○ ● ○	● ○ ○	○ ● ○
								
		F	M	M	M	M	M	M
		DNMG	DNMG	DNMG	DNMG	DNMG	DNMG	DNMG
		76 153 ...	76 291 ...	76 291 ...	70 133 ...	70 133 ...	76 136 ...	76 136 ...
ANSI	RE inch							
331EN	0.016						**304**	**504**
332EN	0.031						**306**	**506**
333EN	0.047						**308**	**508**
431EN	0.016						**316**	**514**
432EN	0.031				**018**	**518**	**318**	**518**
433EN	0.047				**020**	**520**	**320**	**516**
434EN	0.063						**322**	**522**
441EN	0.016	**528**	**328**	**528**			**328**	**528**
442EN	0.031	**530**	**330**	**530**	**030**	**530**	**330**	**530**
443EN	0.047		**332**	**532**	**032**	**532**	**332**	**532**
444EN	0.063						**334**	**534**
P		●	●	●	○	○	●	●
M								
K		○	○	○	●	●	○	○
N								
S								
H								
O								

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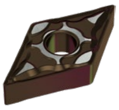
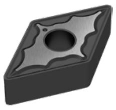
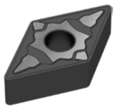
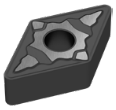
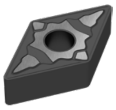
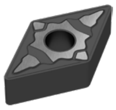
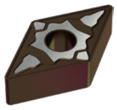
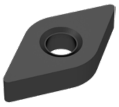
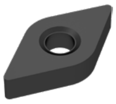
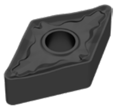
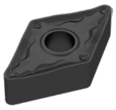
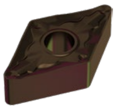
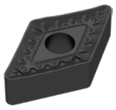
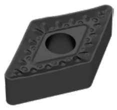
DNMG

ANSI	RE inch							
		-M50 CTCP135	**-TMQ** CTCP125	**-M70** CTCK110	**-M70** CTCK120	**-M70** CTCP115	**-M70** CTCP125	**-M70** CTCP135
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		○ ○ ●	○ ● ○	● ○ ○	○ ● ○	● ○ ○	○ ● ○	○ ○ ●
								
		M DNMG	**M** DNMG	**M** DNMG	**M** DNMG	**M** DNMG	**M** DNMG	**M** DNMG
		76 136 ...	76 197 ...	70 263 ...	70 263 ...	76 263 ...	76 263 ...	76 263 ...
331EN	0.016	704						
332EN	0.031	706				306	506	706
333EN	0.047	708				308	508	708
431EN	0.016	716						
432EN	0.031	718		018	518	318	518	718
433EN	0.047	720		020	520	320	520	720
434EN	0.063	722				322	522	722
441EN	0.016	728						
442EN	0.031	730	530	030	530	330	530	730
443EN	0.047	732	532	032	532	332	532	732
444EN	0.063	734		034	534	334	534	734
P		●	●	○	○	●	●	●
M		○						○
K			○	●	●	○	○	
N								
S								
H								
O								

DNMA / DNMM

ANSI	RE inch							
		CTCK110	CTCK120	**-R28** CTCP115	**-R28** CTCP125	**-R28** CTCP135	**-R58** CTCP115	**-R58** CTCP125
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		● ○ ○	○ ● ○	● ○ ○	○ ● ○	○ ○ ●	● ○ ○	○ ● ○
								
		R DNMA	**R** DNMA	**R** DNMM	**R** DNMM	**R** DNMM	**R** DNMM	**R** DNMM
		70 156 ...	70 156 ...	76 165 ...	76 165 ...	76 165 ...	76 166 ...	76 166 ...
432EN	0.031	018	518					
433EN	0.047	020	520					
442EN	0.031	030	530					
443EN	0.047	032	532	332	532	732	332	532
444EN	0.063			334	534	734	334	534
P		○	○	●	●	●	●	●
M						○		
K		●	●	○	○		○	○
N								
S								
H								
O								

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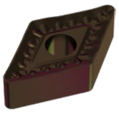
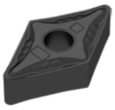
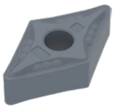
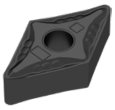
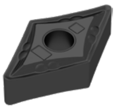
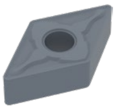
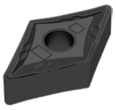
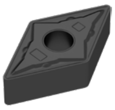
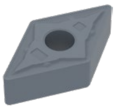
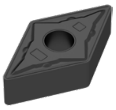
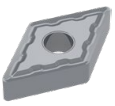
DNMM / DNMG

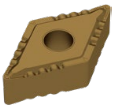
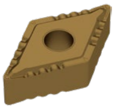
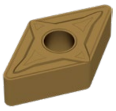
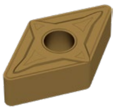
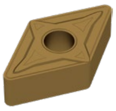
			NEW		NEW	NEW		NEW
		-R58	-F30	-F30	-F30	-M30	-M30	-M30
		CTCP135	CTCM120	CTPM125	CTCM130	CTCM120	CTPM125	CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		○ ◌ **◌**	**○** ◌ ◌	○ **◌** ◌	○ ◌ **◌**	**○** ◌ ◌	○ **◌** ◌	○ ◌ **◌**
								
		R	F	F	F	M	M	M
		DNMM	DNMG	DNMG	DNMG	DNMG	DNMG	DNMG
		76 166 ...	75 013 ...	75 013 ...	75 013 ...	75 014 ...	75 014 ...	75 014 ...
ANSI	RE inch							
331EN	0.016		10400	204	30400			
332EN	0.031		10600	206	30600	10600	206	30600
333EN	0.047					10800	208	30800
431EN	0.016		11600		31600			
432EN	0.031		11800		31800	11800		31800
433EN	0.047					12000		32000
441EN	0.016		12800	228	32800			
442EN	0.031		13000	230	33000	13000	230	33000
443EN	0.047	732				13200	232	33200
444EN	0.063	734						
P		●	○	○	○	○	○	○
M		○	●	●	●	●	●	●
K								
N								
S					○			○
H								
O								

DNMG

		NEW		NEW	NEW
		-M60	-M60	-M60	-M34
		CTCM120	CTPM125	CTCM130	CTPX710
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		○ ◌ ◌	○ **◌** ◌	○ ◌ **◌**	**○** ◌ ◌
					
		M	M	M	M
		DNMG	DNMG	DNMG	DNMG
		75 015 ...	75 015 ...	75 015 ...	75 004 ...
ANSI	RE inch				
431EN	0.016				61600
432EN	0.031	11800		31800	61800
433EN	0.047	12000		32000	62000
442EN	0.031	13000	230	33000	63000
443EN	0.047	13200	232	33200	63200
P		○	○	○	●
M		●	●	●	●
K					
N					○
S				○	●
H					
O					

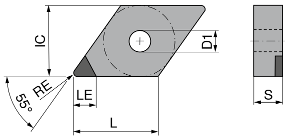
→ v_c Page 160–181

DNMG

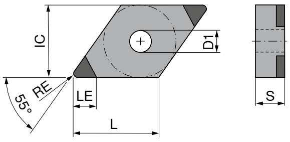
ANSI	RE inch	NEW	NEW	NEW	NEW	NEW
		-FMS CT-P15	**-FMS** CT-P25	**-MRS** CT-P15	**-MRS** CT-P25	**-MRS** CT-P35
		● ○ ○	○ ● ○	● ○ ○	○ ● ○	○ ○ ●
						
		F	**F**	**M**	**M**	**M**
		DNMG	DNMG	DNMG	DNMG	DNMG
		75 306 ...	75 306 ...	75 307 ...	75 307 ...	75 307 ...
431EN	0.016	01609	11609			
432EN	0.031	01809	11809	01809	11809	
441EN	0.016	02809	12809			
442EN	0.031	03009	13009	03009	13009	23009
443EN	0.047	03209	13209	03209	13209	23209
444EN	0.063			03409	13409	23409
P		●	●	●	●	●
M		○	○	○	○	○
K						
N						
S						
H						
O						

DNGA

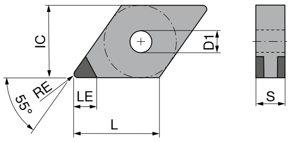
Designation	L inch	S inch	D1 inch	IC inch
DNGA 43..	0.610	0.187	0.203	0.500
DNGA 44..	0.610	0.250	0.203	0.500



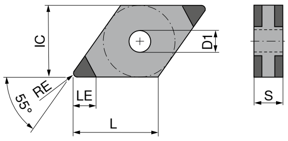
DNGA A



DNGA B



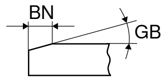
DNGA K

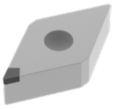
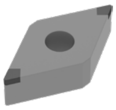
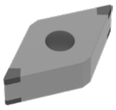
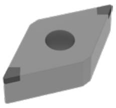
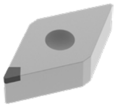


DNGA L

DNGA

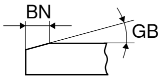
▲ TCE(NOI) = Design and number of equipped cutting edge corners

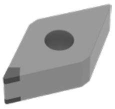
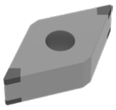
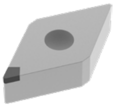
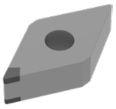
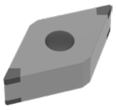


ANSI	RE inch	BN inch	GB	TCE (NOI)	LE inch	NEW CTBS20U ○ ○ ○  F CBN DNGA 71 410 ...	NEW CTBS20C ○ ○ ○  F CBN DNGA 71 411 ...	CTBS20C ○ ○ ○  F CBN DNGA 71 403 ...	CTBH15C ○ ○ ○  F CBN DNGA 71 017 ...	NEW CTBH20U ○ ○ ○  F CBN DNGA 71 410 ...
441SN	0.016	0.004	10°	**L (4)**	0.110			**122**		
431FN	0.016			**A (1)**	0.138					**40000**
441FN	0.016			**A (1)**	0.138					**40400**
441SN	0.016	0.004	15°	**L (4)**	0.110			**132**		
441TN	0.016	0.004	15°	**A (1)**	0.138	**20000**				
441SN	0.016	0.004	15°	**B (2)**	0.110				**32814**	
441SN	0.016	0.004	20°	**L (4)**	0.110			**152**		
431SN	0.016	0.004	20°	**L (4)**	0.110			**10200**		
441SN	0.016	0.004	20°	**K (2)**	0.110		**20000**			
441TN	0.016	0.005	20°	**A (1)**	0.138					**40500**
431TN	0.016	0.005	20°	**A (1)**	0.138					**40100**
441SN	0.016	0.006	25°	**B (2)**	0.110				**32829**	
441SN	0.016	0.007	30°	**L (4)**	0.110			**182**		
442SN	0.031	0.004	10°	**L (4)**	0.102			**124**		
432FN	0.031			**A (1)**	0.118					**40200**
442FN	0.031			**A (1)**	0.118					**40600**
442TN	0.031	0.004	15°	**A (1)**	0.118	**20100**				
442SN	0.031	0.004	15°	**L (4)**	0.102			**134**		
442TN	0.031	0.004	15°	**A (1)**	0.197	**20200**				
442SN	0.031	0.004	15°	**K (2)**	0.102		**20100**			
442SN	0.031	0.004	15°	**B (2)**	0.102				**33014**	
442SN	0.031	0.004	20°	**L (4)**	0.102			**154**		
432SN	0.031	0.004	20°	**L (4)**	0.102			**10300**		
442TN	0.031	0.005	20°	**A (1)**	0.118					**40700**
432TN	0.031	0.005	20°	**A (1)**	0.118					**40300**
442SN	0.031	0.006	25°	**B (2)**	0.102				**33029**	
442SN	0.031	0.006	25°	**K (2)**	0.102		**20200**			
442SN	0.031	0.007	30°	**L (4)**	0.102			**184**		
443SN	0.047	0.004	15°	**B (2)**	0.110				**33214**	
443SN	0.047	0.006	25°	**B (2)**	0.110				**33229**	
P										
M										
K						●	●	●		
N										
S						●	●	●		
H									●	●
O										

DNGA

▲ TCE(NOI) = Design and number of equipped cutting edge corners



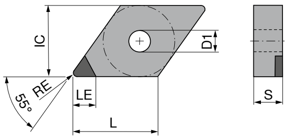
			NEW		
	CTBH20C	CTBH20C	CTBH40U	CTBH40C	CTBH40C
	F	F	F	F	F
	CBN DNGA	CBN DNGA	CBN DNGA	CBN DNGA	CBN DNGA
	71 402 ...	71 403 ...	71 410 ...	71 402 ...	71 403 ...

ANSI	RE inch	BN inch	GB	TCE (NOI)	LE inch	71 402 ...	71 403 ...	71 410 ...	71 402 ...	71 403 ...
441FN	0.016			A (1)	0.138			50400		
441SN	0.016	0.004	20°	L (4)	0.110					332
441SN	0.016	0.004	25°	L (4)	0.110					352
441SN	0.016	0.006	30°	L (4)	0.110					372
431SN	0.016	0.004	20°	L (4)	0.110					30200
431SN	0.016	0.004	20°	L (4)	0.110					30300
431SN	0.016	0.004	25°	L (4)	0.110					30400
441SN	0.016	0.006	35°	L (4)	0.110					37500
441SN	0.016	0.004	25°	K (2)	0.110				352	
441SN	0.016	0.006	35°	K (2)	0.110				382	
441SN	0.016	0.004	20°	K (2)	0.110				32600	
431FN	0.016			A (1)	0.138			50000		
431TN	0.016	0.005	25°	A (1)	0.138			50100		
441TN	0.016	0.005	25°	A (1)	0.138			50500		
441SN	0.016	0.004	20°	L (4)	0.110		242			
441SN	0.016	0.005	25°	L (4)	0.110		262			
431TN	0.016	0.004	25°	L (4)	0.110		20200			
431SN	0.016	0.005	25°	L (4)	0.110		20300			
441FN	0.016			L (4)	0.110		29300			
441TN	0.016	0.004	25°	L (4)	0.110		24800			
441FN	0.016			K (2)	0.110	212				
441TN	0.016	0.004	15°	K (2)	0.110	222				
441TN	0.016	0.004	25°	K (2)	0.110	252				
441SN	0.016	0.004	20°	K (2)	0.110	24200				
432FN	0.031			A (1)	0.118			50200		
442SN	0.031	0.004	20°	L (4)	0.102					334
442SN	0.031	0.004	25°	L (4)	0.102					354
442SN	0.031	0.005	25°	L (4)	0.102		264			364
442SN	0.031	0.006	30°	L (4)	0.102		274			374
432SN	0.031	0.004	20°	L (4)	0.102					30500
432SN	0.031	0.004	25°	L (4)	0.102					30600
432SN	0.031	0.006	30°	L (4)	0.102					30700
442SN	0.031	0.004	20°	L (4)	0.102		244			34400
442SN	0.031	0.006	35°	L (4)	0.102					37600
442SN	0.031	0.004	25°	K (2)	0.102				354	
442SN	0.031	0.006	35°	K (2)	0.102				384	
442SN	0.031	0.004	20°	K (2)	0.102	24300			34200	
432TN	0.031	0.005	25°	A (1)	0.118			50300		
442FN	0.031			A (1)	0.118			50600		
442TN	0.031	0.005	25°	A (1)	0.118			50700		
432FN	0.031			L (4)	0.102		20400			
432TN	0.031	0.004	25°	L (4)	0.102		20500			
442FN	0.031			L (4)	0.102		29400			
442TN	0.031	0.004	25°	L (4)	0.102		24900			
442FN	0.031			K (2)	0.102	214				
442TN	0.031	0.004	15°	K (2)	0.102	224				
442TN	0.031	0.004	25°	K (2)	0.102	254				
442SN	0.031	0.005	25°	K (2)	0.102	26000				

	71 402 ...	71 403 ...	71 410 ...	71 402 ...	71 403 ...
P					
M					
K					
N					
S					
H	●	●	●	●	●
O					

DNGA

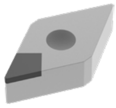
Designation	L inch	S inch	D1 inch	IC inch
DNGA 43..	0.610	0.187	0.203	0.500
DNGA 44..	0.610	0.250	0.203	0.500



DNGA A

DNGA

▲ TCE(NOI) = Design and number of equipped cutting edge corners

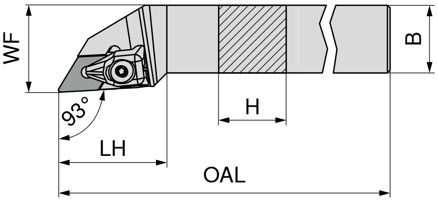


ANSI	RE inch	TCE (NOI)	LE inch	NEW CTDPD20 F DIAMOND DNGA 71 128 ...
441FN	0.016	**A (1)**	0.252	**10301**
431FN	0.016	**A (1)**	0.252	**10001**
432FN	0.031	**A (1)**	0.236	**10101**
433FN	0.047	**A (1)**	0.220	**10201**
442FN	0.031	**A (1)**	0.236	**10401**
443FN	0.047	**A (1)**	0.220	**10501**

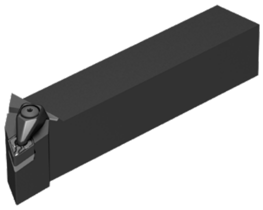
P	
M	
K	
N	●
S	
H	
O	●

MaxiLock-D – DDJN 93° – Toolholder with top clamping

▲ A... = with thru coolant



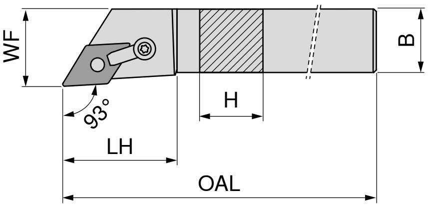
Illustrations show right-hand versions



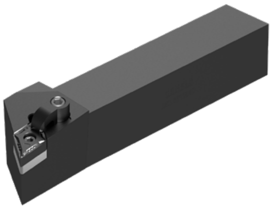
Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand **78 503 ...**	Right-hand **78 502 ...**
DDJN R/L 12-4B-N	0.750	0.750	4.500	1.535	1.000	DN..43..	**01293**	**01293**
DDJN R/L 16-4D-N	1.000	1.000	6.000	1.535	1.250	DN..43..	**01689**	**01689**
DDJN R/L 16-4DA-N	1.000	1.000	6.000	1.535	1.250	DN..43..	**01692**	**01692**
DDJN R/L 20-4D-N	1.250	1.250	6.000	1.535	1.500	DN..43..	**02089**	**02089**
DDJN R/L 20-4DA-N	1.250	1.250	6.000	1.535	1.500	DN..43..	**02092**	**02092**
DDJN R/L 24-4EA-N	1.500	1.500	7.000	1.535	2.000	DN..43..	**02488**	**02488**
DDJN R/L 24-4E-N	1.500	1.500	7.000	1.535	2.000	DN..43..	**02486**	**02486**

Spare parts for Article no.	 Clamping claw **78 950 ...**	 Key I **78 950 ...**	 Clamping screw **78 950 ...**	 Solid Carbide Seat D **78 950 ...**	 Threaded bush **78 950 ...**	 Spring **78 950 ...**
78 502 01293 / 78 503 01293	**07600**	**08100**	**08300**	**06700**	**08500**	**04900**
78 502 01689 / 78 503 01689	**07600**	**08100**	**08300**	**06700**	**08500**	**04900**
78 502 01692 / 78 503 01692	**07600**	**08100**	**08300**	**06700**	**08500**	**04900**
78 502 02089 / 78 503 02089	**07600**	**08100**	**08300**	**06700**	**08500**	**04900**
78 502 02092 / 78 503 02092	**07600**	**08100**	**08300**	**06700**	**08500**	**04900**
78 502 02488 / 78 503 02488	**07600**	**08100**	**08300**	**06700**	**08500**	**04900**
78 502 02486 / 78 503 02486	**07600**	**08100**	**08300**	**06700**	**08500**	**04900**

MaxiLock-M – MDJN 93° – Toolholder with top clamping



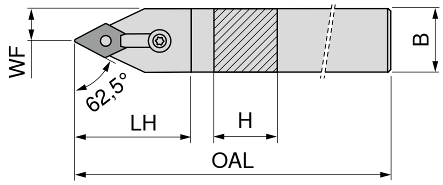
Illustrations show right-hand versions

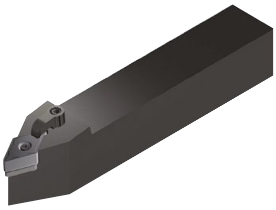


Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand 78 527 ...	Right-hand 78 526 ...
MDJN R/L 08-3A	0.500	0.500	4.000	1.060	0.625	DN..33..	**00813**	**00813**
MDJN R/L 10-3B	0.625	0.625	4.500	1.250	0.875	DN..33..	**01023**	**01023**
MDJN R/L 12-4B	0.750	0.750	4.500	1.500	1.000	DN..43..	**01224**	**01224**
MDJN R/L 16-4D	1.000	1.000	6.000	1.500	1.250	DN..43..	**01644**	**01644**
MDJN R/L 20-4D	1.250	1.250	6.000	1.500	1.500	DN..43..	**02044**	**02044**
MDJN R/L 85-4D	1.250	1.000	6.000	1.500	1.250	DN..43..	**08544**	**08544**
MDJN R/L 24-4D	1.500	1.500	6.000	1.500	2.000	DN..43..	**02444**	**02444**

Spare parts **for Article no.**	 Clamp 78 950 ...	 Key I 78 950 ...	 Dowel pin 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat D 78 950 ...
78 526 00813 / 78 527 00813	**00700**	**06800**	**02700**	**03600**	
78 526 01023 / 78 527 01023	**00700**	**06800**	**02700**	**03600**	
78 526 01224 / 78 527 01224	**00400**	**06900**	**03100**	**03800**	**04200**
78 526 01644 / 78 527 01644	**00400**	**06900**	**03100**	**03800**	**04200**
78 526 02044 / 78 527 02044	**00400**	**06900**	**03100**	**03800**	**04200**
78 526 08544 / 78 527 08544	**00400**	**06900**	**03100**	**03800**	**04200**
78 526 02444 / 78 527 02444	**00400**	**06900**	**03100**	**03800**	**04200**

MaxiLock-M – MDPN 62.5° – Toolholder with top clamping

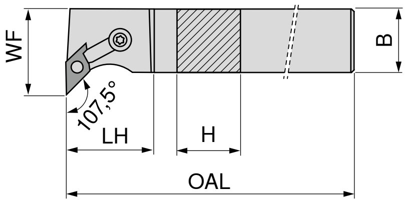




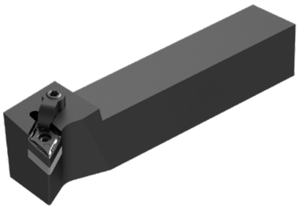
Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Neutral 78 576 ...
MDPN N 12-4B	0.750	0.750	4.500	1.620	0.375	DN..43..	01224
MDPN N 16-4D	1.000	1.000	6.000	1.620	0.500	DN..43..	01644
MDPN N 20-4D	1.250	1.250	6.000	1.620	0.625	DN..43..	02044

Spare parts for Article no.	 Clamp 78 950 ...	 Key I 78 950 ...	 Dowel pin 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat D 78 950 ...
78 576 01224	09000	06900	03100	03800	04200
78 576 01644	09000	06900	03100	03800	04200
78 576 02044	09000	06900	03100	03800	04200

MaxiLock-M – MDQN 107.5° – Toolholder with top clamping



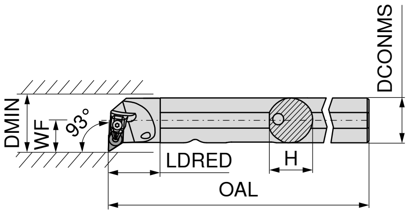
Illustrations show right-hand versions



Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand 78 529 ...	Right-hand 78 528 ...
MDQN R/L 12-4B	0.750	0.750	4.500	1.370	1.000	DN..43..	01293	01293
MDQN R/L 16-4D	1.000	1.000	6.000	1.370	1.250	DN..43..	01689	01689
MDQN R/L 20-4D	1.250	1.250	6.000	1.370	1.500	DN..43..	02089	02089
MDQN R/L 24-4E	1.500	1.500	7.000	1.370	2.000	DN..43..	02486	02486

Spare parts for Article no.	 Clamp 78 950 ...	 Key I 78 950 ...	 Dowel pin 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat D 78 950 ...
78 528 01293 / 78 529 01293	00400	06900	03100	03800	04200
78 528 01689 / 78 529 01689	00400	06900	03100	03800	04200
78 528 02089 / 78 529 02089	00400	06900	03100	03800	04200
78 528 02486 / 78 529 02486	00400	06900	03100	03800	04200

MaxiLock-D – DDUN 93° – Boring bar with top clamping

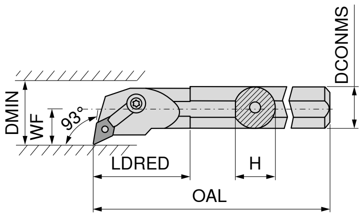


Illustrations show right-hand versions

Designation	DCONMS inch	H inch	OAL inch	LDRED inch	WF inch	DMIN inch	Insert	Left-hand 78 703 ...	Right-hand 78 702 ...
S20U DDUN R/L 4N	1.250	1.118	14.000	1.771	0.765	1.530	DN..43..	**42030**	**42030**
S24U DDUN R/L 4N	1.500	1.370	14.000	1.968	0.890	1.780	DN..43..	**42434**	**42434**

Spare parts **for Article no.**	 Clamping claw 78 950 ...	 Key I 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat D 78 950 ...	 Threaded bush 78 950 ...	 Spring 78 950 ...
78 702 42030 / 78 703 42030	**07600**	**08100**	**08300**	**04200**	**08500**	**04900**
78 702 42434 / 78 703 42434	**07600**	**08100**	**08300**	**04200**	**08500**	**04900**

MaxiLock-M – MDUL 93° – Boring bar with top clamping



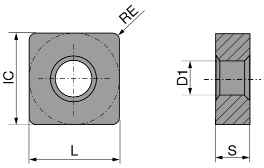
Illustrations show right-hand versions

Designation	DCONMS inch	H inch	OAL inch	LDRED inch	WF inch	DMIN inch	Insert	Left-hand 78 707 ...	Right-hand 78 706 ...
S16T MDUN R/L 4	1.000	0.900	12.000	2.500	0.875	1.750	DN..43..	**41626**	**41626**
A16T MDUN R/L 4	1.000	0.900	12.000	2.500	0.875	1.750	DN..43..	**41616**	**41616**
S20U MDUN R/L 4	1.250	1.118	14.000	3.000	1.000	2.000	DN..43..	**42030**	**42030**
A20U MDUN R/L 4	1.250	1.118	14.000	3.000	1.000	2.000	DN..43..	**42020**	**42020**
S24U MDUN R/L 4	1.500	1.370	14.000	3.000	1.125	2.250	DN..43..	**42434**	**42434**
A24U MDUN R/L 4	1.500	1.370	14.000	3.000	1.125	2.250	DN..43..	**42424**	**42424**
S32V MDUN R/L 4	2.000	1.870	16.000	4.000	1.375	3.000	DN..43..	**43242**	**43242**
A32V MDUN R/L 4	2.000	1.870	16.000	4.000	1.375	3.000	DN..43..	**43233**	**43233**

Spare parts for Article no.	 Clamp 78 950 ...	 Key I 78 950 ...	 Dowel pin 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat D 78 950 ...
78 706 41626 / 78 707 41626	**00400**	**06900**	**03000**	**03700**	
78 706 41616 / 78 707 41616	**00400**	**06900**	**03000**	**03700**	
78 706 42030 / 78 707 42030	**00400**	**06900**	**03100**	**03800**	**04200**
78 706 42020 / 78 707 42020	**00400**	**06900**	**03100**	**03800**	**04200**
78 706 42434 / 78 707 42434	**00400**	**06900**	**03100**	**03800**	**04200**
78 706 42424 / 78 707 42424	**00400**	**06900**	**03100**	**03800**	**04200**
78 706 43242 / 78 707 43242	**00400**	**06900**	**03100**	**03800**	**04200**
78 706 43233 / 78 707 43233	**00400**	**06900**	**03100**	**03800**	**04200**

SNMG / SNMA / SNMM

Designation	L inch	S inch	D1 inch	IC inch
SNMG 32..	0.375	0.125	0.150	0.375
SNM. 43..	0.500	0.187	0.203	0.500
SNM. 54..	0.625	0.250	0.250	0.625
SNM. 64..	0.750	0.250	0.313	0.750
SNMM 85..	1.000	0.313	0.359	1.000
SNMM 86..	1.000	0.375	0.359	1.000



SNMG

		-F50 CTCP115	**-F50** CTCP125	**-F50** CTCP135	**-M50** CTCP115	**-M50** CTCP125	**-M50** CTCP135	**-M70** CTCK110
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		● ○ ○	○ ● ○	○ ○ ●	● ○ ○	○ ● ○	○ ○ ●	● ○ ○
								
		F	**F**	**F**	**M**	**M**	**M**	**M**
		SNMG	SNMG	SNMG	SNMG	SNMG	SNMG	SNMG
		76 140 ...	**76 140 ...**	**76 140 ...**	**76 137 ...**	**76 137 ...**	**76 137 ...**	**70 225 ...**
ANSI	RE inch							
322EN	0.031	**306**	**506**	**706**				
431EN	0.016	**316**	**516**	**716**				
432EN	0.031	**318**	**518**	**718**	**318**	**518**	**718**	**018**
433EN	0.047	**320**	**520**	**720**	**320**	**520**	**720**	**020**
434EN	0.063				**322**	**522**	**722**	**022**
542EN	0.031				**330**	**530**	**730**	
543EN	0.047				**332**	**532**	**732**	**032**
544EN	0.063				**334**	**534**	**734**	**034**
643EN	0.047							**044**
644EN	0.063							**046**
P		●	●	●	●	●	●	○
M				○			○	
K		○	○		○	○		●
N								
S								
H								
O								

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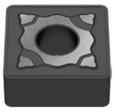
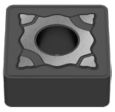
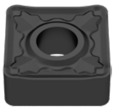
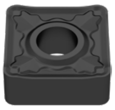
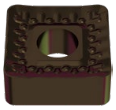
SNMG / SNMA

ANSI	RE inch	-M70 CTCK120	-M70 CTCP115	-M70 CTCP125	-M70 CTCP135	CTCP125	CTCP135	CTCK110
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		○ **○** ○	**○** ○ ○	○ **○** ○	○ ○ **○**	○ **○** ○	○ ○ **○**	**○** ○ ○
								
		M	**M**	**M**	**M**	**M**	**M**	**R**
		SNMG	SNMG	SNMG	SNMG	SNMG	SNMG	SNMA
		70 225 ...	**76 225 ...**	**76 225 ...**	**76 225 ...**	**76 116 ...**	**76 116 ...**	**70 114 ...**
322EN	0.031					**506**	**706**	
432EN	0.031	**518**	**318**	**518**	**718**			**018**
433EN	0.047	**520**	**320**	**520**	**720**			**020**
434EN	0.063	**522**	**322**	**522**	**722**			**022**
543EN	0.047	**532**	**332**	**532**	**732**			**032**
544EN	0.063	**534**	**334**	**534**	**734**			**034**
643EN	0.047	**544**	**344**	**544**	**744**			**044**
644EN	0.063	**546**	**346**	**546**	**746**			**046**
646EN	0.094		**348**	**548**	**748**			
P		○	●	●	●	●	●	○
M					○		○	
K		●	○	○		○		●
N								
S								
H								
O								

SNMA / SNMM

ANSI	RE inch	CTCK120 DRAGONSKIN ○ ● ○  **R** SNMA **70 114 ...**	**-R28** CTCP115 DRAGONSKIN ● ○ ○  **R** SNMM **76 128 ...**	**-R28** CTCP125 DRAGONSKIN ○ ● ○  **R** SNMM **76 128 ...**	**-R28** CTCP135 DRAGONSKIN ○ ○ ●  **R** SNMM **76 128 ...**	**-R58** CTCP115 DRAGONSKIN ● ○ ○  **R** SNMM **76 129 ...**	**-R58** CTCP125 DRAGONSKIN ○ ● ○  **R** SNMM **76 129 ...**	**-R58** CTCP135 DRAGONSKIN ○ ○ ●  **R** SNMM **76 129 ...**
432EN	0.031	**518**				**318**	**518**	**718**
433EN	0.047	**520**				**320**	**520**	**720**
434EN	0.063	**522**						
543EN	0.047	**532**	**332**	**532**	**732**	**332**	**532**	**732**
544EN	0.063	**534**	**334**	**534**	**734**	**334**	**534**	**734**
643EN	0.047	**544**				**344**	**544**	**744**
644EN	0.063	**546**	**346**	**546**	**746**	**346**	**546**	**746**
646EN	0.094					**348**	**548**	**748**
856EN	0.094				**760**	**360**	**560**	**760**
866EN	0.094		**370**	**570**	**770**	**370**	**570**	**770**
P		○	●	●	●	●	●	●
M					○			○
K		●	○	○		○	○	
N								
S								
H								
O								

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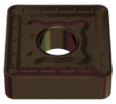
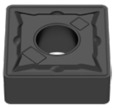
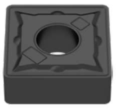
SNMM / SNMG

					NEW		NEW	NEW
		-R88 CTCP115	**-R88** CTCP125	**-R88** CTCP135	**-F30** CTCM120	**-F30** CTPM125	**-F30** CTCM130	**-M30** CTCM120
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		◯ ○ ○	○ ◯ ○	○ ○ ◯	◯ ○ ○	○ ◯ ○	○ ○ ◯	◯ ○ ○
								
		R	**R**	**R**	**F**	**F**	**F**	**M**
		SNMM	SNMM	SNMM	SNMG	SNMG	SNMG	SNMG
		76 130 ...	**76 130 ...**	**76 130 ...**	**75 016 ...**	**75 016 ...**	**75 016 ...**	**75 017 ...**
ANSI	RE inch							
431EN	0.016				**11600**	**216**	**31600**	
432EN	0.031				**11800**	**218**	**31800**	**11800**
433EN	0.047							**12000**
644SN	0.063	**346**	**546**	**746**				
646SN	0.094	**348**	**548**	**748**				
856SN	0.094	**36000**	**56000**	**760**				
866SN	0.094	**37000**	**57000**	**770**				
P		●	●	●	○	○	○	○
M				○	●	●	●	●
K		○	○					
N								
S							○	
H								
O								

SNMG

			NEW	NEW		NEW	NEW
		-M30 CTPM125	**-M30** CTCM130	**-M60** CTCM120	**-M60** CTPM125	**-M60** CTCM130	**-M34** CTPX710
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		○ ◯ ○	○ ○ ◯	◯ ○ ○	○ ◯ ○	○ ○ ◯	◯ ○ ○
							
		M	**M**	**M**	**M**	**M**	**M**
		SNMG	SNMG	SNMG	SNMG	SNMG	SNMG
		75 017 ...	**75 017 ...**	**75 018 ...**	**75 018 ...**	**75 018 ...**	**75 005 ...**
ANSI	RE inch						
432EN	0.031	**218**	**31800**	**11800**	**218**	**31800**	**61800**
433EN	0.047		**32000**	**12000**	**210**	**32000**	**62000**
434EN	0.063			**12200**	**220**	**32200**	
P		○	○	○	○	○	●
M		●	●	●	●	●	●
K							
N							○
S			○			○	●
H							
O							

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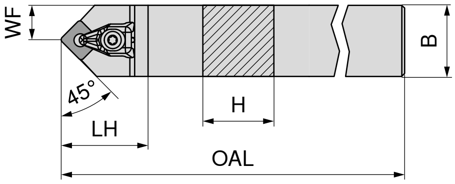
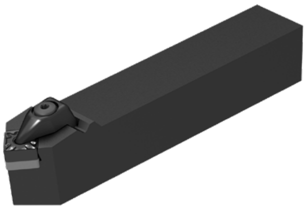
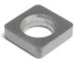
MaxiLock-D – DSDN 45° – Toolholder with top clamping

▲ A... = with thru coolant

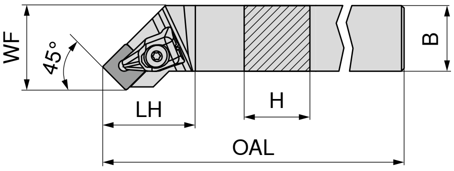




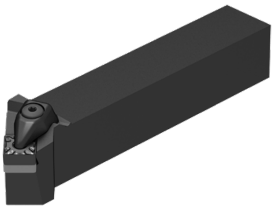
Designation	H	B	OAL	LH	WF	Insert	Neutral 78 574 ...
	inch	inch	inch	inch	inch		
DSDN N 12-4BA-N	0.750	0.750	4.500	1.380	0.375	SN..43..	**01224**
DSDN N 20-6DA-N	1.250	1.250	6.000	1.535	0.625	SN..64..	**02081**
DSDN N 24-6EA-N	1.500	1.500	7.000	1.650	0.750	SN..64..	**02479**

Spare parts **for Article no.**	 Clamping claw 78 950 ...	 Key I 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide support S 78 950 ...	 Threaded bush 78 950 ...	 Spring 78 950 ...
78 574 01224	**07600**	**08100**	**08300**	**08900**	**08500**	**04900**
78 574 02081	**07800**	**08100**	**08300**	**01700**	**08700**	**04900**
78 574 02479	**07800**	**08100**	**08300**	**01700**	**08700**	**04900**

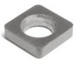
MaxiLock-D – DSSN 45° – Toolholder with top clamping



Illustrations show right-hand versions

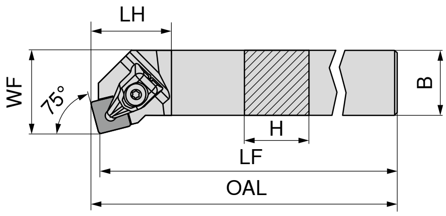


Designation	H	B	OAL	LH	WF	Insert	Left-hand 78 507 ...	Right-hand 78 506 ...
	inch	inch	inch	inch	inch			
DSSN R/L 12-4B-N	0.750	0.750	4.500	1.457	1.000	SN..43..	**01293**	**01293**
DSSN R/L 16-4D-N	1.000	1.000	6.000	1.457	1.250	SN..43..	**01689**	**01689**
DSSN R/L 20-4D-N	1.250	1.250	6.000	1.457	1.500	SN..43..	**02089**	**02089**
DSSN R/L 20-6D-N	1.250	1.250	6.000	1.772	1.500	SN..64..	**02080**	**02080**
DSSN R/L 24-6E-N	1.500	1.500	7.000	1.772	2.000	SN..64..	**02477**	**02477**

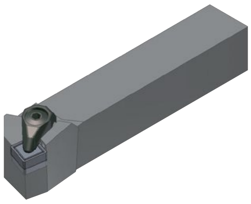
Spare parts **for Article no.**	 Clamping claw 78 950 ...	 Key I 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide support S 78 950 ...	 Threaded bush 78 950 ...	 Spring 78 950 ...
78 506 01293 / 78 507 01293	**07600**	**08100**	**08300**	**08900**	**08500**	**04900**
78 506 01689 / 78 507 01689	**07600**	**08100**	**08300**	**08900**	**08500**	**04900**
78 506 02089 / 78 507 02089	**07600**	**08100**	**08300**	**08900**	**08500**	**04900**
78 506 02080 / 78 507 02080	**07800**	**08100**	**08300**	**01700**	**08700**	**04900**
78 506 02477 / 78 507 02477	**07800**	**08100**	**08300**	**01700**	**08700**	**04900**

MaxiLock-D – DSRN 75° – Toolholder with top clamping

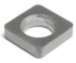
▲ A... = with thru coolant



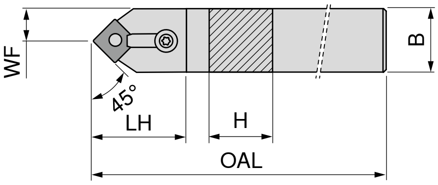
Illustrations show right-hand versions

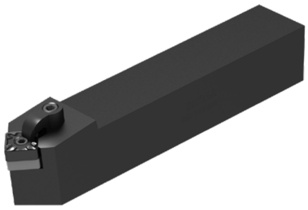


Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand **78 505 ...**	Right-hand **78 504 ...**
DSRN R/L 12-4BA-N	0.750	0.750	4.500	1.380	0.880	SN..43..	**01294**	**01294**
DSRN R/L 16-4DA-N	1.000	1.000	6.000	1.380	1.130	SN..43..	**01690**	**01690**
DSRN R/L 20-5DA-N	1.250	1.250	6.000	1.380	1.353	SN..54..	**02085**	**02085**
DSRN R/L 20-6DA-N	1.250	1.250	6.000	1.380	1.321	SN..64..	**02081**	**02081**

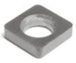
Spare parts for Article no.	 Clamping claw **78 950 ...**	 Key I **78 950 ...**	 Clamping screw **78 950 ...**	 Solid Carbide support S **78 950 ...**	 Threaded bush **78 950 ...**	 Spring **78 950 ...**
78 504 01294 / 78 505 01294	**07600**	**08100**	**08300**	**08900**	**08500**	**04900**
78 504 01690 / 78 505 01690	**07600**	**08100**	**08300**	**08900**	**08500**	**04900**
78 504 02085 / 78 505 02085	**07700**	**08100**	**08300**	**01600**	**08600**	**04900**
78 504 02081 / 78 505 02081	**07800**	**08100**	**08300**	**01700**	**08700**	**04900**

MaxiLock-M – MSDN 45° – Toolholder with top clamping

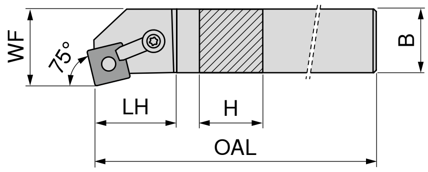


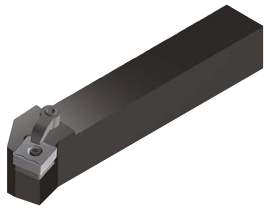


Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Neutral **78 577 ...**
MSDN N 08-3A	0.500	0.500	4.000	1.000	0.250	SN..32..	**00813**
MSDN N 10-3B	0.625	0.625	4.500	1.000	0.313	SN..32..	**01023**
MSDN N 12-4B	0.750	0.750	4.500	1.300	0.375	SN..43..	**01224**
MSDN N 16-4D	1.000	1.000	6.000	1.300	0.500	SN..43..	**01644**
MSDN N 85-4D	1.250	1.000	6.000	1.300	0.625	SN..43..	**08544**
MSDN N 16-5D	1.000	1.000	6.000	1.500	0.500	SN..54..	**01645**
MSDN N 85-5D	1.250	1.000	6.000	1.500	0.625	SN..54..	**08545**
MSDN N 20-5D	1.250	1.250	6.000	1.500	0.625	SN..54..	**02045**
MSDN N 16-6D	1.000	1.000	6.000	1.730	0.500	SN..64..	**01646**
MSDN N 85-6D	1.250	1.000	6.000	1.750	0.625	SN..64..	**08546**
MSDN N 20-6D	1.250	1.250	6.000	1.750	0.625	SN..64..	**02046**
MSDN N 24-6E	1.500	1.500	7.000	1.750	0.750	SN..64..	**02456**

Spare parts **for Article no.**	 Clamp **78 950 ...**	 Key I **78 950 ...**	 Dowel pin **78 950 ...**	 Clamping screw **78 950 ...**	 Solid Carbide support S **78 950 ...**
78 577 00813	**00600**	**07000**	**02800**	**03600**	**01500**
78 577 01023	**00600**	**07000**	**02800**	**03600**	**01500**
78 577 01224	**00400**	**06900**	**03100**	**03800**	**04300**
78 577 01644	**00400**	**06900**	**03100**	**03800**	**04300**
78 577 08544	**00400**	**06900**	**03100**	**03800**	**04300**
78 577 01645	**00300**	**08100**	**03200**	**03900**	**01600**
78 577 08545	**00300**	**08100**	**03200**	**03900**	**01600**
78 577 02045	**00300**	**08100**	**03200**	**03900**	**01600**
78 577 01646	**00300**	**08100**	**03300**	**03900**	**01700**
78 577 08546	**00300**	**08100**	**03300**	**03900**	**01700**
78 577 02046	**00300**	**08100**	**03300**	**03900**	**01700**
78 577 02456	**00300**	**08100**	**03300**	**03900**	**01700**

MaxiLock-M – MSKN 75° – Toolholder with top clamping



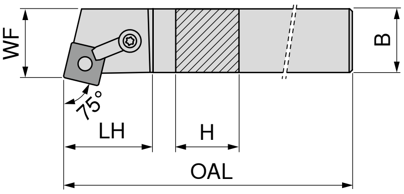


Illustrations show right-hand versions

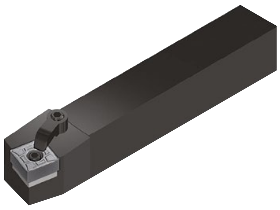
Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand 78 533 ...	Right-hand 78 532 ...
MSKN R/L 12-4B	0.750	0.750	4.500	1.220	1.000	SN..43..	**01224**	**01224**
MSKN R/L 16-4D	1.000	1.000	6.000	1.220	1.250	SN..43..	**01644**	**01644**
MSKN R/L 16-5D	1.000	1.000	6.000	1.410	1.250	SN..54..	**01645**	**01645**
MSKN R/L 85-5D	1.250	1.000	6.000	1.410	1.250	SN..54..	**08545**	**08545**
MSKN R/L 20-5D	1.250	1.250	6.000	1.410	1.500	SN..54..	**02045**	**02045**
MSKN R/L 20-6D	1.250	1.250	6.000	1.500	1.500	SN..64..	**02046**	**02046**
MSKN R/L 24-6E	1.500	1.500	7.000	1.500	2.000	SN..64..	**02456**	**02456**

Spare parts for Article no.	 Clamp 78 950 ...	 Key I 78 950 ...	 Dowel pin 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide support S 78 950 ...
78 532 01224 / 78 533 01224	**00400**	**06900**	**03100**	**03800**	**04300**
78 532 01644 / 78 533 01644	**00400**	**06900**	**03100**	**03800**	**04300**
78 532 01645 / 78 533 01645	**00300**	**08100**	**03200**	**03900**	**01600**
78 532 08545 / 78 533 08545	**00300**	**08100**	**03200**	**03900**	**01600**
78 532 02045 / 78 533 02045	**00300**	**08100**	**03200**	**03900**	**01600**
78 532 02046 / 78 533 02046	**00300**	**08100**	**03300**	**03900**	**01700**
78 532 02456 / 78 533 02456	**00300**	**08100**	**03300**	**03900**	**01700**

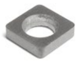
MaxiLock-M – MSRN 75° – Toolholder with top clamping



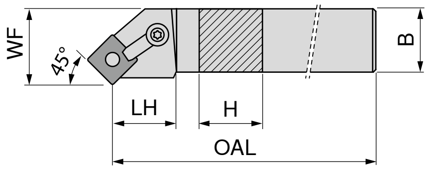
Illustrations show right-hand versions



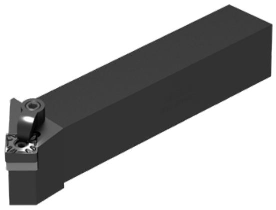
Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand 78 535 ...	Right-hand 78 534 ...
MSRN R/L 12-4B	0.750	0.750	4.500	1.250	0.880	SN..43..	01224	01224
MSRN R/L 16-4D	1.000	1.000	6.000	1.250	1.130	SN..43..	01644	01644
MSRN R/L 16-5D	1.000	1.000	6.000	1.500	1.103	SN..54..	01645	01645
MSRN R/L 20-5D	1.250	1.250	6.000	1.500	1.353	SN..54..	02045	02045
MSRN R/L 20-6D	1.250	1.250	6.000	1.590	1.321	SN..64..	02046	02046
MSRN R/L 24-6E	1.500	1.500	7.000	1.590	1.821	SN..64..	02456	02456

Spare parts for Article no.	 Clamp 78 950 ...	 Key I 78 950 ...	 Dowel pin 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide support S 78 950 ...
78 534 01224 / 78 535 01224	00400	06900	03100	03800	04300
78 534 01644 / 78 535 01644	00400	06900	03100	03800	04300
78 534 01645 / 78 535 01645	00300	08100	03200	03900	01600
78 534 02045 / 78 535 02045	00300	08100	03200	03900	01600
78 534 02046 / 78 535 02046	00300	08100	03300	03900	01700
78 534 02456 / 78 535 02456	00300	08100	03300	03900	01700

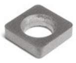
MaxiLock-M – MSSN 45° – Toolholder with top clamping



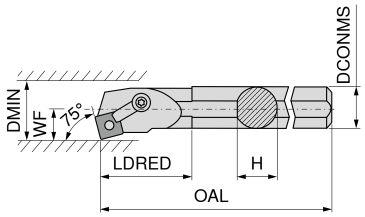
Illustrations show right-hand versions



Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand 78 537 ...	Right-hand 78 536 ...
MSSN R/L 12-4B	0.750	0.750	4.500	1.230	0.675	SN..43..	01224	01224
MSSN R/L 16-4D	1.000	1.000	6.000	1.230	0.925	SN..43..	01644	01644
MSSN R/L 16-5D	1.000	1.000	6.000	1.380	0.847	SN..54..	01645	01645
MSSN R/L 20-5D	1.250	1.250	6.000	1.380	1.097	SN..54..	02045	02045
MSSN R/L 20-6D	1.250	1.250	6.000	1.470	1.010	SN..64..	02046	02046
MSSN R/L 24-6E	1.500	1.500	7.000	1.470	1.511	SN..64..	02456	02456
MSSN R/L 86-6E	1.500	1.000	7.000	1.470	0.761	SN..64..	08656	08656

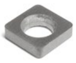
Spare parts **for Article no.**	 Clamp 78 950 ...	 Key I 78 950 ...	 Dowel pin 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide support S 78 950 ...
78 536 01224 / 78 537 01224	00400	06900	03100	03800	04300
78 536 01644 / 78 537 01644	00400	06900	03100	03800	04300
78 536 01645 / 78 537 01645	00300	08100	03200	03900	01600
78 536 02045 / 78 537 02045	00300	08100	03200	03900	01600
78 536 02046 / 78 537 02046	00300	08100	03300	03900	01700
78 536 02456 / 78 537 02456	00300	08100	03300	03900	01700
78 536 08656 / 78 537 08656	00300	08100	03300	03900	01700

MaxiLock-M – MSKN 75° – Boring bar with top clamping



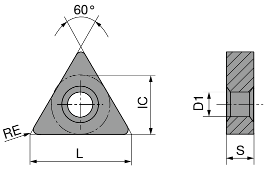
Illustrations show right-hand versions

Designation	H inch	OAL inch	LDRED inch	WF inch	Insert	Left-hand 78 709 ...	Right-hand 78 708 ...
S20U MSKN R/L 4	1.180	14.000	3.000	0.765	SN..43..	42030	42030
S24U MSKN R/L 4	1.370	14.000	3.000	0.890	SN..43..	42434	42434
S32V MSKN R/L 5	1.870	16.000	4.000	1.281	SN..54..	53242	53242
S32V MSKN R/L 6	1.870	16.000	4.000	1.281	SN..64..	63242	63242
S40V MSKN R/L 6	2.380	16.000	4.000	1.531	SN..64..	64050	64050

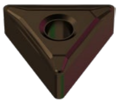
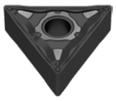
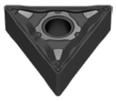
Spare parts **for Article no.**	 Clamp 78 950 ...	 Key I 78 950 ...	 Dowel pin 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide support S 78 950 ...
78 708 42030 / 78 709 42030	00400	06900	03100	03800	04300
78 708 42434 / 78 709 42434	00400	06900	03100	03800	04300
78 708 53242 / 78 709 53242	00300	08100	03200	03900	01600
78 708 63242 / 78 709 63242	00300	08100	03300	03900	01700
78 708 64050 / 78 709 64050	00300	08100	03300	03900	01700

TNMG / TNMA / TNMM

Designation	L inch	S inch	D1 inch	IC inch
TNMG 22..	0.433	0.125	0.089	0.250
TNM. 33..	0.650	0.187	0.150	0.375
TNM. 43..	0.866	0.187	0.203	0.500



TNMG

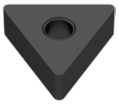
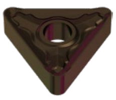
		-CF20 CTEP110	**-F50** CTCP115	**-F50** CTCP125	**-F50** CTCP135	**-M50** CTCP115	**-M50** CTCP125	**-M50** CTCP135
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		○ ○ ◌	**○** ○ ◌	○ **○** ◌	○ ○ **◌**	**○** ○ ◌	○ **○** ◌	○ ○ **◌**
								
		F	**F**	**F**	**F**	**M**	**M**	**M**
		CERMET TNMG	TNMG	TNMG	TNMG	TNMG	TNMG	TNMG
		76 149 ...	76 146 ...	76 146 ...	76 146 ...	76 138 ...	76 138 ...	76 138 ...
ANSI	RE inch							
221EN	0.016		**304**	**504**	**704**			
222EN	0.031		**306**	**506**	**706**			
331EN	0.016	**016**	**316**	**516**	**716**	**316**	**516**	**716**
332EN	0.031	**018**	**318**	**518**	**718**	**318**	**518**	**718**
333EN	0.047	**020**	**320**	**520**	**720**	**320**	**520**	**720**
432EN	0.031					**330**	**530**	**730**
433EN	0.047					**332**	**532**	**732**
P		●	●	●	●	●	●	●
M		○			○			○
K		○	○	○		○	○	
N								
S								
H								
O								

4

TNMG

		-M70 CTCK110	-M70 CTCK120	-M70 CTCP115	-M70 CTCP125	-M70 CTCP135	CTCP125	CTCP135
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		● ○ ○	○ ● ○	● ○ ○	○ ● ○	○ ○ ●	○ ● ○	○ ○ ●
								
		M	**M**	**M**	**M**	**M**	**M**	**M**
		TNMG	TNMG	TNMG	TNMG	TNMG	TNMG	TNMG
		70 155 ...	**70 155 ...**	**76 155 ...**	**76 155 ...**	**76 155 ...**	**76 142 ...**	**76 142 ...**
ANSI	RE inch							
22.5EN	0.008							**702**
331ER	0.016						**516**	**716**
332EL	0.031						**518**	
332EN	0.031	**018**	**518**	**318**	**518**	**718**		
332ER	0.031						**517**	**717**
333EN	0.047	**020**	**520**	**320**	**520**	**720**		
431EN	0.016				**528**			
432EN	0.031	**030**	**530**	**330**	**530**	**730**		
433EN	0.047	**032**	**532**	**332**	**532**	**732**		
434EN	0.063	**034**	**534**	**334**	**534**	**734**		
P		○	○	●	●	●	●	●
M						○		○
K		●	●	○	○		○	
N								
S								
H								
O								

TNMA / TNMM

		CTCK110	CTCK120	-R28 CTCP115	-R28 CTCP125	-R28 CTCP135	-R58 CTCP115	-R58 CTCP125
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		● ○ ○	○ ● ○	● ○ ○	○ ● ○	○ ○ ●	● ○ ○	○ ● ○
								
		R	**M**	**R**	**R**	**R**	**R**	**R**
		TNMA	TNMA	TNMM	TNMM	TNMM	TNMM	TNMM
		70 134 ...	**70 134 ...**	**76 154 ...**	**76 154 ...**	**76 154 ...**	**76 152 ...**	**76 152 ...**
ANSI	RE inch							
332EN	0.031	**018**	**518**					
333EN	0.047	**020**	**520**					
334EN	0.063	**022**	**522**					
432EN	0.031	**030**	**530**					
433EN	0.047	**032**	**532**				**332**	**532**
434EN	0.063	**034**	**534**	**334**	**534**	**734**		
P		○	○	●	●	●	●	●
M						○		
K		●	●	○	○		○	○
N								
S								
H								
O								

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TNMM / TNMG

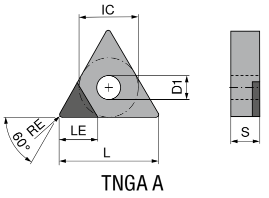
			NEW		NEW	NEW		NEW
		-R58 CTCP135	**-F30** CTCM120	**-F30** CTPM125	**-F30** CTCM130	**-M30** CTCM120	**-M30** CTPM125	**-M30** CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		○ ○ ●	● ○ ○	○ ● ○	○ ○ ●	● ○ ○	○ ● ○	○ ○ ●
								
		R	**F**	**F**	**F**	**M**	**M**	**M**
		TNMM	TNMG	TNMG	TNMG	TNMG	TNMG	TNMG
		76 152 ...	**75 019 ...**	**75 019 ...**	**75 019 ...**	**75 020 ...**	**75 020 ...**	**75 020 ...**
ANSI	RE inch							
331EN	0.016		**11600**	**216**	**31600**			
332EN	0.031		**11800**	**218**	**31800**	**11800**	**218**	**31800**
333EN	0.047					**12000**	**220**	**32000**
433EN	0.047	**732**						
P		●	○	○	○	○	○	○
M		○	●	●	●	●	●	●
K								
N								
S					○			○
H								
O								

TNMG

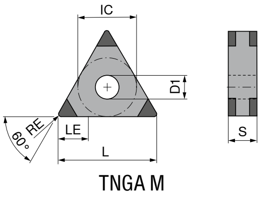
		NEW		NEW	NEW
		-M60 CTCM120	**-M60** CTPM125	**-M60** CTCM130	**-M34** CTPX710
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		● ○ ○	○ ● ○	○ ○ ●	● ○ ○
					
		M	**M**	**M**	**M**
		TNMG	TNMG	TNMG	TNMG
		75 021 ...	**75 021 ...**	**75 021 ...**	**75 006 ...**
ANSI	RE inch				
332EN	0.031	**11800**	**218**	**31800**	**61800**
333EN	0.047	**12000**	**220**	**32000**	
431EN	0.016				**62800**
432EN	0.031				**63000**
434EN	0.063				**63400**
P		○	○	○	●
M		●	●	●	●
K					
N					○
S				○	●
H					
O					

TNGA

Designation	L inch	S inch	D1 inch	IC inch
TNGA 22..	0.433	0.125	0.089	0.250
TNGA 33..	0.650	0.187	0.150	0.375



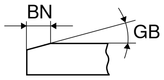
TNGA A

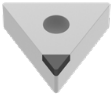


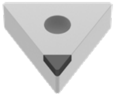
TNGA M

TNGA

▲ TCE(NOI) = Design and number of equipped cutting edge corners








ANSI	RE inch	BN inch	GB	TCE (NOI)	LE inch	CTBH20U F CBN TNGA 71 108 ...	CTBH20C F CBN TNGA 71 404 ...	CTBH40U F CBN TNGA 71 108 ...	CTBH40C F CBN TNGA 71 404 ...
221TN	0.016	0.005	20°	**A (1)**	0.110	**500**			
222FN	0.031			**A (1)**	0.098			**802** 1)	
222TN	0.031	0.005	20°	**A (1)**	0.098	**502**			
331FN	0.016			**A (1)**	0.138	**404** 1)		**804** 1)	
331SN	0.016	0.004	20°	**M (6)**	0.110				**332**
331SN	0.016	0.004	20°	**M (6)**	0.110		**242**		**342**
331SN	0.016	0.004	25°	**M (6)**	0.110				**352**
331SN	0.016	0.006	30°	**M (6)**	0.110				**372**
331SN	0.016	0.006	35°	**M (6)**	0.110				**382**
331TN	0.016	0.005	25°	**A (1)**	0.138			**904**	
331FN	0.016			**M (6)**	0.110		**212**		
331TN	0.016	0.004	15°	**M (6)**	0.110		**222**		
331TN	0.016	0.004	25°	**M (6)**	0.110		**252**		
331SN	0.016	0.005	25°	**M (6)**	0.110		**262**		
331TN	0.016	0.005	20°	**A (1)**	0.138	**504**			
332TN	0.031	0.004	15°	**M (6)**	0.098		**224**		
332SN	0.031	0.004	15°	**M (6)**	0.098				**324**
332TN	0.031	0.004	20°	**M (6)**	0.098		**234**		
332SN	0.031	0.004	20°	**M (6)**	0.098				**334**
332SN	0.031	0.004	20°	**M (6)**	0.098		**244**		**344**
332TN	0.031	0.005	20°	**A (1)**	0.118	**506**			
332TN	0.031	0.004	25°	**M (6)**	0.098		**254**		
332SN	0.031	0.004	25°	**M (6)**	0.098				**354**
332TN	0.031	0.005	25°	**A (1)**	0.118			**906**	
332EN	0.031			**M (6)**	0.098				**314**
332FN	0.031			**A (1)**	0.118	**406** 1)		**80500**	
332FN	0.031			**M (6)**	0.098		**214**		
332SN	0.031	0.005	25°	**M (6)**	0.098		**264**		**364**
332SN	0.031	0.006	30°	**M (6)**	0.098		**27200**		**374**
332SN	0.031	0.006	35°	**M (6)**	0.098				**384**
333TN	0.047	0.004	15°	**M (6)**	0.087		**226**		
333SN	0.047	0.004	20°	**M (6)**	0.087				**336**
333SN	0.047	0.004	20°	**M (6)**	0.087		**246**		**346**
333SN	0.047	0.004	25°	**M (6)**	0.087				**356**
333TN	0.047	0.004	25°	**M (6)**	0.087		**256**		
333FN	0.047			**M (6)**	0.087		**216**		
333SN	0.047	0.005	25°	**M (6)**	0.087		**266**		**366**
333SN	0.047	0.006	30°	**M (6)**	0.087				**376**
333SN	0.047	0.006	35°	**M (6)**	0.087				**386**

P				
M				
K				
N				
S				
H	●	●	●	●
O				

1) Machining to 60 HRC

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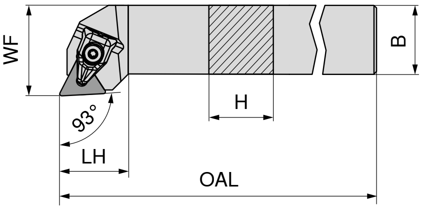
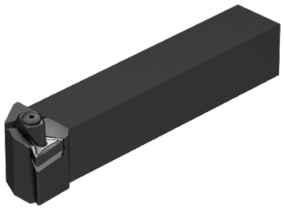
MaxiLock-D – DTJN 93° – Toolholder with top clamping

▲ A... = with thru coolant



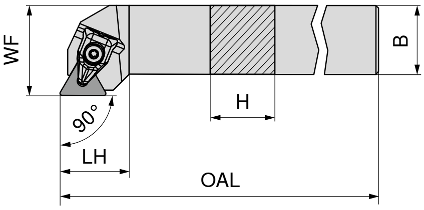
Illustrations show right-hand versions



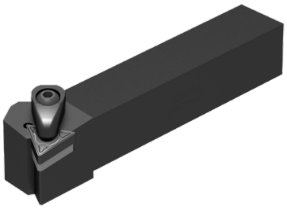
Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand 78 511 ...	Right-hand 78 510 ...
DTJN R/L 16-3DA-N	1.000	1.000	6.000	1.250	1.250	TN..33..	01698	01698
DTJN R/L 16-4DA-N	1.000	1.000	6.000	1.380	1.250	TN..43..	01690	01690
DTJN R/L 20-4DA-N	1.250	1.250	6.000	1.250	1.500	TN..43..	02090	02090
DTJN R/L 24-4EA-N	1.500	1.500	7.000	1.380	2.000	TN..43..	02487	02487

Spare parts for Article no.	 Clamping claw 78 950 ...	 Key I 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat T 78 950 ...	 Threaded bush 78 950 ...	 Spring 78 950 ...
78 510 01698 / 78 511 01698	07500	08100	07900	07400	08400	08000
78 510 01690 / 78 511 01690	07600	08100	08300	01900	08500	04900
78 510 02090 / 78 511 02090	07600	08100	08300	01900	08500	04900
78 510 02487 / 78 511 02487	07600	08100	08300	01900	08500	04900

MaxiLock-D – DTGN 90° – Toolholder with top clamping



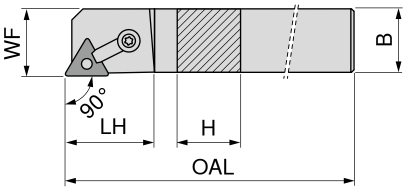
Illustrations show right-hand versions



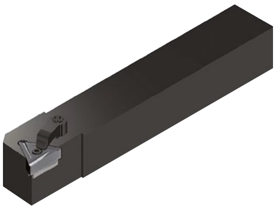
Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand 78 509 ...	Right-hand 78 508 ...
DTGN R/L 12-3B-N	0.750	0.750	4.500	1.100	1.000	TN..33..	01299	01299
DTGN R/L 16-3D-N	1.000	1.000	6.000	1.100	1.250	TN..33..	01697	01697
DTGN R/L 16-4D-N	1.000	1.000	6.000	1.338	1.250	TN..43..	01689	01689
DTGN R/L 20-4D-N	1.250	1.250	6.000	1.338	1.500	TN..43..	02089	02089

Spare parts for Article no.	 Clamping claw 78 950 ...	 Key I 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat T 78 950 ...	 Threaded bush 78 950 ...	 Spring 78 950 ...
78 508 01299 / 78 509 01299	07500	08100	07900	07400	08400	08000
78 508 01697 / 78 509 01697	07500	08100	07900	07400	08400	08000
78 508 01689 / 78 509 01689	07600	08100	08300	01900	08500	04900
78 508 02089 / 78 509 02089	07600	08100	08300	01900	08500	04900

MaxiLock-M – MTAN 90° – Toolholder with top clamping



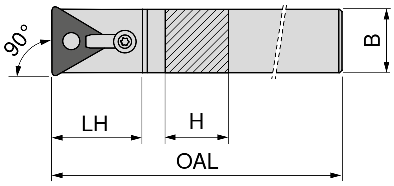
Illustrations show right-hand versions

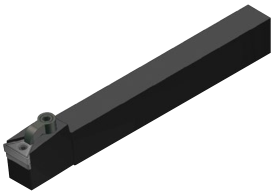


Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand 78 539 ...	Right-hand 78 538 ...
MTAN R/L 08-2A	0.500	0.500	4.000	0.875	0.500	TN..22..	00812	00812
MTAN R/L 12-3B	0.750	0.750	4.500	1.060	0.750	TN..33..	01223	01223
MTAN R/L 16-3D	1.000	1.000	6.000	1.060	1.000	TN..33..	01643	01643
MTAN R/L 16-4D	1.000	1.000	6.000	1.220	1.000	TN..43..	01644	01644

Spare parts for Article no.	 Clamp 78 950 ...	 Key I 78 950 ...	 Dowel pin 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat T 78 950 ...
78 538 00812 / 78 539 00812	00700	07000	02500	05000	
78 538 01223 / 78 539 01223	00400	06900	02900	03800	01800
78 538 01643 / 78 539 01643	00400	06900	02900	03800	01800
78 538 01644 / 78 539 01644	00400	06900	03100	03800	01900

MaxiLock-M – MTCN 90° – Toolholder with top clamping

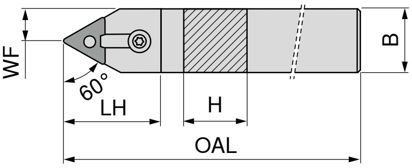


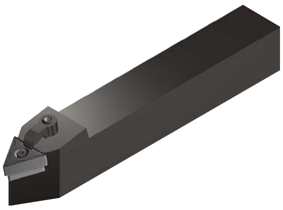


Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Neutral 78 578 ...
MTCN N 44-3F	1.000	0.500	8.000	1.000	0.325	TN..33..	04463
MTCN N 12-4B	0.750	0.750	4.500	1.380	0.433	TN..43..	01224
MTCN N 64-4F	1.000	0.750	8.000	1.380	0.433	TN..43..	06464
MTCN N 66-4F	1.500	0.750	8.000	1.380	0.433	TN..43..	06664

Spare parts for Article no.	 Clamp 78 950 ...	 Key I 78 950 ...	 Dowel pin 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat T 78 950 ...
78 578 04463	00400	06800	02900	04000	01800
78 578 01224	00400	07000	03100	03800	01900
78 578 06464	00300	07000	03100	03900	01900
78 578 06664	00300	07000	03100	03900	01900

MaxiLock-M – MTEN 60° – Toolholder with top clamping

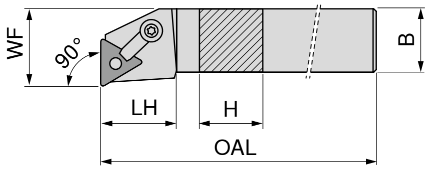




Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Neutral 78 580 ...
MTEN NS 08-2A	0.500	0.500	4.000	1.000	0.250	TN..22..	**00812**
MTEN NS 10-3B	0.625	0.625	4.500	1.130	0.313	TN..33..	**01023**
MTEN NS 12-3B	0.750	0.750	4.500	1.300	0.375	TN..33..	**01223**
MTEN NS 16-3D	1.000	1.000	6.000	1.300	0.500	TN..33..	**01643**
MTEN NS 16-4D	1.000	1.000	6.000	1.500	0.500	TN..43..	**01644**

Spare parts for Article no.	 Clamp 78 950 ...	 Key I 78 950 ...	 Dowel pin 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat T 78 950 ...
78 580 00812	**00700**	**07000**	**02500**	**05000**	
78 580 01023	**00600**	**06800**	**02900**	**03600**	**01800**
78 580 01223	**00400**	**06800**	**02900**	**03800**	**01800**
78 580 01643	**00400**	**06800**	**02900**	**03800**	**01800**
78 580 01644	**00400**	**07000**	**03100**	**03800**	**01900**

MaxiLock-M – MTFN 90° – Toolholder with top clamping

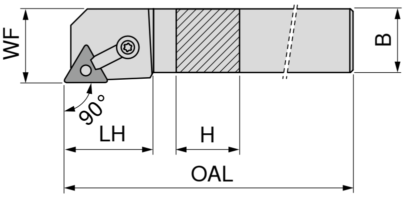


Illustrations show right-hand versions

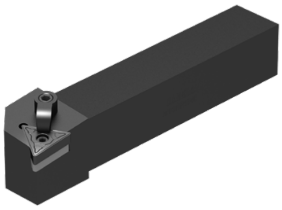
Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand 78 541 ...	Right-hand 78 540 ...
MTFN R/L 12-3B	0.750	0.750	4.500	1.000	1.000	TN..33..	01223	01223
MTFN R/L 16-3D	1.000	1.000	6.000	1.250	1.250	TN..33..	01643	01643
MTFN R/L 16-4D	1.000	1.000	6.000	1.250	1.250	TN..43..	01644	01644
MTFN R/L 20-4D	1.250	1.250	6.000	1.500	1.500	TN..43..	02044	02044
MTFN R/L 85-4D	1.250	1.000	6.000	1.250	1.250	TN..43..	08544	08544
MTFN R/L 86-4D	1.500	1.000	6.000	1.250	1.250	TN..43..	08644	08644

Spare parts for Article no.	 Clamp 78 950 ...	 Key I 78 950 ...	 Dowel pin 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat T 78 950 ...
78 540 01223 / 78 541 01223	00400	06800	02900	03800	01800
78 540 01643 / 78 541 01643	00400	06800	02900	03800	01800
78 540 01644 / 78 541 01644	00400	07000	03100	03800	01900
78 540 02044 / 78 541 02044	00400	07000	03100	03800	01900
78 540 08544 / 78 541 08544	00400	07000	03100	03800	01900
78 540 08644 / 78 541 08644	00400	07000	03100	03800	01900

MaxiLock-M – MTGN 90° – Toolholder with top clamping



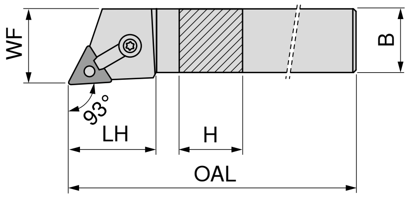
Illustrations show right-hand versions



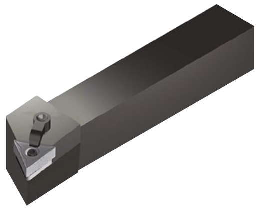
Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand 78 543 ...	Right-hand 78 542 ...
MTGN R/L 08-2A	0.500	0.500	4.000	0.875	0.625	TN..22..	**00812**	**00812**
MTGN R/L 10-3B	0.625	0.625	4.500	1.000	0.875	TN..33..	**01023**	**01023**
MTGN R/L 12-3B	0.750	0.750	4.500	1.060	1.000	TN..33..	**01223**	**01223**
MTGN R/L 16-3D	1.000	1.000	6.000	1.060	1.250	TN..33..	**01643**	**01643**
MTGN R/L 16-4D	1.000	1.000	6.000	1.220	1.250	TN..43..	**01644**	**01644**
MTGN R/L 20-4D	1.250	1.250	6.000	1.220	1.500	TN..43..	**02044**	**02044**
MTGN R/L 85-4D	1.250	1.000	6.000	1.220	1.250	TN..43..	**08544**	**08544**
MTGN R/L 86-4D	1.500	1.000	6.000	1.220	1.250	TN..43..	**08644**	**08644**

Spare parts for Article no.	 Clamp 78 950 ...	 Key I 78 950 ...	 Dowel pin 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat T 78 950 ...
78 542 00812 / 78 543 00812	**00700**	**07000**	**02500**	**05000**	
78 542 01023 / 78 543 01023	**00400**	**06800**	**02900**	**03800**	**01800**
78 542 01223 / 78 543 01223	**00400**	**06800**	**02900**	**03800**	**01800**
78 542 01643 / 78 543 01643	**00400**	**06800**	**02900**	**03800**	**01800**
78 542 01644 / 78 543 01644	**00400**	**07000**	**03100**	**03800**	**01900**
78 542 02044 / 78 543 02044	**00400**	**07000**	**03100**	**03800**	**01900**
78 542 08544 / 78 543 08544	**00400**	**07000**	**03100**	**03800**	**01900**
78 542 08644 / 78 543 08644	**00400**	**07000**	**03100**	**03800**	**01900**

MaxiLock-M – MTJN 93° – Toolholder with top clamping



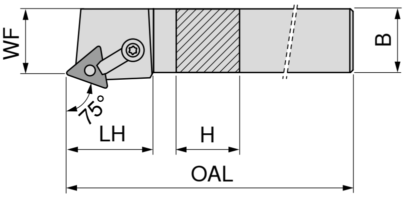
Illustrations show right-hand versions



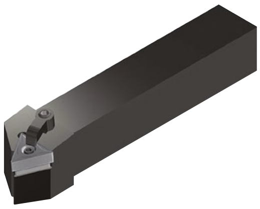
Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand 78 545 ...	Right-hand 78 544 ...
MTJN R/L 12-3B	0.750	0.750	4.500	1.030	1.000	TN..33..	01223	01223
MTJN R/L 16-3D	1.000	1.000	6.000	1.030	1.250	TN..33..	01643	01643
MTJN R/L 16-4D	1.000	1.000	6.000	1.250	1.250	TN..43..	01644	01644
MTJN R/L 20-4D	1.250	1.250	6.000	1.250	1.500	TN..43..	02044	02044

Spare parts for Article no.	 Clamp 78 950 ...	 Key I 78 950 ...	 Dowel pin 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat T 78 950 ...
78 544 01223 / 78 545 01223	00400	06800	02900	03800	01800
78 544 01643 / 78 545 01643	00400	06800	02900	03800	01800
78 544 01644 / 78 545 01644	00400	07000	03100	03800	01900
78 544 02044 / 78 545 02044	00400	07000	03100	03800	01900

MaxiLock-M – MTRN 75° – Toolholder with top clamping



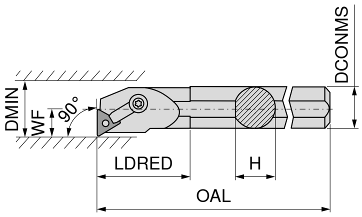
Illustrations show right-hand versions



Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand 78 547 ...	Right-hand 78 546 ...
MTRN R/L 12-3B	0.750	0.750	4.500	1.160	0.855	TN..33..	01223	01223
MTRN R/L 16-3D	1.000	1.000	6.000	1.160	1.105	TN..33..	01643	01643
MTRN R/L 16-4D	1.000	1.000	6.000	1.380	1.048	TN..43..	01644	01644
MTRN R/L 20-4D	1.250	1.250	6.000	1.380	1.298	TN..43..	02044	02044

Spare parts **for Article no.**	 Clamp 78 950 ...	 Key I 78 950 ...	 Dowel pin 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat T 78 950 ...
78 546 01223 / 78 547 01223	00400	06800	02900	03800	01800
78 546 01643 / 78 547 01643	00400	06800	02900	03800	01800
78 546 01644 / 78 547 01644	00400	07000	03100	03800	01900
78 546 02044 / 78 547 02044	00400	07000	03100	03800	01900

MaxiLock-M – MTFN 90° – Boring bar with top clamping

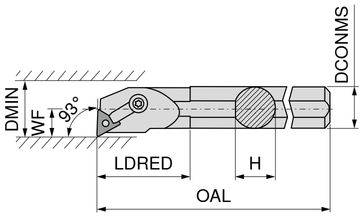


Illustrations show right-hand versions

Designation	DCONMS inch	H inch	OAL inch	LDRED inch	WF inch	DMIN inch	Insert	Left-hand 78 711 ...	Right-hand 78 710 ...
A16T MTFN R/L 3	1.000	0.900	12.000	2.500	0.640	1.280	TN..33..	31616	31616
S16T MTFN R/L 3	1.000	0.900	12.000	2.500	0.640	1.280	TN..33..	31626	31626
S20U MTFN R/L 3	1.250	1.180	14.000	3.000	0.765	1.530	TN..33..	32030	32030
A20U MTFN R/L 3	1.250	1.180	14.000	3.000	0.765	1.530	TN..33..	32020	32020
S24U MTFN R/L 3	1.500	1.370	14.000	3.000	0.890	1.780	TN..33..	32434	32434
S20U MTFN R/L 4	1.250	1.180	14.000	3.000	0.765	1.530	TN..43..	42030	42030
S24U MTFN R/L 4	1.500	1.370	14.000	3.000	0.890	1.780	TN..43..	42434	42434
A24U MTFN R/L 4	1.500	1.370	14.000	3.000	0.890	1.780	TN..43..	42424	42424
S28U MTFN R/L 4	1.750	1.630	14.000	4.000	1.015	2.030	TN..43..	42838	42838
A28U MTFN R/L 4	1.750	1.630	14.000	4.000	1.015	2.030	TN..43..	42828	42828
S32V MTFN R/L 4	2.000	1.870	16.000	4.000	1.281	2.562	TN..43..	43242	43242
A32V MTFN R/L 4	2.000	1.870	16.000	4.000	1.281	2.562	TN..43..	43233	43233
S40V MTFN R/L 4	2.500	2.380	16.000	4.000	1.531	3.062	TN..43..	44050	44050

Spare parts for Article no.	 Clamp 78 950 ...	 Key I 78 950 ...	 Dowel pin 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat T 78 950 ...
78 710 31616 / 78 711 31616	00400	06800	02700	03700	
78 710 31626 / 78 711 31626	00400	06800	02700	03700	
78 710 32030 / 78 711 32030	00400	06800	02900	03800	01800
78 710 32020 / 78 711 32020	00400	06800	02900	03800	01800
78 710 32434 / 78 711 32434	00400	06800	02900	03800	01800
78 710 42030 / 78 711 42030	00400	06900	03100	03800	01900
78 710 42434 / 78 711 42434	00400	06900	03100	03800	01900
78 710 42424 / 78 711 42424	00400	06900	03100	03800	01900
78 710 42838 / 78 711 42838	00400	06900	03100	03800	01900
78 710 42828 / 78 711 42828	00400	06900	03100	03800	01900
78 710 43242 / 78 711 43242	00400	06900	03100	03800	01900
78 710 43233 / 78 711 43233	00400	06900	03100	03800	01900
78 710 44050 / 78 711 44050	00400	06900	03100	03800	01900

MaxiLock-M – MTUN 93° – Boring bar with top clamping



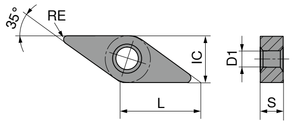
Illustrations show right-hand versions

Designation	DCONMS inch	H inch	OAL inch	LDRED inch	WF inch	DMIN inch	Insert	Left-hand 78 713 ...	Right-hand 78 712 ...
S16T MTUN R/L 3	1.000	0.900	12.000	2.500	0.640	1.280	TN..33..	**31626**	**31626**
S24U MTUN R/L 4	1.500	1.370	14.000	3.000	0.890	1.780	TN..43..	**42434**	**42434**

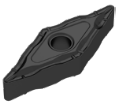
Spare parts for Article no.	 Clamp 78 950 ...	 Key I 78 950 ...	 Dowel pin 78 950 ...	 Clamping screw 78 950 ...
78 712 31626 / 78 713 31626	**00400**	**06800**	**02700**	**03700**
78 712 42434 / 78 713 42434	**00400**	**06900**	**03100**	**03800**

VNMG

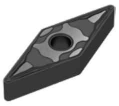
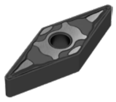
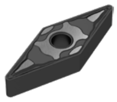
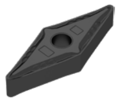
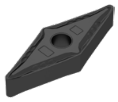
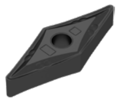
Designation	L inch	S inch	D1 inch	IC inch
VNMG 33..	0.654	0.187	0.150	0.375



VNMG

		-F40 CTCP125	**-F50** CTCP115	**-F50** CTCP125	**-F50** CTCP135	**-XU** CTCP115	**-XU** CTCP125	**-M40** CTCP125
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		○ ● ○	● ○ ○	○ ● ○	○ ○ ●	● ○ ○	○ ● ○	○ ● ○
								
		F	**F**	**F**	**F**	**M**	**M**	**M**
		VNMG	VNMG	VNMG	VNMG	VNMG	VNMG	VNMG
		76 000 ...	**76 156 ...**	**76 156 ...**	**76 156 ...**	**76 294 ...**	**76 294 ...**	**76 001 ...**
ANSI	RE inch							
331EN	0.016	516	316	516	716	316	516	516
332EN	0.031	518	318	518	718	318	518	518
P		●	●	●	●	●	●	●
M					○			
K		○	○	○		○	○	○
N								
S								
H								
O								

VNMG

					NEW		NEW	NEW
		-M50 CTCK120	**-M50** CTCP115	**-M50** CTCP125	**-F30** CTCM120	**-F30** CTPM125	**-F30** CTCM130	**-M30** CTCM120
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		○ ● ○	● ○ ○	○ ● ○	● ○ ○	○ ● ○	○ ○ ●	● ○ ○
								
		M	**M**	**M**	**F**	**F**	**F**	**M**
		VNMG	VNMG	VNMG	VNMG	VNMG	VNMG	VNMG
		70 131 ...	**76 131 ...**	**76 131 ...**	**75 022 ...**	**75 022 ...**	**75 022 ...**	**75 023 ...**
ANSI	RE inch							
331EN	0.016		316	516	11600	216	31600	
332EN	0.031	518	318	518	11800	218	31800	11800
333EN	0.047	520	320	520				
P		○	●	●	○	○	○	○
M					●	●	●	●
K		●	○	○				
N								
S							○	
H								
O								

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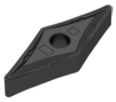
VNMG

			NEW	NEW
		-M30 CTPM125	**-M30** CTCM130	**-M34** CTPX710
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
		M VNMG	**M** VNMG	**M** VNMG
		75 023 ...	**75 023 ...**	**75 009 ...**
ANSI	RE inch			
331EN	0.016			**61600**
332EN	0.031	**218**	**31800**	**61800**
333EN	0.047			**62000**
P		○	○	●
M		●	●	●
K				
N				○
S			○	●
H				
O				

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VNMG

		NEW	NEW
		-FMS CT-P15	**-FMS** CT-P25
			
		F VNMG	**F** VNMG
		75 310 ...	**75 310 ...**
ANSI	RE inch		
331EN	0.016	**01609**	**11609**
332EN	0.031	**01809**	**11809**
P		●	●
M		○	○
K			
N			
S			
H			
O			

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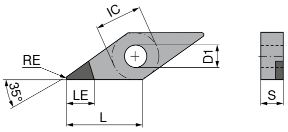
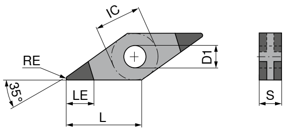
VNGA

Designation	L inch	S inch	D1 inch	IC inch
VNGA 33..	0.654	0.187	0.150	0.375



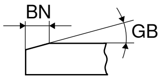
VNGA A

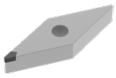


VNGA L

VNGA

▲ TCE(NOI) = Design and number of equipped cutting edge corners





ANSI	RE inch	BN inch	GB	TCE (NOI)	LE inch	NEW CTBH20C F CBN VNGA 71 413 ...	NEW CTBH40U F CBN VNGA 71 412 ...	NEW CTBH40C F CBN VNGA 71 413 ...
331FN	0.016			**A (1)**	0.197		**50000**	
331SN	0.016	0.004	20°	**L (4)**	0.110			**60000**
331SN	0.016	0.004	25°	**L (4)**	0.110			**60100**
331SN	0.016	0.005	25°	**L (4)**	0.110			**60200**
331SN	0.016	0.006	30°	**L (4)**	0.110			**60300**
331SN	0.016	0.006	35°	**L (4)**	0.110			**60400**
331TN	0.016	0.005	25°	**A (1)**	0.197		**50100**	
331FN	0.016			**L (4)**	0.110	**30000**		
331SN	0.016	0.004	20°	**L (4)**	0.110	**30100**		
331TN	0.016	0.004	25°	**L (4)**	0.110	**30200**		
332SN	0.031	0.004	15°	**L (4)**	0.087			**60500**
332SN	0.031	0.004	20°	**L (4)**	0.087	**30400**		**60600**
332SN	0.031	0.004	25°	**L (4)**	0.087			**60700**
332TN	0.031	0.004	25°	**L (4)**	0.087	**30500**		
332TN	0.031	0.005	25°	**A (1)**	0.173		**50300**	
332SN	0.031	0.005	25°	**L (4)**	0.087	**30600**		**60800**
332SN	0.031	0.006	30°	**L (4)**	0.087			**60900**
332SN	0.031	0.006	35°	**L (4)**	0.087			**61000**
332FN	0.031			**A (1)**	0.173		**50200**	
332FN	0.031			**L (4)**	0.087	**30300**		

P			
M			
K			
N			
S			
H	●	●	●
O			

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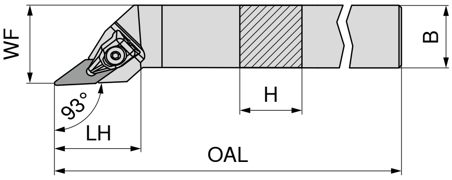
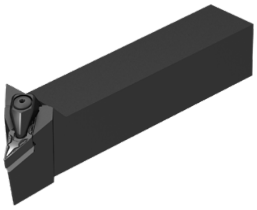
MaxiLock-D – DVJN 93° – Toolholder with top clamping

▲ A... = with thru coolant



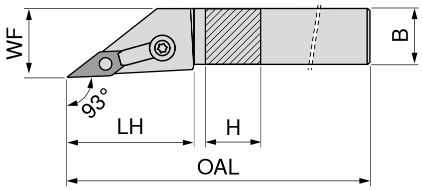
Illustrations show right-hand versions



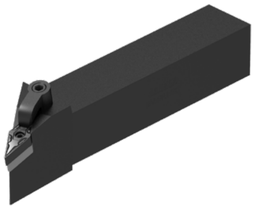
Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand 78 513 ...	Right-hand 78 512 ...
DVJN R/L 20-3DA-N	1.250	1.250	6.000	1.750	1.500	VN..33..	**02098**	**02098**
DVJN R/L 24-3EA-N	1.500	1.500	7.000	1.750	2.000	VN..33..	**02495**	**02495**

Spare parts **for Article no.**	 Clamping claw 78 950 ...	 Key I 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat V 78 950 ...	 Threaded bush 78 950 ...	 Spring 78 950 ...
78 512 02098 / 78 513 02098	**07500**	**08100**	**07900**	**02200**	**08400**	**08000**
78 512 02495 / 78 513 02495	**07500**	**08100**	**07900**	**02200**	**08400**	**08000**

MaxiLock-M – MVJN 93° – Toolholder with top clamping



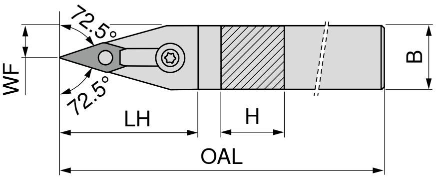
Illustrations show right-hand versions

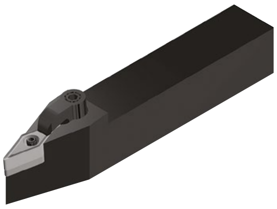


Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand 78 549 ...	Right-hand 78 548 ...
MVJN R/L 12-3B	0.750	0.750	4.500	1.620	1.000	VN..33..	**01223**	**01223**
MVJN R/L 16-3D	1.000	1.000	6.000	1.620	1.250	VN..33..	**01643**	**01643**
MVJN R/L 20-3D	1.250	1.250	6.000	1.620	1.500	VN..33..	**02043**	**02043**

Spare parts **for Article no.**	 Clamp 78 950 ...	 Key I 78 950 ...	 Dowel pin 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat V 78 950 ...
78 548 01223 / 78 549 01223	**09000**	**06800**	**02900**	**03800**	**02200**
78 548 01643 / 78 549 01643	**09000**	**06800**	**02900**	**03800**	**02200**
78 548 02043 / 78 549 02043	**09000**	**06800**	**02900**	**03800**	**02200**

MaxiLock-M – MVVN 72.5° – Toolholder with top clamping

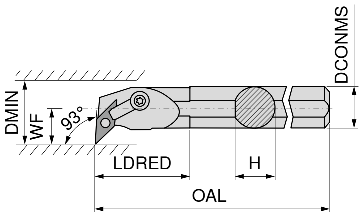




Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Neutral 78 581 ...
MVVN N 12-3B	0.750	0.750	4.500	1.620	0.375	VN..33..	**01223**
MVVN N 16-3B	1.000	1.000	4.500	1.620	0.500	VN..33..	**01623**
MVVN N 20-3D	1.250	1.250	6.000	1.620	0.625	VN..33..	**02043**
MVVN N 24-3E	1.500	1.500	7.000	1.620	0.750	VN..33..	**02453**

Spare parts for Article no.	 Clamp 78 950 ...	 Key I 78 950 ...	 Dowel pin 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat V 78 950 ...
78 581 01223	**09000**	**06800**	**02900**	**03800**	**02200**
78 581 01623	**09000**	**06800**	**02900**	**03800**	**02200**
78 581 02043	**09000**	**06800**	**02900**	**03800**	**02200**
78 581 02453	**09000**	**06800**	**02900**	**03800**	**02200**

MaxiLock-M – MVUN 93° – Boring bar with top clamping



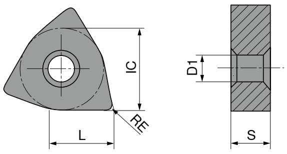
Illustrations show right-hand versions

Designation	DCONMS inch	H inch	OAL inch	LDRED inch	WF inch	DMIN inch	Insert	Left-hand 78 715 ...	Right-hand 78 714 ...
A16T MVUN R/L 3	1.000	0.900	12.000	2.500	1.000	2.000	VN..33..	**31616**	**31616**
S16T MVUN R/L 3	1.000	0.900	12.000	2.500	1.000	2.000	VN..33..	**31626**	**31626**
A20U MVUN R/L 3	1.250	1.180	14.000	3.000	1.125	2.250	VN..33..	**32020**	**32020**
S20U MVUN R/L 3	1.250	1.180	14.000	3.000	1.125	2.250	VN..33..	**32030**	**32030**
S24U MVUN R/L 3	1.500	1.370	14.000	3.000	1.250	2.500	VN..33..	**32434**	**32434**
A24U MVUN R/L 3	1.500	1.370	14.000	3.000	1.250	2.500	VN..33..	**32424**	**32424**

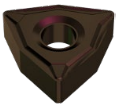
Spare parts for Article no.	 Clamp 78 950 ...	 Key I 78 950 ...	 Dowel pin 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat V 78 950 ...
78 714 31616 / 78 715 31616	**09000**	**06800**	**02900**	**03700**	**02200**
78 714 31626 / 78 715 31626	**09000**	**06800**	**02900**	**03700**	**02200**
78 714 32020 / 78 715 32020	**09000**	**06800**	**02900**	**03800**	**02200**
78 714 32030 / 78 715 32030	**09000**	**06800**	**02900**	**03800**	**02200**
78 714 32434 / 78 715 32434	**09000**	**06800**	**02900**	**03800**	**02200**
78 714 32424 / 78 715 32424	**09000**	**06800**	**02900**	**03800**	**02200**

WNMG / WNMA

Designation	L inch	S inch	D1 inch	IC inch
WNMG 33..	0.256	0.187	0.150	0.375
WNM. 43..	0.339	0.187	0.203	0.500



WNMG

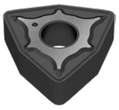
		-CF20 CTEP110	**-TFQ** CTEP110	**-F50** CTCP115	**-F50** CTCP125	**-F50** CTCP135	**-TFQ** CTCP115	**-TFQ** CTCP125
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		● ○ ○	● ○ ○	● ○ ○	○ ● ○	○ ○ ●	● ○ ○	○ ● ○
								
		F	**F**	**F**	**F**	**F**	**F**	**F**
		CERMET WNMG	**CERMET** WNMG	WNMG	WNMG	WNMG	WNMG	WNMG
		76 171 ...	76 177 ...	76 157 ...	76 157 ...	76 157 ...	76 177 ...	76 177 ...
ANSI	RE inch							
331EN	0.016	**004**		**304**	**504**	**704**	**304**	**514**
332EN	0.031	**006**	**006**	**306**	**506**	**706**	**306**	**506**
431EN	0.016		**016**	**316**	**516**	**716**		
432EN	0.031	**018**	**018**	**318**	**518**	**718**	**318**	**518**
433EN	0.047			**320**	**520**	**720**	**320**	**520**
P		●	●	●	●	●	●	●
M		○	○			○		
K		○	○	○	○		○	○
N								
S								
H								
O								

→ v_c Page 160-181

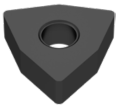
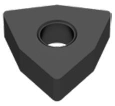
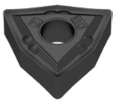
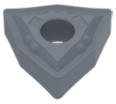
WNMG

		-XU CTCP115	-XU CTCP125	-M50 CTCK110	-M50 CTCK120	-M50 CTCP115	-M50 CTCP125	-M50 CTCP135
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		● ○ ○	○ ● ○	● ○ ○	○ ● ○	● ○ ○	○ ● ○	○ ○ ●
								
		M	M	M	M	M	M	M
		WNMG	WNMG	WNMG	WNMG	WNMG	WNMG	WNMG
		76 295 ...	76 295 ...	70 139 ...	70 139 ...	76 139 ...	76 139 ...	76 139 ...
ANSI	RE inch							
331EN	0.016					304	504	704
332EN	0.031					306	506	706
333EN	0.047					308	508	708
431EN	0.016	316	516			316	516	716
432EN	0.031	318	518	018	518	318	518	718
433EN	0.047	320	520	020	520	320	520	720
434EN	0.063					322	522	722
P		●	●	○	○	●	●	●
M								○
K		○	○	●	●	○	○	
N								
S								
H								
O								

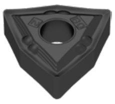
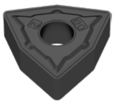
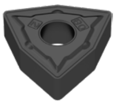
WNMG

		-TMQ CTCP115	-TMQ CTCP125	-M70 CTCK110	-M70 CTCK120	-M70 CTCP115	-M70 CTCP125	-M70 CTCP135
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		● ○ ○	○ ● ○	● ○ ○	○ ● ○	● ○ ○	○ ● ○	○ ○ ●
								
		M	M	M	M	M	M	M
		WNMG	WNMG	WNMG	WNMG	WNMG	WNMG	WNMG
		76 198 ...	76 198 ...	70 273 ...	70 273 ...	76 273 ...	76 273 ...	76 273 ...
ANSI	RE inch							
332EN	0.031					306	506	706
333EN	0.047					308	508	708
432EN	0.031	31800	518	018	518	318	518	718
433EN	0.047	320	520	020	520	320	520	720
434EN	0.063			022	522	322	522	722
P		●	●	○	○	●	●	●
M								○
K		○	○	●	●	○	○	
N								
S								
H								
O								

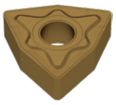
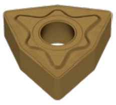
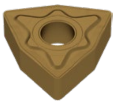
WNMA / WNMG

				NEW		NEW	NEW	
		CTCK110	CTCK120	-F30 CTCM120	-F30 CTPM125	-F30 CTCM130	-M30 CTCM120	-M30 CTPM125
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		○ ○ ○	○ **○** ○	**○** ○ ○	○ **○** ○	○ ○ **○**	**○** ○ ○	○ **○** ○
								
		R	R	F	F	F	M	M
		WNMA	WNMA	WNMG	WNMG	WNMG	WNMG	WNMG
		70 169 ...	70 169 ...	75 024 ...	75 024 ...	75 024 ...	75 025 ...	75 025 ...
ANSI	RE inch							
331EN	0.016			10400	204	30400		
332EN	0.031			10600	206	30600	10600	206
333EN	0.047						10800	208
431EN	0.016			11600	216	31600		
432EN	0.031	018	518	11800	218	31800	11800	218
433EN	0.047	020	520				12000	220
434EN	0.063	022	522					
P		○	○	○	○	○	○	○
M				●	●	●	●	●
K		●	●					
N								
S						○		
H								
O								

WNMG

		NEW	NEW		NEW	NEW
		-M30 CTCM130	-M60 CTCM120	-M60 CTPM125	-M60 CTCM130	-M34 CTPX710
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		○ ○ **○**	**○** ○ ○	○ **○** ○	○ ○ **○**	**○** ○ ○
						
		M	M	M	M	M
		WNMG	WNMG	WNMG	WNMG	WNMG
		75 025 ...	75 026 ...	75 026 ...	75 026 ...	75 008 ...
ANSI	RE inch					
332EN	0.031	30600	10600	206	30600	
333EN	0.047	30800	10800	208	30800	
432EN	0.031	31800	11800	218	31800	61800
433EN	0.047	32000	12000	220	32000	62000
P		○	○	○	○	●
M		●	●	●	●	●
K						
N						○
S		○			○	●
H						
O						

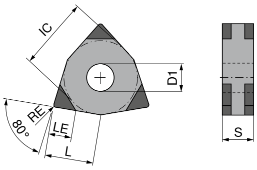
WNMG

		NEW	NEW	NEW	NEW	NEW
		-FMS CT-P15	**-FMS** CT-P25	**-MRS** CT-P15	**-MRS** CT-P25	**-MRS** CT-P35
		○ ○ ○	○ **○** ○	**○** ○ ○	○ **○** ○	○ ○ **○**
						
		F	**F**	**M**	**M**	**M**
		WNMG	WNMG	WNMG	WNMG	WNMG
		75 311 ...	75 311 ...	75 312 ...	75 312 ...	75 312 ...
ANSI	RE inch					
431EN	0.016	**01609**	**11609**			
432EN	0.031	**01809**	**11809**	**01809**	**11809**	**21809**
433EN	0.047	**02009**	**12009**	**02009**	**12009**	**22009**

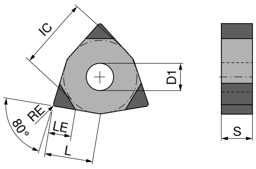
P	●	●	●	●	●
M	○	○	○	○	○
K					
N					
S					
H					
O					

WNGA

Designation	L inch	S inch	D1 inch	IC inch
WNGA 43..	0.335	0.187	0.202	0.500



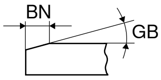
WNGA M



WNGA V

WNGA

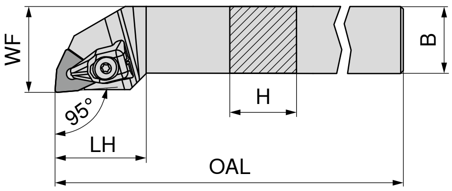
▲ TCE(NOI) = Design and number of equipped cutting edge corners



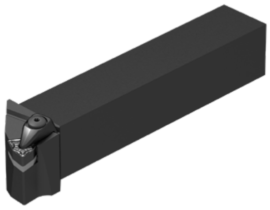
ANSI	RE inch	BN inch	GB	TCE (NOI)	LE inch	NEW CTBS05U  **F** **CBN** WNGA **71 415 ...**	CTBS20C  **F** **CBN** WNGA **71 405 ...**	CTBH20C  **F** **CBN** WNGA **71 405 ...**	CTBH40C  **F** **CBN** WNGA **71 405 ...**	NEW -Q CTBH40C  **F** **CBN** WNGA **71 414 ...**
431FN	0.016			**M (6)**	0.110			**20200**		
431SN	0.016	0.004	20°	**M (6)**	0.110		**152**		**332**	
431SN	0.016	0.004	25°	**M (6)**	0.110				**352**	
431SN	0.016	0.006	30°	**M (6)**	0.110				**372**	
431SN	0.016	0.004	20°	**M (6)**	0.110			**242**		
431SN	0.016	0.005	25°	**M (6)**	0.110			**262**		
431TN	0.016	0.004	15°	**M (6)**	0.110			**23200**		
431TN	0.016	0.004	25°	**M (6)**	0.110			**25200**		
431SN	0.016	0.004	10°	**M (6)**	0.110		**122**			
431SN	0.016	0.004	15°	**M (6)**	0.110		**132**			
431TN	0.016	0.008	30°	**V (3)**	0.110	**00100**				
431TN	0.016	0.008	30°	**V (3)**	0.177	**00200**				
432SN	0.031	0.004	10°	**M (6)**	0.098		**124**			
432TN	0.031	0.004	15°	**M (6)**	0.098			**23300**		
432SN	0.031	0.004	15°	**M (6)**	0.098		**134**			
432SN	0.031	0.004	20°	**M (6)**	0.098		**154**		**334**	
432SN	0.031	0.004	20°	**M (6)**	0.098			**244**		
432EN	0.031			**M (6)**	0.098					**60000**
432TN	0.031	0.004	25°	**M (6)**	0.098			**25300**		
432SN	0.031	0.004	25°	**M (6)**	0.098				**354**	**60100**
432SN	0.031	0.005	25°	**M (6)**	0.098			**264**	**364**	
432SN	0.031	0.006	25°	**M (6)**	0.098		**174**			
432SN	0.031	0.006	30°	**M (6)**	0.098			**274**	**376**	
432TN	0.031	0.008	30°	**V (3)**	0.102	**00300**				
432TN	0.031	0.008	30°	**V (3)**	0.165	**00400**				
432SN	0.031	0.006	35°	**M (6)**	0.098				**38200**	
433SN	0.047	0.004	20°	**M (6)**	0.087				**34200**	
433SN	0.047	0.004	25°	**M (6)**	0.087				**35100**	
433SN	0.047	0.006	30°	**M (6)**	0.087				**36100**	
433TN	0.047	0.008	30°	**V (3)**	0.157	**00600**				
433TN	0.047	0.008	30°	**V (3)**	0.094	**00500**				
433SN	0.047	0.006	35°	**M (6)**	0.087				**38300**	
P										
M										
K						●	●			
N										
S							●			
H								●	●	●
O										

MaxiLock-D – DWLN 95° – Toolholder with top clamping

▲ A... = with thru coolant



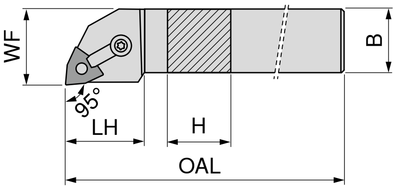
Illustrations show right-hand versions



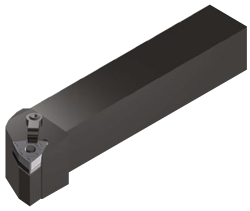
Designation	H	B	OAL	LH	WF	Insert	Left-hand 78 515 ...	Right-hand 78 514 ...
	inch	inch	inch	inch	inch			
DWLN R/L 12-4B-N	0.750	0.750	4.500	1.250	1.000	WN..43..	01293	01293
DWLN R/L 16-4D-N	1.000	1.000	6.000	1.250	1.250	WN..43..	01689	01689
DWLN R/L 20-4D-N	1.250	1.250	6.000	1.250	1.500	WN..43..	02089	02089
DWLN R/L 20-4DA-N	1.250	1.250	6.000	1.250	1.500	WN..43..	02092	02091
DWLN R/L 24-4E-N	1.500	1.500	7.000	1.250	2.000	WN..43..	02486	02486
DWLN R/L 24-4EA-N	1.500	1.500	7.000	1.250	2.000	WN..43..	02488	02488

Spare parts **for Article no.**	 Clamping claw 78 950 ...	 Key I 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat W 78 950 ...	 Threaded bush 78 950 ...	 Spring 78 950 ...
78 514 01293 / 78 515 01293	07600	08100	08300	02400	08500	04900
78 514 01689 / 78 515 01689	07600	08100	08300	02400	08500	04900
78 514 02089 / 78 515 02089	07600	08100	08300	02400	08500	04900
78 514 02091 / 78 515 02092	07600	08100	08300	02400	08500	04900
78 514 02486 / 78 515 02486	07600	08100	08300	02400	08500	04900
78 514 02488 / 78 515 02488	07600	08100	08300	02400	08500	04900

MaxiLock-M – MWLN 95° – Toolholder with top clamping



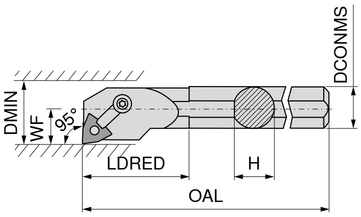
Illustrations show right-hand versions



Designation	H	B	OAL	LH	WF	Insert	Left-hand 78 551 ...	Right-hand 78 550 ...
	inch	inch	inch	inch	inch			
MWLN L 12-3B	0.750	0.750	4.500	1.000	1.000	WN..33..	01223	01223
MWLN R/L 16-3D	1.000	1.000	6.000	1.000	1.250	WN..33..	01643	01643
MWLN R/L 12-4B	0.750	0.750	4.500	1.070	1.000	WN..43..	01224	01224
MWLN R/L 16-4D	1.000	1.000	6.000	1.070	1.250	WN..43..	01644	01644
MWLN R/L 20-4D	1.250	1.250	6.000	1.070	1.500	WN..43..	02044	02044
MWLN R/L 24-4E	1.500	1.500	7.000	1.070	2.000	WN..43..	02454	02454

Spare parts **for Article no.**	 Clamp 78 950 ...	 Key I 78 950 ...	 Dowel pin 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat V 78 950 ...
78 551 01223	00600	06800	02900	03600	02200
78 550 01643 / 78 551 01643	00600	06800	02900	03600	02200
78 550 01224 / 78 551 01224	00400	07000	03100	03800	02300
78 550 01644 / 78 551 01644	00400	07000	03100	03800	02300
78 550 02044 / 78 551 02044	00400	07000	03100	03800	02300
78 550 02454 / 78 551 02454	00400	07000	03100	03800	02300

MaxiLock-M – MWLN 95° – Boring bar with top clamping



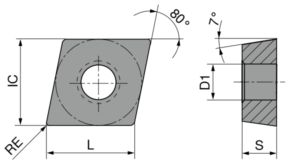
Illustrations show right-hand versions

Designation	DCONMS inch	H inch	OAL inch	LDRED inch	WF inch	DMIN inch	Insert	Left-hand 78 717 ...	Right-hand 78 716 ...
S16T MWLN R/L 4	1.000	0.900	12.000	2.500	0.640	1.280	WN..43..	**41626**	**41626**
A16T MWLN R/L 4	1.000	0.900	12.000	2.500	0.640	1.280	WN..43..	**41616**	**41616**
S20U MWLN R/L 4	1.250	1.180	14.000	3.000	0.765	1.530	WN..43..	**42030**	**42030**
A20U MWLN R/L 4	1.250	1.180	14.000	3.000	0.765	1.530	WN..43..	**42020**	**42020**
S24U MWLN R/L 4	1.500	1.370	14.000	3.000	0.890	1.780	WN..43..	**42434**	**42434**
A24U MWLN R/L 4	1.500	1.370	14.000	3.000	0.890	1.780	WN..43..	**42424**	**42424**

Spare parts for Article no.	 Clamp 78 950 ...	 Key I 78 950 ...	 Dowel pin 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat W 78 950 ...
78 716 41626 / 78 717 41626	**00400**	**06900**	**03000**	**03700**	
78 716 41616 / 78 717 41616	**00400**	**06900**	**03000**	**03700**	
78 716 42030 / 78 717 42030	**00400**	**06900**	**03100**	**03800**	**02400**
78 716 42020 / 78 717 42020	**00400**	**06900**	**03100**	**03800**	**02400**
78 716 42434 / 78 717 42434	**00400**	**06900**	**03100**	**03800**	**02400**
78 716 42424 / 78 717 42424	**00400**	**06900**	**03100**	**03800**	**02400**

CCGT / CCMT

Designation	L inch	S inch	D1 inch	IC inch
CC.T 21..	0.252	0.094	0.110	0.250
CC.T 32..	0.382	0.156	0.173	0.375
CC.T 43..	0.508	0.187	0.217	0.500



CCGT / CCMT

		-CF05 CTEP110	**-CF55** CTEP110	**-SF** TCM10	**-SMF** TCM10	**-SF** TCM407	**-SF** CTCP125	**-SF** CTCP135
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		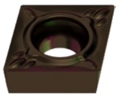	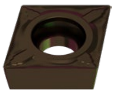	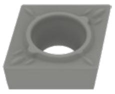	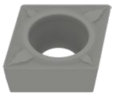	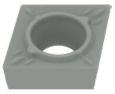	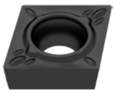	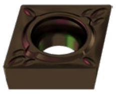
		F	**F**	**F**	**F**	**F**	**F**	**F**
		CERMET CCGT	**CERMET** CCMT	**CERMET** CCGT	**CERMET** CCMT	**CERMET** CCGT	CCGT	CCGT
		76 247 ...	76 248 ...	70 251 ...	70 249 ...	70 251 ...	76 251 ...	76 251 ...
ANSI	RE inch							
21.5.5EN	0.008	**002**		**900**		**850**	**502**	**702**
21.51EN	0.016	**004**	**004**	**902**	**900**	**852**		
32.5.5EN	0.008	**014**		**904**		**854**		
32.51EN	0.016	**016**	**016**	**906**	**904**			
32.52EN	0.031	**018**	**018**	**908**	**906**			
431EN	0.016		**028**	**910**				
P		●	●	●	●	●	●	●
M		○	○	○	○	○		○
K		○	○	○	○	○	○	
N								
S								
H								
O								

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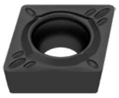
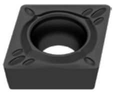
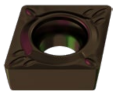
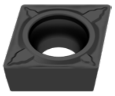
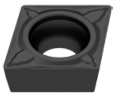
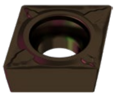
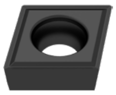
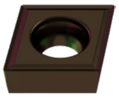
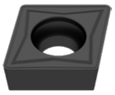
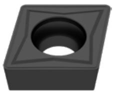
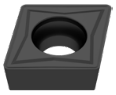
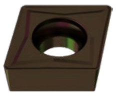
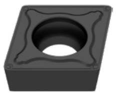
CCMT / CCGT

		-SF CTCP115	-SF CTCP125	-SF CTCP135	-SMF CTCP115	-SMF CTCP125	-SMF CTCP135	-SM CTCP125
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		● ○ ○	○ ● ○	○ ○ ●	● ○ ○	○ ● ○	○ ○ ●	○ ● ○
								
		F	F	F	F	F	F	M
		CCMT	CCMT	CCMT	CCMT	CCMT	CCMT	CCGT
		76 253 ...	76 253 ...	76 253 ...	76 249 ...	76 249 ...	76 249 ...	76 250 ...
ANSI	RE inch							
21.5.5EN	0.008							502
21.51EN	0.016	304	504	704		504	704	
21.52EN	0.031					506		
32.51EN	0.016	316	516	716	316	516	716	
32.52EN	0.031	318	518		318	518		
431EN	0.016		528			528		
432EN	0.031		530		330		730	
P		●	●	●	●	●	●	●
M				○			○	
K		○	○		○	○		○
N								
S								
H								
O								

CCGT / CCMT

		-SM CTCP135	-SM CTCK110	-SM CTCK120	-SM CTCP115	-SM CTCP125	-SM CTCP135	-SMQ CTCP115
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		○ ○ ●	● ○ ○	● ○ ○	● ○ ○	○ ● ○	○ ○ ●	● ○ ○
								
		M	M	M	M	M	M	F
		CCGT	CCMT	CCMT	CCMT	CCMT	CCMT	CCMT
		76 250 ...	70 252 ...	70 252 ...	76 252 ...	76 252 ...	76 252 ...	76 194 ...
ANSI	RE inch							
21.5.5EN	0.008	702						
21.51EN	0.016		004	554	304	504	704	
21.52EN	0.031		006	506	306		706	
32.51EN	0.016		016	516	316	516	716	31600
32.52EN	0.031		018	518	318	518	718	31800
32.53EN	0.047		020	520				
431EN	0.016		028	528	328	528	728	32800
432EN	0.031		030	530	330	530	730	330
433EN	0.047					532		
P		●	○	○	●	●	●	●
M		○					○	
K			●	●	○	○		○
N								
S								
H								
O								

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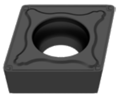
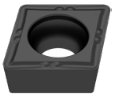
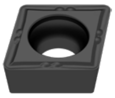
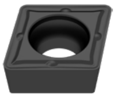
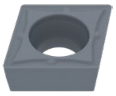
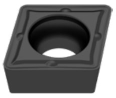
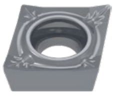
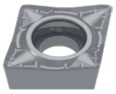
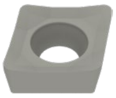
CCMT

			NEW		NEW	NEW		NEW
		-SMQ CTCP125	**-M25** CTCM120	**-M25** CTPM125	**-M25** CTCM130	**-M55** CTCM120	**-M55** CTPM125	**-M55** CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		F CCMT	**F** CCMT	**F** CCMT	**F** CCMT	**M** CCMT	**M** CCMT	**M** CCMT
		76 194 ...	**75 210 ...**	**75 210 ...**	**75 210 ...**	**75 211 ...**	**75 211 ...**	**75 211 ...**
ANSI	RE inch							
21.51EN	0.016		**10400**	**204**	**30400**	**10400**	**204**	
32.51EN	0.016	**516**	**11600**	**216**	**31600**	**11600**	**216**	**31600**
32.52EN	0.031	**518**	**11800**	**218**	**31800**	**11800**	**218**	**31800**
431EN	0.016	**528**				**12800**	**228**	**32800**
432EN	0.031	**530**				**13000**	**230**	**33000**

P	●	○	○	○	○	○	○
M		●	●	●	●	●	●
K	○						
N							
S				○			○
H							
O							

CCGT

				NEW		NEW		
		-23P H216T	**-25P** H210T	**-25P** CTPX710	**-25Q** H210T	**-25Q** CTPX710	**-27** H10T	**-27** CWN15
				DRAGONSKIN		DRAGONSKIN		
								
		F	**F**	**M**	**M**	**M**	**M**	**M**
		CCGT	CCGT	CCGT	CCGT	CCGT	CCGT	CCGT
		70 255 ...	**70 248 ...**	**70 248 ...**	**70 248 ...**	**70 248 ...**	**70 254 ...**	**70 254 ...**
ANSI	RE inch							
21.5.5FN	0.008	**652**	**636**	**70200**			**600**	**300**
21.51FN	0.016	**654**	**638**	**70400**	**678**	**75400**	**602**	**302**
32.5.5FN	0.008		**639**	**71400**			**604**	**304**
32.51FN	0.016	**656**	**640**	**71600**	**680**	**76600**	**606**	**306**
32.52FN	0.031	**658**	**641**	**71800**	**681**	**76800**	**608**	**308**
43.5FN	0.008		**643**				**610**	**310**
431FN	0.016		**642**	**72800**	**682**	**77800**	**612**	**312**
432FN	0.031		**644**	**73000**	**686**	**78000**	**614**	**314**
P				●		●		
M				●		●		○
K		○	○		○		○	
N		●	●	●	●	●	●	●
S			○	●	○	●		
H								
O		○	○		○		○	

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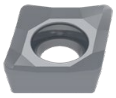
CCGT / CCMT

		NEW	NEW
		-27 CTPX715	-29 H216T
		DRAGONSKIN	
			
		M CCGT	M CCMT
		70 254 ...	70 245 ...
ANSI	RE inch		
21.5.5FN	0.008	**80200**	
21.51EN	0.016		**60400**
21.51FN	0.016	**80400**	
32.5.5FN	0.008	**81400**	
32.51EN	0.016		**61600**
32.51FN	0.016	**81600**	
32.52EN	0.031		**61800**
32.52FN	0.031	**81800**	
43.5FN	0.008	**82600**	
431FN	0.016	**82800**	
432FN	0.031	**83000**	

P	●	
M	●	
K	○	○
N	●	●
S	●	
H		
O	○	○

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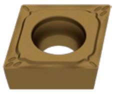
CCMT




ANSI	RE inch	NEW -FMS CT-P15 F CCMT 75 300 ...	NEW -FMS CT-P25 F CCMT 75 300 ...	NEW -MRS CT-P15 M CCMT 75 301 ...	NEW -MRS CT-P25 M CCMT 75 301 ...
32.51EN	0.016	01609	11609	01609	11609
32.52EN	0.031	01809	11809	01809	11809
431EN	0.016	02809	12809	02809	12809
432EN	0.031	03009	13009	03009	13009
433EN	0.047			03209	13209
P		●	●	●	●
M		○	○	○	○
K					
N					
S					
H					
O					

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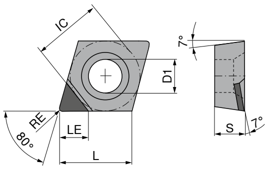
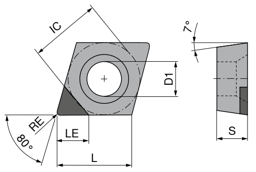
CCGW / CCGT

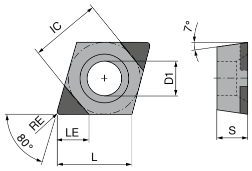
Designation	L inch	S inch	D1 inch	IC inch
CCG. 21..	0.252	0.094	0.110	0.250
CCGW 21..	0.254	0.094	0.110	0.250
CCG. 32..	0.382	0.156	0.173	0.375
CCGW 43..	0.508	0.187	0.217	0.500



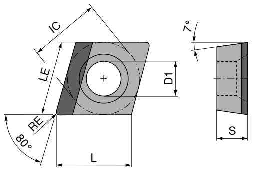
CCGT A



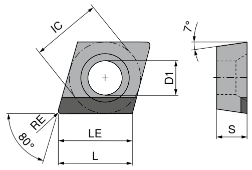
CCGW A



CCGW B



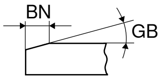
CCGW A LL

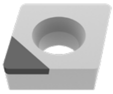
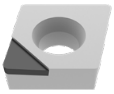
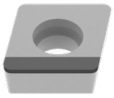


CCGW A RR

CCGW / CCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners



ANSI	RE inch	BN inch	GB	TCE (NOI)	LE inch	NEW CTBS10U ○ ◌ ◌  F CBN CCGW 71 419 ...	CTBS10U ○ ◌ ◌  F CBN CCGW 71 120 ...	CTBS10U ○ ◌ ◌  F CBN CCGT 71 124 ...	NEW CTBS10U ○ ◌ ◌  F CBN CCGW 71 420 ...	NEW CTBS10U ○ ◌ ◌  F CBN CCGW 71 420 ...
21.5.5TN	0.008	0.005	20°	A (1)	0.134		300			
21.5.5FN	0.008			A (1)	0.134		200	200		
21.51TN	0.016	0.005	20°	A (1)	0.122		302			
21.51FN	0.016			A (1)	0.122		202	202		
21.52TN	0.031	0.005	20°	A (1)	0.110		30300			
32.5.5FN	0.008			A (1)	0.134			25000		
32.51FN	0.016			A (1)	0.110		204			
32.51TLL	0.016	0.005	20°	A (1)	0.382					10000
32.51TRR	0.016	0.005	20°	A (1)	0.382				10100	
32.51FN	0.016			A (1)	0.122			25200		
32.51TN	0.016	0.005	20°	A (1)	0.110		304			
32.51FN	0.016			B (2)	0.122	10000				
32.51TN	0.016	0.005	20°	B (2)	0.122	10100				
32.52FN	0.031			A (1)	0.098		206			
32.52TLL	0.031	0.005	20°	A (1)	0.382					10200
32.52TRR	0.031	0.005	20°	A (1)	0.382				10300	
32.52TN	0.031	0.005	20°	A (1)	0.098		306			
431FN	0.016			A (1)	0.122		208			
431TN	0.016	0.005	20°	A (1)	0.122		308			
432TN	0.031	0.005	20°	A (1)	0.110		310			
432FN	0.031			A (1)	0.110		210			

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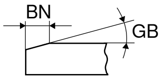
CCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners








ANSI	RE inch	BN inch	GB	TCE (NOI)	LE inch	NEW CTBS20U F CBN CCGW 71 418 ...	NEW CTBS20U F CBN CCGW 71 420 ...	-Q CTBS20C F CBN CCGW 71 162 ...	CTBS20C F CBN CCGW 71 161 ...	CTBH20C F CBN CCGW 71 161 ...	-Q CTBH20C F CBN CCGW 71 162 ...
21.5.5SN	0.008	0.004	10°	**B (2)**	0.134			**120**		**230**	**230**
21.5.5SN	0.008	0.004	15°	**B (2)**	0.134			**130**			**240**
21.5.5TN	0.008	0.005	15°	**A (1)**	0.134	**20000**					
21.5.5SN	0.008	0.004	20°	**B (2)**	0.134					**250**	
21.5.5TN	0.008	0.006	20°	**B (2)**	0.134			**140**			
21.5.5SN	0.008	0.006	20°	**B (2)**	0.134			**150**	**150**		
21.5.5TN	0.008	0.006	25°	**B (2)**	0.134					**260**	
21.5.5SN	0.008	0.006	25°	**B (2)**	0.134					**270**	
21.5.5FN	0.008			**B (2)**	0.134						**210**
21.5.5EN	0.008			**B (2)**	0.134			**110**	**110**		**220**
21.5.5TN	0.008	0.007	25°	**B (2)**	0.134			**160**	**160**		
21.51SN	0.016	0.004	10°	**B (2)**	0.122			**121**	**121**	**231**	**231**
21.51SN	0.016	0.004	15°	**B (2)**	0.122			**131**	**131**	**241**	**241**
21.51SN	0.016	0.005	15°	**A (1)**	0.122	**20200**					
21.51SN	0.016	0.004	20°	**B (2)**	0.122					**251**	**251**
21.51TN	0.016	0.006	20°	**B (2)**	0.122			**141**	**141**		
21.51EN	0.016			**B (2)**	0.122					**221**	
21.51FN	0.016			**A (1)**	0.122	**20100**					
21.51SN	0.016	0.006	20°	**B (2)**	0.122			**151**	**151**		
21.51TN	0.016	0.006	25°	**B (2)**	0.122					**261**	**261**
21.51SN	0.016	0.006	25°	**B (2)**	0.122					**271**	
21.51TN	0.016	0.007	25°	**B (2)**	0.122			**161**	**161**		
21.51SN	0.016	0.007	25°	**B (2)**	0.122			**171**			
21.52EN	0.031			**B (2)**	0.110				**112**		
21.52FN	0.031			**B (2)**	0.110					**212**	
21.52SN	0.031	0.004	10°	**B (2)**	0.110				**122**	**232**	
21.52SN	0.031	0.004	20°	**B (2)**	0.110					**252**	
21.52TN	0.031	0.006	25°	**B (2)**	0.110					**262**	
21.52SN	0.031	0.007	30°	**B (2)**	0.110				**182**	**282**	
21.52TN	0.031	0.006	20°	**B (2)**	0.110				**142**		
21.52TN	0.031	0.007	25°	**B (2)**	0.110				**162**		
21.52SN	0.031	0.004	15°	**B (2)**	0.110				**132**		
21.52SN	0.031	0.007	25°	**B (2)**	0.110				**172**		
32.5.5SN	0.008	0.004	10°	**B (2)**	0.134				**123**	**233**	
32.5.5SN	0.008	0.004	15°	**B (2)**	0.134				**133**	**243**	
32.5.5SN	0.008	0.004	20°	**B (2)**	0.134					**253**	
32.5.5SN	0.008	0.006	20°	**B (2)**	0.134				**153**		
32.5.5SN	0.008	0.006	25°	**B (2)**	0.134					**273**	
32.5.5EN	0.008			**B (2)**	0.134				**113**		
32.5.5TN	0.008	0.007	25°	**B (2)**	0.134				**163**		
32.5.5SN	0.008	0.007	25°	**B (2)**	0.134				**173**		
32.51SN	0.016	0.004	10°	**B (2)**	0.122			**124**	**124**	**234**	
32.51SN	0.016	0.004	15°	**B (2)**	0.122			**134**	**134**	**244**	
32.51SN	0.016	0.005	15°	**A (1)**	0.110	**20400**					
32.51SN	0.016	0.004	20°	**B (2)**	0.122					**254**	
32.51TN	0.016	0.006	20°	**B (2)**	0.122			**144**	**144**		
32.51EN	0.016			**B (2)**	0.122				**114**	**224**	
32.51FN	0.016			**A (1)**	0.110	**20300**					
32.51SN	0.016	0.006	20°	**B (2)**	0.122			**154**	**154**		
32.51TN	0.016	0.006	25°	**B (2)**	0.122					**264**	
32.51SN	0.016	0.006	25°	**B (2)**	0.122					**274**	
32.51TN	0.016	0.007	25°	**B (2)**	0.122			**164**	**164**		
P											
M											
K						●	●	●	●		
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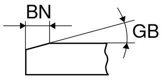
4

→ v_c Page 164–171

Continued on next page

CCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



ANSI	RE inch	BN inch	GB	TCE (NOI)	LE inch	NEW CTBS20U F CBN CCGW 71 418 ...	NEW CTBS20U F CBN CCGW 71 420 ...	-Q CTBS20C F CBN CCGW 71 162 ...	CTBS20C F CBN CCGW 71 161 ...	CTBH20C F CBN CCGW 71 161 ...	-Q CTBH20C F CBN CCGW 71 162 ...
32.51SN	0.016	0.007	25°	**B (2)**	0.122			**174**	**174**		
32.51SN	0.016	0.007	30°	**B (2)**	0.122				**184**	**284**	
32.52SN	0.031	0.004	10°	**B (2)**	0.110			**125**	**125**	**235**	**235**
32.52SN	0.031	0.004	15°	**B (2)**	0.110			**135**		**245**	**245**
32.52TLL	0.031	0.005	15°	**A (1)**	0.382		**20000**				
32.52TN	0.031	0.005	15°	**A (1)**	0.098	**20600**					
32.52SN	0.031	0.004	20°	**B (2)**	0.110						**255**
32.52TN	0.031	0.006	20°	**B (2)**	0.110			**145**	**145**		
32.52SN	0.031	0.006	20°	**B (2)**	0.110			**155**	**155**		
32.52FN	0.031			**B (2)**	0.110						**215**
32.52EN	0.031			**B (2)**	0.110			**115**			**225**
32.52FN	0.031			**A (1)**	0.098	**20500**					
32.52TN	0.031	0.006	25°	**B (2)**	0.110					**265**	**265**
32.52SN	0.031	0.006	25°	**B (2)**	0.110					**275**	
32.52TN	0.031	0.007	25°	**B (2)**	0.110			**165**	**165**		
32.52SN	0.031	0.007	25°	**B (2)**	0.110				**175**		
32.52SN	0.031	0.007	30°	**B (2)**	0.110				**185**		
431TN	0.016	0.005	15°	**A (1)**	0.122	**20800**					
431FN	0.016			**A (1)**	0.122	**20700**					
432TN	0.031	0.005	15°	**A (1)**	0.110	**20900**					

	71 418 ...	71 420 ...	71 162 ...	71 161 ...	71 161 ...	71 162 ...
P						
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N						
S	●	●	●	●		
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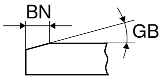
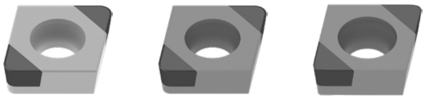
CCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners





ANSI	RE inch	BN inch	GB	TCE (NOI)	LE inch	NEW CTBH15U F CBN CCGW 71 001 ...	NEW CTBH15C F CBN CCGW 71 000 ...	NEW -Q CTBH15C F CBN CCGW 71 002 ...
21.5.5SN	0.008	0.004	15°	**B (2)**	0.134	**30214**	**30214**	
21.5.5EN	0.008			**B (2)**	0.134	**00200**	**00200**	
21.51SN	0.016	0.004	15°	**B (2)**	0.122	**30414**	**30414**	
21.51EN	0.016			**B (2)**	0.122	**00400**	**00400**	
21.51SN	0.016	0.006	25°	**B (2)**	0.122	**30429**	**30429**	
21.52EN	0.031			**B (2)**	0.110	**00600**	**00600**	
21.52SN	0.031	0.004	15°	**B (2)**	0.110	**30614**	**30614**	
21.52SN	0.031	0.006	25°	**B (2)**	0.110	**30629**	**30629**	
32.5.5SN	0.008	0.004	15°	**B (2)**	0.134		**31414**	
32.5.5SN	0.008	0.006	25°	**B (2)**	0.134		**31429**	
32.51SN	0.016	0.004	15°	**B (2)**	0.122		**31614**	**31614**
32.51SN	0.016	0.006	25°	**B (2)**	0.122		**31629**	**31629**
32.52SN	0.031	0.004	15°	**B (2)**	0.110		**31814**	**31814**
32.52SN	0.031	0.006	25°	**B (2)**	0.110		**31829**	**31829**

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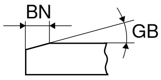
CCGW / CCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners



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						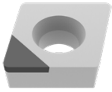	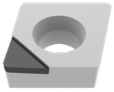			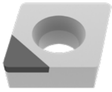	
						F	F	F	F	F	F
						CBN CCGW	CBN CCGT	CBN CCGW	CBN CCGW	CBN CCGW	CBN CCGW
						71 120 ...	71 124 ...	71 121 ...	71 123 ...	71 120 ...	71 161 ...
ANSI	RE inch	BN inch	GB	**TCE (NOI)**	LE inch						
21.5.5SN	0.008	0.004	10°	**B (2)**	0.134						**230**
21.5.5SN	0.008	0.004	20°	**B (2)**	0.134						**250**
21.5.5TN	0.008	0.005	20°	**A (1)**	0.134					**500**	
21.5.5TN	0.008	0.006	25°	**B (2)**	0.134						**260**
21.5.5SN	0.008	0.006	25°	**B (2)**	0.134						**270**
21.5.5FN	0.008			**A (1)**	0.134		**400**			**400** 1)	
21.51SN	0.016	0.004	10°	**B (2)**	0.122						**231**
21.51SN	0.016	0.004	15°	**B (2)**	0.122						**241**
21.51SN	0.016	0.004	20°	**B (2)**	0.122						**251**
21.51TN	0.016	0.005	20°	**A (1)**	0.122					**502**	
21.51TN	0.016	0.006	25°	**B (2)**	0.122						**261**
21.51SN	0.016	0.006	25°	**B (2)**	0.122						**271**
21.51EN	0.016			**B (2)**	0.122						**221**
21.51FN	0.016			**A (1)**	0.122		**402**			**402** 1)	
21.52SN	0.031	0.004	10°	**B (2)**	0.110						**232**
21.52SN	0.031	0.004	20°	**B (2)**	0.110						**252**
21.52FN	0.031			**B (2)**	0.110						**212**
21.52TN	0.031	0.006	25°	**B (2)**	0.110						**262**
21.52SN	0.031	0.007	30°	**B (2)**	0.110						**282**
32.5.5SN	0.008	0.004	10°	**B (2)**	0.134						**233**
32.5.5SN	0.008	0.004	15°	**B (2)**	0.134						**243**
32.5.5SN	0.008	0.004	20°	**B (2)**	0.134						**253**
32.5.5TN	0.008	0.005	20°	**B (2)**	0.134			**50100**			
32.5.5SN	0.008	0.006	25°	**B (2)**	0.134						**273**
32.51SN	0.016	0.004	10°	**B (2)**	0.122						**234**
32.51SN	0.016	0.004	15°	**B (2)**	0.122						**244**
32.51SN	0.016	0.004	20°	**B (2)**	0.122						**254**
32.51TN	0.016	0.005	20°	**A (1)**	0.110					**504**	
32.51TN	0.016	0.005	20°	**B (2)**	0.122			**502**	**502**		
32.51TN	0.016	0.006	25°	**B (2)**	0.122						**264**
32.51SN	0.016	0.006	25°	**B (2)**	0.122						**274**
32.51EN	0.016			**B (2)**	0.122						**224**
32.51FN	0.016			**A (1)**	0.110					**404** 1)	
32.51FN	0.016			**B (2)**	0.122			**402** 1)			
32.51FN	0.016			**A (1)**	0.122	**40500**	**45000**				
32.51SN	0.016	0.007	30°	**B (2)**	0.122						**284**
32.52SN	0.031	0.004	10°	**B (2)**	0.110						**235**
32.52SN	0.031	0.004	15°	**B (2)**	0.110						**245**
32.52TN	0.031	0.005	20°	**A (1)**	0.098					**506**	
32.52FN	0.031			**A (1)**	0.098					**406** 1)	
32.52FN	0.031			**B (2)**	0.110			**404** 1)	**404** 1)		
32.52TN	0.031	0.005	20°	**B (2)**	0.110			**504**	**504**		
32.52FN	0.031			**A (1)**	0.110		**45200**				
32.52TN	0.031	0.006	25°	**B (2)**	0.110						**265**
32.52SN	0.031	0.006	25°	**B (2)**	0.110						**275**
431TN	0.016	0.005	20°	**A (1)**	0.122					**508**	
432TN	0.031	0.005	20°	**A (1)**	0.110					**510**	
P											
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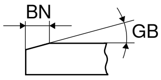
1) Machining to 60 HRC

CCGW / CCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners



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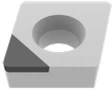
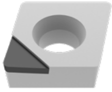
						-Q CTBH20C	CTBH40U	CTBH40U	CTBH40U	-Q CTBH40U
										
						F	F	F	F	F
						CBN CCGW	CBN CCGW	CBN CCGT	CBN CCGW	CBN CCGW
ANSI	RE inch	BN inch	GB	**TCE (NOI)**	LE inch					
21.5.5SN	0.008	0.004	10°	**B (2)**	0.134	**230**				
21.5.5FN	0.008			**A (1)**	0.134		**800**	**800**		
21.5.5FN	0.008			**B (2)**	0.134	**210**				
21.5.5EN	0.008			**B (2)**	0.134	**220**				
21.5.5SN	0.008	0.004	15°	**B (2)**	0.134	**240**				
21.5.5TN	0.008	0.005	25°	**A (1)**	0.134		**900**			
21.51SN	0.016	0.004	10°	**B (2)**	0.122	**231**				
21.51FN	0.016			**A (1)**	0.122		**802**	**802**		
21.51SN	0.016	0.004	15°	**B (2)**	0.122	**241**				
21.51SN	0.016	0.004	20°	**B (2)**	0.122	**251**				
21.51TN	0.016	0.005	25°	**A (1)**	0.122		**902**			
21.51TN	0.016	0.006	25°	**B (2)**	0.122	**261**				
21.52TN	0.031	0.005	25°	**A (1)**	0.110		**90300**			
32.5.5FN	0.008			**B (2)**	0.134				**80100**	
32.51FN	0.016			**A (1)**	0.122			**85000**		
32.51FN	0.016			**B (2)**	0.122				**802**	**802**
32.51TN	0.016	0.005	25°	**B (2)**	0.122				**902**	**902**
32.51FN	0.016			**A (1)**	0.110		**804**			
32.51TN	0.016	0.005	25°	**A (1)**	0.110		**904**			
32.52FN	0.031			**A (1)**	0.098		**806**			
32.52FN	0.031			**B (2)**	0.110	**215**			**804**	**804**
32.52TN	0.031	0.005	25°	**B (2)**	0.110				**904**	**904**
32.52TN	0.031	0.005	25°	**A (1)**	0.098		**906**			
32.52EN	0.031			**B (2)**	0.110	**225**				
32.52SN	0.031	0.004	10°	**B (2)**	0.110	**235**				
32.52SN	0.031	0.004	15°	**B (2)**	0.110	**245**				
32.52SN	0.031	0.004	20°	**B (2)**	0.110	**255**				
32.52TN	0.031	0.006	25°	**B (2)**	0.110	**265**				
431TN	0.016	0.005	25°	**A (1)**	0.122		**908**			
431FN	0.016			**A (1)**	0.122		**808**			
432TN	0.031	0.005	25°	**A (1)**	0.110		**910**			
P										
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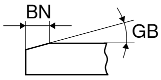
→ v_c Page 164–171

CCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



	-Q
CTBH40C	CTBH40C

ANSI	RE inch	BN inch	GB	TCE (NOI)	LE inch	F CBN CCGW 71 161 ...	F CBN CCGW 71 162 ...
21.5.5TN	0.008	0.004	20°	B (2)	0.134	320	
21.5.5SN	0.008	0.004	20°	B (2)	0.134		330
21.5.5SN	0.008	0.004	25°	B (2)	0.134	350	350
21.5.5TN	0.008	0.004	25°	B (2)	0.134	340	340
21.5.5TN	0.008	0.006	30°	B (2)	0.134	360	360
21.51SN	0.016	0.004	20°	B (2)	0.122	331	
21.51TN	0.016	0.004	20°	B (2)	0.122	32100	
21.51SN	0.016	0.004	25°	B (2)	0.122	351	351
21.51TN	0.016	0.004	25°	B (2)	0.122	341	341
21.51TN	0.016	0.006	30°	B (2)	0.122	361	361
21.51SN	0.016	0.006	30°	B (2)	0.122	371	371
21.51SN	0.016	0.007	35°	B (2)	0.122	381	381
21.52TN	0.031	0.004	20°	B (2)	0.110	322	
21.52SN	0.031	0.004	25°	B (2)	0.110	352	
21.52TN	0.031	0.004	25°	B (2)	0.110	342	
21.52TN	0.031	0.006	30°	B (2)	0.110	362	
21.52SN	0.031	0.006	30°	B (2)	0.110	372	
21.52SN	0.031	0.007	35°	B (2)	0.110	382	
32.5.5TN	0.008	0.004	20°	B (2)	0.134	323	
32.5.5SN	0.008	0.004	25°	B (2)	0.134	353	
32.5.5TN	0.008	0.004	25°	B (2)	0.134	343	
32.5.5SN	0.008	0.006	30°	B (2)	0.134	373	
32.5.5SN	0.008	0.007	35°	B (2)	0.134	383	
32.51SN	0.016	0.004	20°	B (2)	0.122	334	334
32.51TN	0.016	0.004	20°	B (2)	0.122	324	324
32.51SN	0.016	0.004	25°	B (2)	0.122	354	354
32.51TN	0.016	0.004	25°	B (2)	0.122	344	344
32.51TN	0.016	0.006	30°	B (2)	0.122	364	364
32.51EN	0.016			B (2)	0.122	314	
32.51SN	0.016	0.006	30°	B (2)	0.122	374	
32.51SN	0.016	0.007	35°	B (2)	0.122	384	
32.52SN	0.031	0.004	20°	B (2)	0.110	335	335
32.52TN	0.031	0.004	20°	B (2)	0.110	325	325
32.52SN	0.031	0.004	25°	B (2)	0.110	355	355
32.52TN	0.031	0.004	25°	B (2)	0.110	345	345
32.52TN	0.031	0.006	30°	B (2)	0.110	365	365
32.52SN	0.031	0.006	30°	B (2)	0.110		375
32.52EN	0.031			B (2)	0.110		315
32.52SN	0.031	0.007	35°	B (2)	0.110	385	

	71 161 ...	71 162 ...
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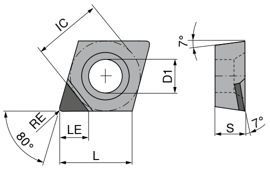
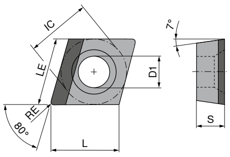
CCGW / CCGT

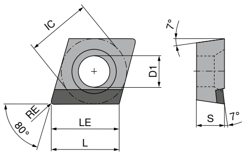
Designation	L inch	S inch	D1 inch	IC inch
CCG. 21..	0.252	0.094	0.110	0.250
CCG. 32..	0.382	0.156	0.173	0.375
CCG. 43..	0.508	0.187	0.217	0.500



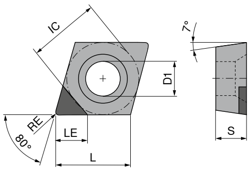
CCGT A



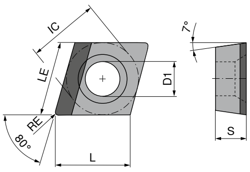
CCGT A LL



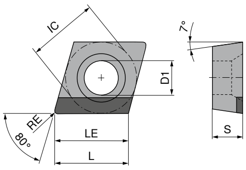
CCGT A RR



CCGW A



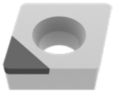
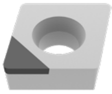
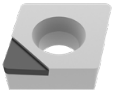
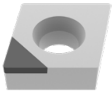
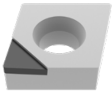
CCGW A LL



CCGW A RR

CCGW / CCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

ANSI	RE inch	TCE (NOI)	LE inch	CTDMD05 ○ ○ ○  F DIAMOND CCGW 71 120 ...	CTDPD20 ○ ○ ○  F DIAMOND CCGW 71 120 ...	CTDPD20 ○ ○ ○  F DIAMOND CCGT 71 124 ...	-Q CTDPD20 ○ ○ ○  F DIAMOND CCGW 71 125 ...	-Q CTDPD20 ○ ○ ○  F DIAMOND CCGT 71 126 ...
21.50FN	0.004	A (1)	0.134					101
21.50FN	0.004	A (1)	0.138			10100		
21.5.5FN	0.008	A (1)	0.098	050				
21.5.5FN	0.008	A (1)	0.130				102	102
21.5.5FN	0.008	A (1)	0.134		100	100		
21.51FN	0.016	A (1)	0.098	052				
21.51FN	0.016	A (1)	0.122					104
21.51FN	0.016	A (1)	0.126		102	102	104	
21.52FN	0.031	A (1)	0.098	05300				
21.52FN	0.031	A (1)	0.118		10300	10300		
32.50FN	0.004	A (1)	0.177				111	111
32.5.5FN	0.008	A (1)	0.173				112	112
32.5.5FN	0.008	A (1)	0.177		10500	10500		
32.51FN	0.016	A (1)	0.098	054				
32.51FN	0.016	A (1)	0.165				114	114
32.51FN	0.016	A (1)	0.169		104	104		
32.52FN	0.031	A (1)	0.098	056				
32.52FN	0.031	A (1)	0.161		106	106		
43.5FN	0.008	A (1)	0.173				122	122
431FN	0.016	A (1)	0.165				124	124
431FN	0.016	A (1)	0.169		108	108		
432FN	0.031	A (1)	0.161		110	110		
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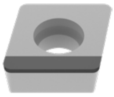
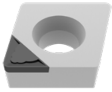
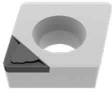
→ v_c Page 164–171

CCGW / CCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

ANSI	RE inch	TCE (NOI)	LE inch	NEW CTDPD20	NEW CTDPD20	-CB1 CTDPD20	NEW -CB2 CTDPD20	-CB1 CTDPD20	NEW -Q-CB2 CTDPD20
				○	○	○	○	○	○
									
				F DIAMOND CCGW	F DIAMOND CCGW	F DIAMOND CCGT	M DIAMOND CCGT	F DIAMOND CCGT	M DIAMOND CCGT
				71 172 ...	71 172 ...	71 300 ...	71 168 ...	71 305 ...	71 169 ...
21.5.5FN	0.008	**A** (1)	0.134			102			
21.51FN	0.016	**A** (1)	0.122					104	
21.51FN	0.016	**A** (1)	0.126			104	10001		
21.51FRR	0.016	**A** (1)	0.254		10101				
21.51FLL	0.016	**A** (1)	0.254	10001					
21.52FN	0.031	**A** (1)	0.118			10600			
32.5.5FN	0.008	**A** (1)	0.173						10001
32.5.5FN	0.008	**A** (1)	0.177			112			
32.51FN	0.016	**A** (1)	0.165					114	10101
32.51FN	0.016	**A** (1)	0.169			114			
32.52FN	0.031	**A** (1)	0.161			118			
32.52FRR	0.031	**A** (1)	0.382		10301				
32.52FLL	0.031	**A** (1)	0.382	10201					
32.53FLL	0.047	**A** (1)	0.382	10401					
431FN	0.016	**A** (1)	0.165					124	10201
431FN	0.016	**A** (1)	0.169			124			
432FN	0.031	**A** (1)	0.161			128			
433FRR	0.047	**A** (1)	0.508		10601				
433FLL	0.047	**A** (1)	0.508	10501					

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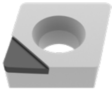
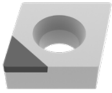
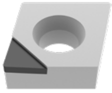
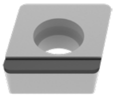
→ v_c Page 164–171

CCGT / CCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				NEW			NEW	NEW	
					-Q	-Q			-CB2
				CTDPS30	CTDPS30	CTDPS30	CTDPS30	CTDPS30	CTDPS30
				○ ◌ ◌	○ ◌ ◌	○ ◌ ◌	○ ◌ ◌	○ ◌ ◌	○ ◌ ◌
									
				F	F	F	F	F	M
				DIAMOND	DIAMOND	DIAMOND	DIAMOND	DIAMOND	DIAMOND
				CCGT	CCGW	CCGT	CCGT	CCGT	CCGT
				71 166 ...	71 125 ...	71 126 ...	71 170 ...	71 170 ...	71 301 ...
ANSI	RE inch	**TCE (NOI)**	LE inch						
21.50FN	0.004	**A (1)**	0.138	**20001**					
21.5.5FN	0.008	**A (1)**	0.130		**152**	**152**			
21.5.5FN	0.008	**A (1)**	0.134	**20101**					**202**
21.51FN	0.016	**A (1)**	0.126						**204**
21.51FRR	0.016	**A (1)**	0.254					**20101**	
21.51FLL	0.016	**A (1)**	0.254				**20001**		
21.52FN	0.031	**A (1)**	0.118						**208**
21.52FRR	0.031	**A (1)**	0.254					**20301**	
21.52FLL	0.031	**A (1)**	0.254				**20201**		
32.50FN	0.004	**A (1)**	0.177		**16300**				
32.5.5FN	0.008	**A (1)**	0.173		**162**	**162**			
32.5.5FN	0.008	**A (1)**	0.177	**20201**					**212**
32.51FN	0.016	**A (1)**	0.169						**214**
32.52FN	0.031	**A (1)**	0.161						**218**
32.52FRR	0.031	**A (1)**	0.382					**20501**	
32.52FLL	0.031	**A (1)**	0.382				**20401**		
43.5FN	0.008	**A (1)**	0.173			**172**			
431FN	0.016	**A (1)**	0.165			**174**			
431FN	0.016	**A (1)**	0.169	**20301**					**224**
432FN	0.031	**A (1)**	0.161						**228**
433FRR	0.047	**A (1)**	0.508					**20701**	
433FLL	0.047	**A (1)**	0.508				**20601**		

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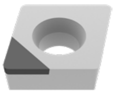
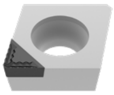
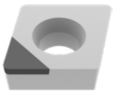
→ v_c Page 164–171

CCGT / CCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

ANSI	RE inch	TCE (NOI)	LE inch	-Q-CB2 CTDPS30 M DIAMOND CCGT 71 306 ...	NEW CTDPU20 F DIAMOND CCGW 71 171 ...	-CB3 CTDPU20 R DIAMOND CCGT 71 302 ...	NEW CTDPS30 F DIAMOND CCGW 71 171 ...
21.50FN	0.004	**A (1)**	0.138				**20001**
21.5.5FN	0.008	**A (1)**	0.130	**202**			
21.5.5FN	0.008	**A (1)**	0.134				**20101**
21.51FN	0.016	**A (1)**	0.122	**204**			
21.51FN	0.016	**A (1)**	0.126			**204**	**20201**
32.5.5FN	0.008	**A (1)**	0.173	**212**			
32.5.5FN	0.008	**A (1)**	0.177				**20301**
32.51FN	0.016	**A (1)**	0.165	**214**			
32.51FN	0.016	**A (1)**	0.169		**30001**	**214**	**20401**
32.52FN	0.031	**A (1)**	0.161		**30101**	**218**	
43.5FN	0.008	**A (1)**	0.173	**222**			
431FN	0.016	**A (1)**	0.165	**224**			
431FN	0.016	**A (1)**	0.169				**20501**

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H				
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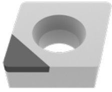
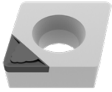
→ v_c Page 164–171

CCGW / CCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				NEW		NEW		
				CTDCD10	-CB1 CTDCD10	-Q-CB1 CTDCD10	-CB2 CTDCD10	-Q-CB2 CTDCD10
								
				F	F	F	M	M
				DIAMOND CCGW	DIAMOND CCGT	DIAMOND CCGT	DIAMOND CCGT	DIAMOND CCGT
ANSI	RE inch	**TCE (NOI)**	LE inch	**71 171 ...**	**71 300 ...**	**71 167 ...**	**71 301 ...**	**71 306 ...**
21.5.5FN	0.008	**A (1)**	0.091			**40001**		
21.5.5FN	0.008	**A (1)**	0.094	**40001**	**302**		**30200**	
21.51FN	0.016	**A (1)**	0.083			**40101**		**304**
21.51FN	0.016	**A (1)**	0.087	**40101**	**304**		**304**	
21.52FN	0.031	**A (1)**	0.079		**30600**			
32.5.5FN	0.008	**A (1)**	0.091					**31200**
32.5.5FN	0.008	**A (1)**	0.094	**40201**			**31200**	
32.51FN	0.016	**A (1)**	0.083			**40201**		**314**
32.51FN	0.016	**A (1)**	0.087	**40301**	**314**		**314**	
32.52FN	0.031	**A (1)**	0.079	**40401**			**31600**	
431FN	0.016	**A (1)**	0.083			**40301**		**324**
431FN	0.016	**A (1)**	0.087				**32600**	
432FN	0.031	**A (1)**	0.079	**40501**				
432FN	0.031	**A (1)**	0.083				**328**	

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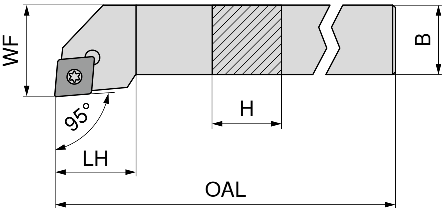
→ v_c Page 164–171

MaxiLock-S – SCLC 95° – Toolholder with screw clamping

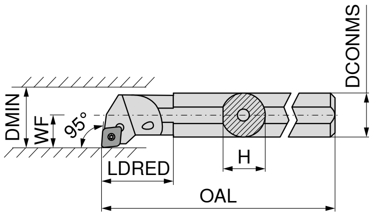


Illustrations show right-hand versions

Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand 78 553 ...	Right-hand 78 552 ...
SCLC R/L 06-2	0.375	0.375	2.500	0.390	0.500	CC..21.5..	**00602**	**00602**
SCLC R/L 08-3	0.500	0.500	3.500	0.630	0.625	CC..32.5..	**00803**	**00803**
SCLC R/L 10-3	0.625	0.625	4.000	0.630	0.750	CC..32.5..	**01003**	**01003**
SCLC R/L 12-3B	0.750	0.750	4.500	0.630	1.000	CC..32.5..	**01223**	**01223**
SCLC R/L 16-3D	1.000	1.000	6.000	0.630	1.250	CC..32.5..	**01643**	**01643**
SCLC R/L 12-4B	0.750	0.750	4.500	1.000	1.000	CC..43..	**01224**	**01224**
SCLC R/L 16-4D	1.000	1.000	6.000	1.000	1.250	CC..43..	**01644**	**01644**
SCLC R/L 20-4D	1.250	1.250	6.000	1.000	1.500	CC..43..	**02044**	**02044**

Spare parts **for Article no.**	 Key I 78 950 ...	 Clamping screw 78 950 ...	 Carbide type C 78 950 ...	 Threaded sleeve 78 950 ...
78 552 00602 / 78 553 00602	**06400**	**06200**		
78 552 00803 / 78 553 00803	**05700**	**05600**		
78 552 01003 / 78 553 01003	**05700**	**05600**		
78 552 01223 / 78 553 01223	**05700**	**05600**		
78 552 01643 / 78 553 01643	**05700**	**05600**		
78 552 01224 / 78 553 01224	**04700**		**04500**	**04800**
78 552 01644 / 78 553 01644	**04700**		**04500**	**04800**
78 552 02044 / 78 553 02044	**04700**		**04500**	**04800**

MaxiLock-S – SCLC 95° – Boring bar with screw clamping



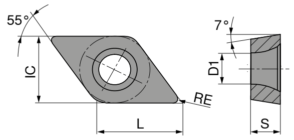
Illustrations show right-hand versions

Designation	DCONMS inch	H inch	OAL inch	LDRED inch	WF inch	DMIN inch	Insert	Left-hand 78 719 ...	Right-hand 78 718 ...
S06M SCLC R/L 2	0.375	0.340	6.000	0.830	0.250	0.500	CC..21.5..	**20617**	**20617**
A06M SCLC R/L 2	0.375	0.340	6.000	0.830	0.250	0.500	CC..21.5..	**20606**	**20606**
S08M SCLC R/L 2	0.500	0.460	6.000	0.910	0.312	0.625	CC..21.5..	**20818**	**20818**
A08M SCLC R/L 2	0.500	0.460	6.000	0.910	0.312	0.625	CC..21.5..	**20808**	**20808**
S10R SCLC R/L 2	0.625	0.580	8.000	1.060	0.406	0.812	CC..21.5..	**21021**	**21021**
A10R SCLC R/L 2	0.625	0.580	8.000	1.060	0.406	0.812	CC..21.5..	**21010**	**21010**
S10R SCLC R/L 3	0.625	0.580	8.000	1.060	0.406	0.812	CC..32.5..	**31021**	**31021**
A10R SCLC R/L 3	0.625	0.580	8.000	1.060	0.406	0.812	CC..32.5..	**31010**	**31010**
S12S SCLC R/L 3M	0.750	0.710	10.000	1.580	0.500	1.000	CC..32.5..	**91222**	**91222**
A12S SCLC R/L 3M	0.750	0.710	10.000	1.580	0.500	1.000	CC..32.5..	**91212**	**91212**
S16T SCLC R/L 3M	1.000	0.900	12.000	1.810	0.640	1.280	CC..32.5..	**91626**	**91626**
S16T SCLC R/L 4	1.000	0.900	12.000	3.000	0.640	1.280	CC..43..	**41626**	**41626**
S20U SCLC R/L 4	1.250	1.180	14.000	3.000	0.765	1.530	CC..43..	**42030**	**42030**
S24V SCLC R/L 4	1.500	1.370	16.000	3.000	0.890	1.780	CC..43..	**42435**	**42435**

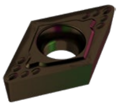
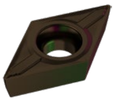
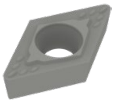
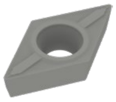
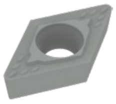
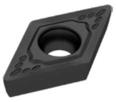
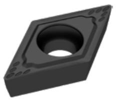
Spare parts for Article no.	 Key I 78 950 ...	 Clamping screw 78 950 ...	 Carbide type C 78 950 ...	 Threaded sleeve 78 950 ...
78 718 20617 / 78 719 20617	**06400**	**05200**		
78 718 20606 / 78 719 20606	**06400**	**05200**		
78 718 20818 / 78 719 20818	**06400**	**05200**		
78 718 20808 / 78 719 20808	**06400**	**05200**		
78 718 21021 / 78 719 21021	**06400**	**05200**		
78 718 21010 / 78 719 21010	**06400**	**05200**		
78 718 31021 / 78 719 31021	**06400**	**05200**		
78 718 31010 / 78 719 31010	**05700**	**05800**		
78 718 91222 / 78 719 91222	**05700**	**05800**		
78 718 91212 / 78 719 91212	**05700**	**05800**		
78 718 91626 / 78 719 91626	**05700**	**05800**		
78 718 41626 / 78 719 41626	**06600**	**06500**		
78 718 42030 / 78 719 42030	**04700**	**04600**	**04500**	**04800**
78 718 42435 / 78 719 42435	**04700**	**04600**	**04500**	**04800**

DCGT / DCMT / DCET

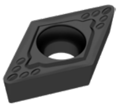
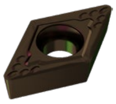
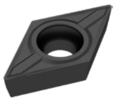
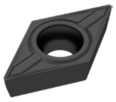
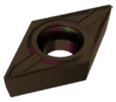
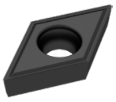
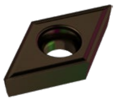
Designation	L inch	S inch	D1 inch	IC inch
DC.T 21..	0.305	0.094	0.110	0.250
DC.T 32..	0.457	0.156	0.173	0.375



DCGT / DCMT

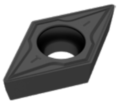
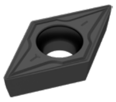
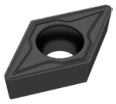
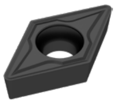
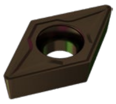
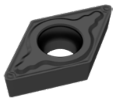
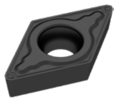
ANSI	RE inch	**-CF05** CTEP110	**-CF55** CTEP110	**-SF** TCM10	**-SMF** TCM10	**-SF** TCM407	**-SF** CTCP125	**-SF** CTCP115
		DRAGONSKIN	DRAGONSKIN				DRAGONSKIN	DRAGONSKIN
		● ○ ○	● ○ ○	● ○ ○	● ○ ○	● ○ ○	○ ● ○	● ○ ○
								
		F	**F**	**F**	**F**	**F**	**F**	**F**
		CERMET DCGT	**CERMET** DCMT	**CERMET** DCGT	**CERMET** DCMT	**CERMET** DCGT	DCGT	DCMT
		76 245 ...	**76 246 ...**	**70 257 ...**	**70 265 ...**	**70 257 ...**	**76 257 ...**	**76 259 ...**
21.5.5EN	0.008	**002**	**002**	**900**	**898**		**502**	
21.50EN	0.004			**898**				
21.51EN	0.016	**004**	**004**	**902**	**900**	**852**		**304**
32.5.5EN	0.008	**014**		**904**		**854**		
32.51EN	0.016	**016**	**016**	**906**	**904**	**856**		**316**
32.52EN	0.031	**018**	**018**	**908**	**906**	**858**		**318**
P		●	●	●	●	●	●	●
M		○	○	○	○	○		
K		○	○	○	○	○	○	○
N								
S								
H								
O								

DCMT / DCGT

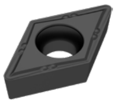
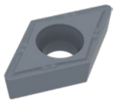
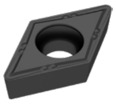
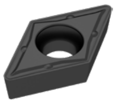
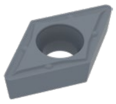
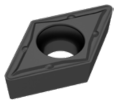
ANSI	RE inch	**-SF** CTCP125	**-SF** CTCP135	**-SMF** CTCP115	**-SMF** CTCP125	**-SMF** CTCP135	**-SM** CTCP125	**-SM** CTCP135
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		○ ● ○	○ ○ ●	● ○ ○	○ ● ○	○ ○ ●	○ ● ○	○ ○ ●
								
		F	**F**	**F**	**F**	**F**	**M**	**M**
		DCMT	DCMT	DCMT	DCMT	DCMT	DCGT	DCGT
		76 259 ...	**76 259 ...**	**76 265 ...**	**76 265 ...**	**76 265 ...**	**76 256 ...**	**76 256 ...**
21.5.5EN	0.008						**502**	**702**
21.51EN	0.016	**504**	**704**		**504**	**704**		
21.52EN	0.031					**706**		
32.51EN	0.016	**516**	**716**	**316**	**516**	**716**		
32.52EN	0.031	**518**	**718**	**318**	**518**	**718**		
P		●	●	●	●	●	●	●
M			○			○		○
K		○		○	○		○	
N								
S								
H								
O								

→ v_c Page 160–181

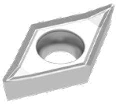
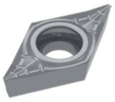
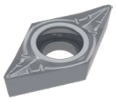
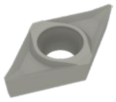
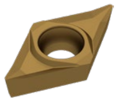
DCMT

		-SM CTCK110	**-SM** CTCK120	**-SM** CTCP115	**-SM** CTCP125	**-SM** CTCP135	**-SMQ** CTCP115	**-SMQ** CTCP125
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		M DCMT	**M** DCMT	**M** DCMT	**M** DCMT	**M** DCMT	**M** DCMT	**M** DCMT
		70 258 ...	**70 258 ...**	**76 258 ...**	**76 258 ...**	**76 258 ...**	**76 195 ...**	**76 195 ...**
ANSI	RE inch							
21.51EN	0.016	004	554	304	504	704	304	504
21.52EN	0.031	006	506	306	506	706		
32.51EL	0.016						31600	516
32.51EN	0.016	016	516	316	516	716	31500	515
32.51ER	0.016						31700	517
32.52EN	0.031	018	518	318	518	718	31800	518
32.53EN	0.047				520			
P		○	○	●	●	●	●	●
M						○		
K		●	●	○	○		○	○
N								
S								
H								
O								

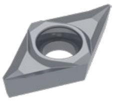
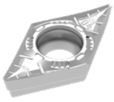
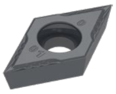
DCMT

		NEW		NEW	NEW		NEW
		-M25 CTCM120	**-M25** CTPM125	**-M25** CTCM130	**-M55** CTCM120	**-M55** CTPM125	**-M55** CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		F DCMT	**F** DCMT	**F** DCMT	**M** DCMT	**M** DCMT	**M** DCMT
		75 213 ...	**75 213 ...**	**75 213 ...**	**75 214 ...**	**75 214 ...**	**75 214 ...**
ANSI	RE inch						
21.5.5EN	0.008	10200	202	30200			
21.51EN	0.016	10400	204	30400	10400	204	30400
21.52EN	0.031				10600	206	30600
32.5.5EN	0.008	11400	214	31400			
32.51EN	0.016	11600	216	31600	11600	216	31600
32.52EN	0.031	11800	218	31800	11800	218	31800
P		○	○	○	○	○	○
M		●	●	●	●	●	●
K							
N							
S				○			○
H							
O							

DCGT

		NEW	NEW					
		-23P H216T	**-25P** H210T	NEW **-25P** CTPX710 DRAGONSKIN	**-25Q** H210T	NEW **-25Q** CTPX710 DRAGONSKIN	**-27** H10T	**-27** CWN15
								
		F DCGT	**F** DCGT	**M** DCGT	**M** DCGT	**M** DCGT	**M** DCGT	**M** DCGT
ANSI	RE inch	**70 261 ...**	**70 263 ...**	**70 263 ...**	**70 263 ...**	**70 263 ...**	**70 260 ...**	**70 260 ...**
21.5.5FN	0.008		**632**	**70200**			**600**	**300**
21.51FN	0.016	**654**	**634**	**70400**			**602**	**302**
32.5.5FN	0.008		**635**	**71400**			**604**	**304**
32.51FL	0.016				**670**	**75700**		
32.51FN	0.016	**664**	**636**	**71600**	**660**	**75600**	**606**	**306**
32.51FR	0.016				**680**	**75800**		
32.52FL	0.031				**672**			
32.52FN	0.031	**666**	**638**	**71800**	**662**	**76000**	**608**	**308**
32.52FR	0.031				**682**			
P				●		●		
M				●		●		○
K		○	○		○		○	
N		●	●	●	●	●	●	●
S			○	●	○	●		
H								
O		○	○		○		○	

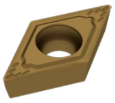
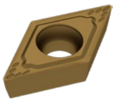
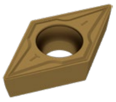
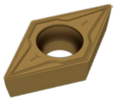
DCGT / DCMT / DCET

		NEW	NEW	NEW
		-27 CTPX715	-29 H216T	-F05 CTPX710
		DRAGONSKIN		DRAGONSKIN
				
		M	M	F
		DCGT	DCMT	DCET
		70 260 ...	70 246 ...	76 254 ...
ANSI	RE inch			
21.5X0FN	0.002			10200
21.50FN	0.004			10400
21.505FN	0.006			10600
21.5.5FN	0.008	80200		10800
21.51FN	0.016	80400		
21.51EN	0.016		60400	
32.5X0FN	0.002			11400
32.50FN	0.004			11600
32.5X0FN	0.006			11800
32.5.5FN	0.008	81400		12000
32.51EN	0.016		61600	
32.51FN	0.016	81600		12200
32.52EN	0.031		61800	
32.52FN	0.031	81800		

P	●		●
M	●		●
K	○	○	
N	●	●	●
S	●		●
H			
O	○	○	

→ v_c Page 160–181

DCMT

		NEW	NEW	NEW	NEW
		-FMS CT-P15	**-FMS** CT-P25	**-MRS** CT-P15	**-MRS** CT-P25
		● ○ ○	○ ● ○	● ○ ○	○ ● ○
					
		F DCMT 75 304 ...	**F** DCMT 75 304 ...	**M** DCMT 75 305 ...	**M** DCMT 75 305 ...
ANSI	RE inch				
21.51EN	0.016	**00409**	**10409**	**00409**	**10409**
21.52EN	0.031	**00609**	**10609**	**00609**	**10609**
32.51EN	0.016	**01609**	**11609**	**01609**	**11609**
32.52EN	0.031	**01809**	**11809**	**01809**	**11809**
P		●	●	●	●
M		○	○	○	○
K					
N					
S					
H					
O					

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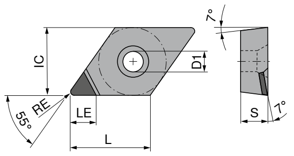
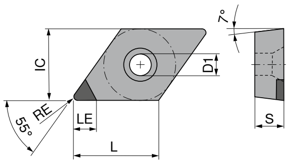
DCGW / DCGT

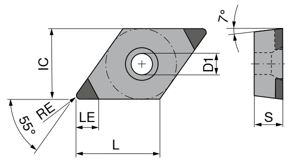
Designation	L inch	S inch	D1 inch	IC inch
DCG. 21..	0.305	0.094	0.110	0.250
DCG. 32..	0.457	0.156	0.173	0.375



DCGT A



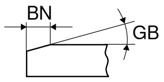
DCGW A

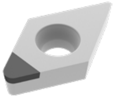
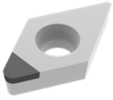
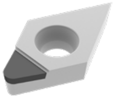
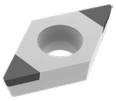
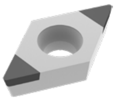


DCGW B

DCGW / DCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners



						CTBS10U	CTBS10U	CTBS10U	CTBS10U	CTBS10U
						○ ○ ○	○ ○ ○	○ ○ ○	○ ○ ○	○ ○ ○
										
						F	**F**	**F**	**F**	**F**
						CBN DCGW	**CBN** DCGW	**CBN** DCGT	**CBN** DCGW	**CBN** DCGW
						71 130 ...	71 130 ...	71 134 ...	71 131 ...	71 131 ...
ANSI	RE inch	BN inch	GB	**TCE (NOI)**	LE inch					
21.5.5TN	0.008	0.005	20°	**A (1)**	0.154	**300**				
21.5.5FN	0.008			**A (1)**	0.154		**200**	**200**		
21.51TN	0.016	0.005	20°	**A (1)**	0.138	**302**				
21.51FN	0.016			**A (1)**	0.138		**202**	**202**		
21.52TN	0.031	0.005	20°	**A (1)**	0.118	**304**				
21.52FN	0.031			**A (1)**	0.118		**204**	**204**		
32.5.5FN	0.008			**A (1)**	0.154		**206**	**206**		
32.5.5FN	0.008			**B (2)**	0.154					**200**
32.5.5TN	0.008	0.005	20°	**B (2)**	0.154				**300**	
32.5.5TN	0.008	0.005	20°	**A (1)**	0.154	**306**				
32.51FN	0.016			**A (1)**	0.138		**208**	**208**		
32.51FN	0.016			**B (2)**	0.138					**202**
32.51TN	0.016	0.005	20°	**B (2)**	0.138				**302**	
32.51TN	0.016	0.005	20°	**A (1)**	0.138	**308**				
32.52FN	0.031			**A (1)**	0.118		**210**	**210**		
32.52FN	0.031			**B (2)**	0.118					**204**
32.52TN	0.031	0.005	20°	**B (2)**	0.118				**304**	
32.52TN	0.031	0.005	20°	**A (1)**	0.118	**310**				

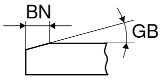
P					
M					
K	●	●	●	●	●
N					
S	●	●	●	●	●
H					
O					

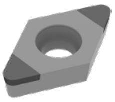
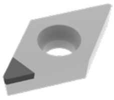
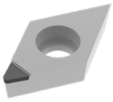
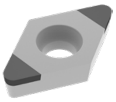
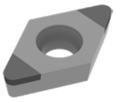
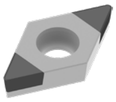
4

→ v_c Page 164–171

DCGW / DCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners



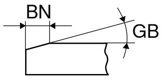
						NEW	NEW	NEW	NEW		NEW
						CTBS10C	CTBS20U	CTBS20U	CTBS20U	CTBS20C	CTBH15U
											
						F	F	F	F	F	F
						CBN	CBN	CBN	CBN	CBN	CBN
						DCGW	DCGW	DCGT	DCGW	DCGW	DCGW
						71 424 ...	71 422 ...	71 421 ...	71 163 ...	71 163 ...	71 008 ...
ANSI	RE inch	BN inch	GB	**TCE (NOI)**	LE inch						
21.5.5SN	0.008	0.004	10°	**B (2)**	0.154	**80100**				**120**	
21.5.5SN	0.008	0.004	15°	**B (2)**	0.154					**130**	**30214**
21.5.5TN	0.008	0.005	15°	**A (1)**	0.154		**20100**				
21.5.5TN	0.008	0.006	20°	**B (2)**	0.154					**140**	
21.5.5SN	0.008	0.006	20°	**B (2)**	0.154					**150**	
21.5.5TN	0.008	0.007	25°	**B (2)**	0.154					**160**	
21.5.5EN	0.008			**B (2)**	0.154						**00200**
21.5.5FN	0.008			**A (1)**	0.154		**20000**				
21.5.5FN	0.008			**B (2)**	0.154	**80000**					
21.51SN	0.016	0.004	10°	**B (2)**	0.138					**121**	
21.51TN	0.016	0.004	15°	**B (2)**	0.138	**80300**					
21.51SN	0.016	0.004	15°	**B (2)**	0.138					**131**	**30414**
21.51TN	0.016	0.005	15°	**A (1)**	0.138		**20200**				
21.51SN	0.016	0.006	15°	**B (2)**	0.138	**80400**					
21.51TN	0.016	0.006	20°	**B (2)**	0.138					**141**	
21.51SN	0.016	0.006	20°	**B (2)**	0.138					**151**	
21.51SN	0.016	0.006	25°	**B (2)**	0.138						**30429**
21.51TN	0.016	0.007	25°	**B (2)**	0.138					**161**	
21.51EN	0.016			**B (2)**	0.138						**00400**
21.51FN	0.016			**B (2)**	0.138	**80200**					
21.51SN	0.016	0.007	30°	**B (2)**	0.138					**181**	
21.52SN	0.031	0.004	15°	**B (2)**	0.118					**132**	
21.52TN	0.031	0.006	20°	**B (2)**	0.118					**142**	
21.52SN	0.031	0.006	20°	**B (2)**	0.118					**152**	
21.52TN	0.031	0.007	25°	**B (2)**	0.118					**162**	
21.52SN	0.031	0.007	25°	**B (2)**	0.118					**172**	
21.52EN	0.031			**B (2)**	0.118					**112**	
32.5.5SN	0.008	0.004	15°	**B (2)**	0.154					**133**	
32.5.5TN	0.008	0.005	15°	**A (1)**	0.154		**20400**				
32.5.5TN	0.008	0.006	20°	**B (2)**	0.154					**143**	
32.5.5SN	0.008	0.006	20°	**B (2)**	0.154					**153**	
32.5.5TN	0.008	0.007	25°	**B (2)**	0.154					**163**	
32.5.5EN	0.008			**B (2)**	0.154					**113**	
32.5.5FN	0.008			**A (1)**	0.154		**20300**				
32.51SN	0.016	0.004	10°	**B (2)**	0.138					**124**	
32.51TN	0.016	0.004	15°	**B (2)**	0.138	**80600**					
32.51SN	0.016	0.005	15°	**A (1)**	0.138		**20500**				
32.51SN	0.016	0.005	15°	**B (2)**	0.138				**13400**		
32.51SN	0.016	0.006	15°	**B (2)**	0.138	**80700**					
32.51SN	0.016	0.006	20°	**B (2)**	0.138	**80800**					
32.51TN	0.016	0.006	20°	**B (2)**	0.138					**144**	
32.51SN	0.016	0.006	20°	**B (2)**	0.138					**154**	
32.51TN	0.016	0.007	25°	**B (2)**	0.138					**164**	
32.51FN	0.016			**A (1)**	0.138			**20000**			
32.51FN	0.016			**B (2)**	0.138	**80500**					
32.51SN	0.016	0.007	25°	**B (2)**	0.138					**174**	
32.51SN	0.016	0.007	30°	**B (2)**	0.138					**184**	
P											
M											
K						●	●	●	●	●	
N											
S						●	●	●	●	●	
H											●
O											

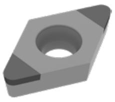
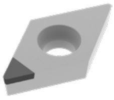
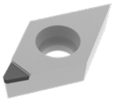
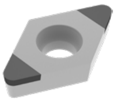
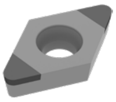
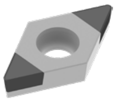
→ v_c Page 164–171

Continued on next page

DCGW / DCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners



NEW	NEW	NEW	NEW		NEW
CTBS10C	CTBS20U	CTBS20U	CTBS20U	CTBS20C	CTBH15U
					
F	F	F	F	F	F
CBN	**CBN**	**CBN**	**CBN**	**CBN**	**CBN**
DCGW	DCGW	DCGT	DCGW	DCGW	DCGW
71 424 ...	71 422 ...	71 421 ...	71 163 ...	71 163 ...	71 008 ...

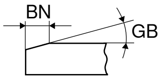
ANSI	RE inch	BN inch	GB	**TCE (NOI)**	LE inch	71 424 ...	71 422 ...	71 421 ...	71 163 ...	71 163 ...	71 008 ...
32.52SN	0.031	0.004	10°	**B (2)**	0.118	**81000**					
32.52TN	0.031	0.004	15°	**B (2)**	0.118	**81100**					
32.52SN	0.031	0.004	15°	**B (2)**	0.118					**135**	
32.52TN	0.031	0.005	15°	**A (1)**	0.118		**20600**				
32.52SN	0.031	0.006	15°	**B (2)**	0.118	**81200**					
32.52SN	0.031	0.006	20°	**B (2)**	0.118	**81300**					
32.52TN	0.031	0.006	20°	**B (2)**	0.118					**145**	
32.52SN	0.031	0.006	20°	**B (2)**	0.118					**155**	
32.52TN	0.031	0.007	25°	**B (2)**	0.118					**165**	
32.52EN	0.031			**B (2)**	0.118	**80900**				**115**	
32.52FN	0.031			**A (1)**	0.118			**20100**			
32.52SN	0.031	0.007	30°	**B (2)**	0.118					**185**	

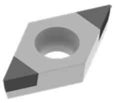
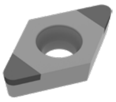
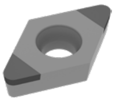
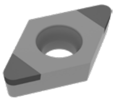
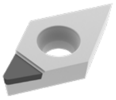
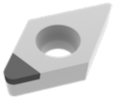
	71 424 ...	71 422 ...	71 421 ...	71 163 ...	71 163 ...	71 008 ...
P						
M						
K	●	●	●	●	●	
N						
S	●	●	●	●	●	
H						●
O						

→ v_c Page 164–171

DCGW / DCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners



ANSI	RE inch	BN inch	GB	TCE (NOI)	LE inch	NEW CTBH15U  F CBN DCGW 71 012 ...	CTBH20C  F CBN DCGW 71 163 ...	NEW CTBH15C  F CBN DCGW 71 007 ...	NEW CTBH15C  F CBN DCGW 71 009 ...	CTBH21U  F CBN DCGT 71 134 ...	NEW CTBH21U  F CBN DCGW 71 422 ...
21.5.5SN	0.008	0.004	10°	B (2)	0.154		230				
21.5.5SN	0.008	0.004	15°	B (2)	0.154		240	30214			
21.5.5FN	0.008			A (1)	0.154					400	
21.5.5EN	0.008			B (2)	0.154			00200			
21.5.5SN	0.008	0.004	20°	B (2)	0.154		250				
21.5.5TN	0.008	0.005	25°	A (1)	0.154						40000
21.5.5TN	0.008	0.006	25°	B (2)	0.154		260				
21.51FN	0.016			B (2)	0.138		211				
21.51TN	0.016	0.005	25°	A (1)	0.138						40100
21.51FN	0.016			A (1)	0.138					402	
21.51EN	0.016			B (2)	0.138			00400			
21.51SN	0.016	0.004	15°	B (2)	0.138		241	30414			
21.51SN	0.016	0.006	25°	B (2)	0.138			30429			
21.51SN	0.016	0.004	10°	B (2)	0.138		231				
21.51SN	0.016	0.004	20°	B (2)	0.138		251				
21.51TN	0.016	0.006	25°	B (2)	0.138		261				
21.51SN	0.016	0.006	25°	B (2)	0.138		271				
21.52FN	0.031			B (2)	0.118		212				
21.52EN	0.031			B (2)	0.118	00600	222		00600		
21.52SN	0.031	0.004	15°	B (2)	0.118	30614			30614		
21.52SN	0.031	0.006	25°	B (2)	0.118	30629			30629		
21.52SN	0.031	0.004	10°	B (2)	0.118		232				
21.52SN	0.031	0.004	20°	B (2)	0.118		252				
21.52TN	0.031	0.006	25°	B (2)	0.118		262				
32.5.5SN	0.008	0.004	15°	B (2)	0.154		233				
32.5.5FN	0.008			A (1)	0.154					406	
32.5.5RN	0.008			B (2)	0.154			21400			
32.5.5SN	0.008	0.004	15°	B (2)	0.154		243	31414			
32.5.5SN	0.008	0.004	20°	B (2)	0.154		253				
32.5.5TN	0.008	0.006	25°	B (2)	0.154		263				
32.5.5SN	0.008	0.006	25°	B (2)	0.154			31429			
32.5.5SN	0.008	0.006	25°	B (2)	0.154		273				
32.51FN	0.016			B (2)	0.138		214				
32.51FN	0.016			A (1)	0.138					408	
32.51SN	0.016	0.004	15°	B (2)	0.138		244	31614			
32.51SN	0.016	0.006	25°	B (2)	0.138			31629			
32.51RN	0.016			B (2)	0.138			21600			
32.51EN	0.016			B (2)	0.138		224				
32.51SN	0.016	0.004	10°	B (2)	0.138		234				
32.51SN	0.016	0.004	20°	B (2)	0.138		254				
32.51TN	0.016	0.006	25°	B (2)	0.138		264				
32.51SN	0.016	0.006	25°	B (2)	0.138		274				
32.51SN	0.016	0.007	30°	B (2)	0.138		284				
32.52FN	0.031			B (2)	0.118		215				
32.52FN	0.031			A (1)	0.118					410	
32.52SN	0.031	0.004	15°	B (2)	0.118		245		31814		
32.52SN	0.031	0.006	25°	B (2)	0.118				31829		
32.52RN	0.031			B (2)	0.118				21800		
32.52EN	0.031			B (2)	0.118		225				
32.52SN	0.031	0.004	20°	B (2)	0.118		255				
32.52TN	0.031	0.006	25°	B (2)	0.118		265				
32.52SN	0.031	0.007	30°	B (2)	0.118		285				

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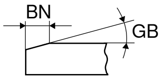
→ v_c Page 164–171

DCGW / DCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners



	71 423 ...	71 130 ...	71 131 ...	71 134 ...	71 163 ...	71 424 ...
	NEW					NEW
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	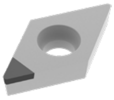	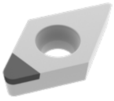	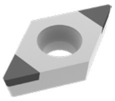	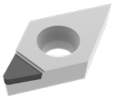	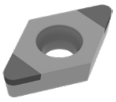	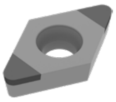
	F	F	F	F	F	F
	CBN	CBN	CBN	CBN	CBN	CBN
	DCGW	DCGW	DCGW	DCGT	DCGW	DCGW

ANSI	RE inch	BN inch	GB	TCE (NOI)	LE inch	71 423 ...	71 130 ...	71 131 ...	71 134 ...	71 163 ...	71 424 ...
21.50FL	0.004			**A (1)**	0.118	**40000**					
21.50FR	0.004			**A (1)**	0.118	**40100**					
21.5.5SN	0.008	0.004	10°	**B (2)**	0.154					**230**	
21.5.5SN	0.008	0.004	15°	**B (2)**	0.154					**240**	
21.5.5SN	0.008	0.004	20°	**B (2)**	0.154					**250**	
21.5.5EN	0.008			**B (2)**	0.134						**90000**
21.5.5FN	0.008			**A (1)**	0.154		**400** 1)		**800**		
21.5.5TN	0.008	0.004	20°	**B (2)**	0.134						**90100**
21.5.5TN	0.008	0.005	20°	**B (2)**	0.154			**53000**			
21.5.5TN	0.008	0.005	20°	**A (1)**	0.154		**500**				
21.5.5TN	0.008	0.006	25°	**B (2)**	0.154					**260**	
21.51SN	0.016	0.004	10°	**B (2)**	0.138					**231**	
21.51SN	0.016	0.004	10°	**B (2)**	0.118						**90300**
21.51SN	0.016	0.004	15°	**B (2)**	0.138					**241**	
21.51SN	0.016	0.004	20°	**B (2)**	0.138					**251**	
21.51EN	0.016			**B (2)**	0.118						**90200**
21.51FN	0.016			**B (2)**	0.138					**211**	
21.51FN	0.016			**A (1)**	0.138		**402** 1)		**802**		
21.51TN	0.016	0.004	20°	**B (2)**	0.118						**90400**
21.51TN	0.016	0.005	20°	**B (2)**	0.138			**53200**			
21.51TN	0.016	0.005	20°	**A (1)**	0.138		**502**				
21.51TN	0.016	0.006	25°	**B (2)**	0.138					**261**	
21.51SN	0.016	0.006	25°	**B (2)**	0.138					**271**	
21.52SN	0.031	0.004	10°	**B (2)**	0.118					**232**	
21.52SN	0.031	0.004	20°	**B (2)**	0.118					**252**	
21.52EN	0.031			**B (2)**	0.102						**90500**
21.52FN	0.031			**B (2)**	0.118					**212**	
21.52EN	0.031			**B (2)**	0.118					**222**	
21.52FN	0.031			**A (1)**	0.118		**404** 1)				
21.52TN	0.031	0.004	20°	**B (2)**	0.102						**90600**
21.52TN	0.031	0.005	20°	**A (1)**	0.118		**504**				
21.52TN	0.031	0.006	25°	**B (2)**	0.118					**262**	
21.52TN	0.031	0.006	35°	**B (2)**	0.102						**90700**
32.5.5SN	0.008	0.004	15°	**B (2)**	0.154					**233**	
32.5.5SN	0.008	0.004	15°	**B (2)**	0.154					**243**	
32.5.5SN	0.008	0.004	20°	**B (2)**	0.154					**253**	
32.5.5EN	0.008			**B (2)**	0.134						**90800**
32.5.5FN	0.008			**A (1)**	0.154		**406** 1)		**806**		
32.5.5FN	0.008			**B (2)**	0.154			**400** 1)			
32.5.5TN	0.008	0.004	20°	**B (2)**	0.134						**90900**
32.5.5TN	0.008	0.005	20°	**B (2)**	0.154			**500**			
32.5.5TN	0.008	0.005	20°	**A (1)**	0.154		**506**				
32.5.5TN	0.008	0.006	25°	**B (2)**	0.154					**263**	
32.5.5SN	0.008	0.006	25°	**B (2)**	0.154					**273**	
32.51SN	0.016	0.004	10°	**B (2)**	0.138					**234**	
32.51SN	0.016	0.004	10°	**B (2)**	0.118						**91000**
32.51TN	0.016	0.004	15°	**B (2)**	0.118						**91100**
32.51SN	0.016	0.004	15°	**B (2)**	0.138					**244**	
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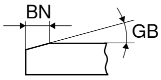
1) Machining to 60 HRC

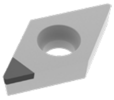
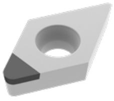
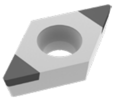
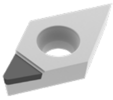
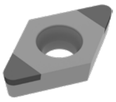
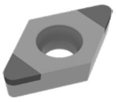
→ v_c Page 164–171

Continued on next page

DCGW / DCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners



71 423 ...	71 130 ...	71 131 ...	71 134 ...	71 163 ...	71 424 ...
NEW					NEW
-Q CTBH21U	CTBH20U	CTBH20U	CTBH40U	CTBH20C	CTBH21C
					
F	F	F	F	F	F
CBN	CBN	CBN	CBN	CBN	CBN
DCGW	DCGW	DCGW	DCGT	DCGW	DCGW

ANSI	RE inch	BN inch	GB	TCE (NOI)	LE inch	71 423 ...	71 130 ...	71 131 ...	71 134 ...	71 163 ...	71 424 ...
32.51SN	0.016	0.004	20°	**B (2)**	0.138					**254**	
32.51FN	0.016			**B (2)**	0.138			**402** 1)		**214**	
32.51EN	0.016			**B (2)**	0.138					**224**	
32.51FN	0.016			**A (1)**	0.138		**408** 1)		**808**		
32.51TN	0.016	0.004	20°	**B (2)**	0.118						**91200**
32.51TN	0.016	0.005	20°	**B (2)**	0.138			**502**			
32.51TN	0.016	0.005	20°	**A (1)**	0.138		**508**				
32.51TN	0.016	0.006	25°	**B (2)**	0.138					**264**	
32.51SN	0.016	0.006	25°	**B (2)**	0.118						**91300**
32.51SN	0.016	0.006	25°	**B (2)**	0.138					**274**	
32.51TN	0.016	0.006	30°	**B (2)**	0.118						**91400**
32.51SN	0.016	0.007	30°	**B (2)**	0.138					**284**	
32.52SN	0.031	0.004	15°	**B (2)**	0.118					**245**	
32.52SN	0.031	0.004	20°	**B (2)**	0.118					**255**	
32.52EN	0.031			**B (2)**	0.102						**91500**
32.52FN	0.031			**B (2)**	0.118			**404** 1)		**215**	
32.52EN	0.031			**B (2)**	0.118					**225**	
32.52FN	0.031			**A (1)**	0.118		**410** 1)		**810**		
32.52TN	0.031	0.004	20°	**B (2)**	0.102						**91600**
32.52TN	0.031	0.005	20°	**B (2)**	0.118			**504**			
32.52TN	0.031	0.005	20°	**A (1)**	0.118		**510**				
32.52TN	0.031	0.006	25°	**B (2)**	0.118					**265**	
32.52TN	0.031	0.006	30°	**B (2)**	0.102						**91700**
32.52SN	0.031	0.007	30°	**B (2)**	0.118					**285**	

	71 423 ...	71 130 ...	71 131 ...	71 134 ...	71 163 ...	71 424 ...
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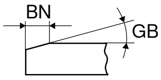
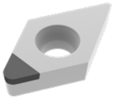
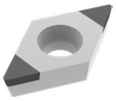
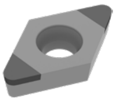
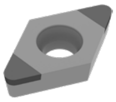
1) Machining to 60 HRC

DCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



			NEW
CTBH40U	CTBH40U	CTBH40C	CTBH41C
○ ○ ◌	○ ○ ◌	○ ○ ◌	○ ○ ◌
			
F	F	F	F
CBN	CBN	CBN	CBN
DCGW	DCGW	DCGW	DCGW

ANSI	RE inch	BN inch	GB	TCE (NOI)	LE inch	71 130 ...	71 131 ...	71 163 ...	71 424 ...
21.5.5TN	0.008	0.004	10°	B (2)	0.134				00201
21.5.5TN	0.008	0.004	20°	B (2)	0.154			320	
21.5.5SN	0.008	0.004	25°	B (2)	0.154			350	
21.5.5FN	0.008			B (2)	0.134				00101
21.5.5EN	0.008			B (2)	0.154			310	
21.5.5FN	0.008			A (1)	0.154	800			
21.5.5TN	0.008	0.004	25°	B (2)	0.154			340	
21.5.5TN	0.008	0.005	25°	B (2)	0.118		93000		
21.5.5TN	0.008	0.005	25°	A (1)	0.154	900			
21.5.5TN	0.008	0.006	30°	B (2)	0.154			360	
21.5.5SN	0.008	0.006	30°	B (2)	0.154			370	
21.5.5SN	0.008	0.007	35°	B (2)	0.154			380	
21.51TN	0.016	0.004	10°	B (2)	0.118				00401
21.51SN	0.016	0.004	20°	B (2)	0.138			331	
21.51SN	0.016	0.004	25°	B (2)	0.138			351	
21.51FN	0.016			B (2)	0.118				00301
21.51FN	0.016			A (1)	0.138	802			
21.51TN	0.016	0.004	25°	B (2)	0.138			341	
21.51TN	0.016	0.005	25°	B (2)	0.118		93200		
21.51TN	0.016	0.005	25°	A (1)	0.138	902			
21.51SN	0.016	0.006	25°	B (2)	0.118				00501
21.51TN	0.016	0.006	30°	B (2)	0.138			361	
21.51SN	0.016	0.006	30°	B (2)	0.138			371	
21.51SN	0.016	0.006	35°	B (2)	0.118				00601
21.51SN	0.016	0.007	35°	B (2)	0.138			381	
21.52SN	0.031	0.004	20°	B (2)	0.118			332	
21.52SN	0.031	0.005	20°	B (2)	0.102				00701
21.52SN	0.031	0.004	25°	B (2)	0.118			352	
21.52EN	0.031			B (2)	0.118			312	
21.52FN	0.031			A (1)	0.118	804			
21.52TN	0.031	0.004	25°	B (2)	0.118			342	
21.52TN	0.031	0.005	25°	B (2)	0.118		93400		
21.52TN	0.031	0.005	25°	A (1)	0.118	904			
21.52TN	0.031	0.006	30°	B (2)	0.118			362	
21.52SN	0.031	0.006	30°	B (2)	0.118			372	
21.52SN	0.031	0.006	35°	B (2)	0.102				00801
21.52SN	0.031	0.007	35°	B (2)	0.118			382	
32.5.5TN	0.008	0.004	20°	B (2)	0.154			323	
32.5.5SN	0.008	0.005	20°	B (2)	0.134				01001
32.5.5SN	0.008	0.004	25°	B (2)	0.154			353	
32.5.5FN	0.008			B (2)	0.134				00901
32.5.5EN	0.008			B (2)	0.154			313	
32.5.5FN	0.008			B (2)	0.154		800 1)		
32.5.5FN	0.008			A (1)	0.154	806			
32.5.5TN	0.008	0.004	25°	B (2)	0.154			343	
32.5.5TN	0.008	0.005	25°	A (1)	0.154	906			
32.5.5TN	0.008	0.005	25°	B (2)	0.118		900		
32.5.5TN	0.008	0.006	30°	B (2)	0.154			363	
32.5.5SN	0.008	0.007	35°	B (2)	0.154			383	

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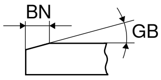
1) Machining to 60 HRC

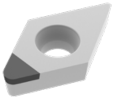
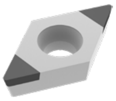
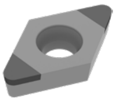
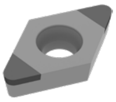
→ v_c Page 164–171

Continued on next page

DCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



						NEW			
						CTBH40U	CTBH40U	CTBH40C	CTBH41C
									
						F	F	F	F
						CBN DCGW	CBN DCGW	CBN DCGW	CBN DCGW
						71 130 ...	71 131 ...	71 163 ...	71 424 ...
ANSI	RE inch	BN inch	GB	**TCE (NOI)**	LE inch				
32.51SN	0.016	0.004	15°	**B (2)**	0.118				**01201**
32.51TN	0.016	0.004	20°	**B (2)**	0.138			**324**	
32.51SN	0.016	0.004	20°	**B (2)**	0.138			**334**	
32.51SN	0.016	0.005	20°	**B (2)**	0.118				**01301**
32.51SN	0.016	0.004	25°	**B (2)**	0.138			**354**	
32.51TN	0.016	0.004	25°	**B (2)**	0.138			**344**	
32.51FN	0.016			**B (2)**	0.118				**01101**
32.51EN	0.016			**B (2)**	0.138			**314**	
32.51FN	0.016			**B (2)**	0.138		**802** 1)		
32.51FN	0.016			**A (1)**	0.138	**808**			
32.51TN	0.016	0.005	25°	**B (2)**	0.118		**902**		
32.51TN	0.016	0.005	25°	**A (1)**	0.138	**908**			
32.51SN	0.016	0.006	25°	**B (2)**	0.118				**01401**
32.51TN	0.016	0.006	30°	**B (2)**	0.138			**364**	
32.51SN	0.016	0.006	30°	**B (2)**	0.118				**01501**
32.51SN	0.016	0.006	30°	**B (2)**	0.138			**374**	
32.51SN	0.016	0.007	35°	**B (2)**	0.138			**384**	
32.52TN	0.031	0.004	10°	**B (2)**	0.102				**01701**
32.52SN	0.031	0.004	20°	**B (2)**	0.118			**335**	
32.52TN	0.031	0.004	20°	**B (2)**	0.118			**325**	
32.52SN	0.031	0.004	25°	**B (2)**	0.118			**355**	
32.52FN	0.031			**B (2)**	0.102				**01601**
32.52FN	0.031			**B (2)**	0.118		**804** 1)		
32.52TN	0.031	0.004	25°	**B (2)**	0.118			**345**	
32.52TN	0.031	0.005	25°	**B (2)**	0.118		**904**		
32.52TN	0.031	0.005	25°	**A (1)**	0.118	**910**			
32.52SN	0.031	0.006	25°	**B (2)**	0.102				**01801**
32.52TN	0.031	0.006	30°	**B (2)**	0.118			**365**	
32.52SN	0.031	0.006	30°	**B (2)**	0.102				**01901**
32.52SN	0.031	0.006	30°	**B (2)**	0.118			**375**	
32.52SN	0.031	0.007	35°	**B (2)**	0.118			**385**	
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1) Machining to 60 HRC

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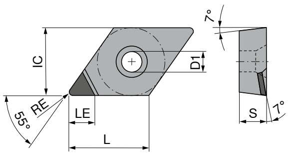
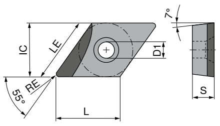
DCGW / DCGT

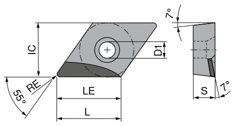
Designation	L inch	S inch	D1 inch	IC inch
DCG. 21..	0.305	0.094	0.110	0.250
DCG. 32..	0.457	0.156	0.173	0.375



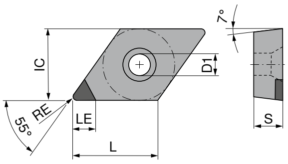
DCGT A



DCGT A L



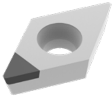
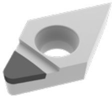
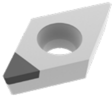
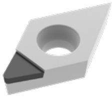
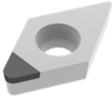
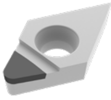
DCGT A R



DCGW A

DCGW / DCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

						NEW	NEW		
				CTDMD05	CTDMD05	-Q CTDMD05	-Q CTDMD05	CTDPD20	CTDPD20
				○	○	○	○	○	○
									
				F	**F**	**F**	**F**	**F**	**F**
				DIAMOND DCGW	**DIAMOND** DCGT	**DIAMOND** DCGW	**DIAMOND** DCGT	**DIAMOND** DCGW	**DIAMOND** DCGT
				71 130 ...	**71 134 ...**	**71 178 ...**	**71 176 ...**	**71 130 ...**	**71 134 ...**
ANSI	RE inch	**TCE (NOI)**	LE inch						
21.5.5FN	0.008	**A (1)**	0.098	**00200**	**050**				
21.5.5FN	0.008	**A (1)**	0.146					**100**	**100**
21.51FN	0.016	**A (1)**	0.098	**00400**	**052**				
21.51FR	0.016	**A (1)**	0.098				**50001**		
21.51FN	0.016	**A (1)**	0.134					**102**	**102**
21.52FN	0.031	**A (1)**	0.098	**00600**	**054**				
21.52FN	0.031	**A (1)**	0.118					**104**	**104**
32.5.5FN	0.008	**A (1)**	0.098		**056**				
32.5.5FN	0.008	**A (1)**	0.118	**056**					
32.5.5FN	0.008	**A (1)**	0.185					**106**	**106**
32.51FN	0.016	**A (1)**	0.098		**058**				
32.51FL	0.016	**A (1)**	0.118			**50001**			
32.51FN	0.016	**A (1)**	0.118	**058**					
32.51FN	0.016	**A (1)**	0.169					**108**	**108**
32.52FN	0.031	**A (1)**	0.098		**060**				
32.52FN	0.031	**A (1)**	0.157					**110**	**110**
32.53FN	0.047	**A (1)**	0.138						**11200**
32.53FN	0.047	**A (1)**	0.142					**11200**	

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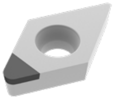
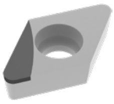
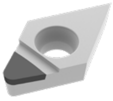
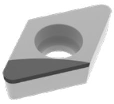
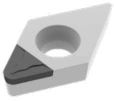
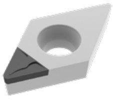
→ v_c Page 164–171

DCGW / DCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				NEW	NEW	NEW	NEW	NEW	NEW
				CTDPS30	CTDPS30	CTDPS30	CTDPS30	**-CB1** CTDPU20	**-CB2** CTDPU20
				○ ○ ○	○ ○ ○	○ ○ ○	○ ○ ○	○ ○ ○	○ ○ ○
									
				F	**F**	**F**	**F**	**F**	**M**
				DIAMOND	**DIAMOND**	**DIAMOND**	**DIAMOND**	**DIAMOND**	**DIAMOND**
				DCGW	DCGT	DCGT	DCGT	DCGT	DCGT
				71 177 ...	**71 173 ...**	**71 173 ...**	**71 173 ...**	**71 174 ...**	**71 175 ...**
ANSI	RE inch	**TCE (NOI)**	LE inch						
21.50FN	0.004	**A (1)**	0.150	**20001**		**20001**			
21.5.5FN	0.008	**A (1)**	0.146	**20101**		**20101**		**30001**	
21.51FN	0.016	**A (1)**	0.134	**20201**				**30101**	**30001**
21.51FL	0.016	**A (1)**	0.217		**20201**				
21.52FN	0.031	**A (1)**	0.118	**20301**					
32.50FN	0.004	**A (1)**	0.189	**20401**		**20301**			
32.5.5FN	0.008	**A (1)**	0.185	**20501**		**20401**			
32.51FN	0.016	**A (1)**	0.169	**20601**				**30201**	**30101**
32.51FL	0.016	**A (1)**	0.295		**20501**				
32.52FN	0.031	**A (1)**	0.157	**20701**				**30301**	
32.52FL	0.031	**A (1)**	0.276		**20601**				
32.52FR	0.031	**A (1)**	0.276				**20701**		
32.53FN	0.047	**A (1)**	0.142	**20801**					
32.53FL	0.047	**A (1)**	0.256		**20801**				
32.53FR	0.047	**A (1)**	0.256				**20901**		

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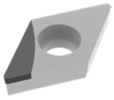
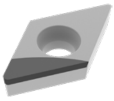
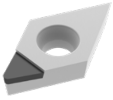
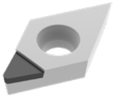
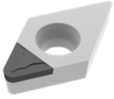
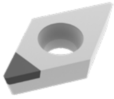
→ v_c Page 164–171

DCGT / DCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

						-Q	**-Q**	**-CB1**	**-Q**
				CTDPD20	CTDPD20	CTDPD20	CTDPD20	CTDPD20	CTDPS30
				○ ○ ○	○ ○ ○	○ ○ ○	○ ○ ○	○ ○ ○	○ ○ ○
									
				F	**F**	**F**	**F**	**F**	**F**
				DIAMOND DCGT	**DIAMOND** DCGT	**DIAMOND** DCGT	**DIAMOND** DCGT	**DIAMOND** DCGT	**DIAMOND** DCGW
ANSI	RE inch	**TCE (NOI)**	LE inch	**71 136 ...**	**71 135 ...**	**71 144 ...**	**71 145 ...**	**71 310 ...**	**71 138 ...**
21.50FN	0.004	**A (1)**	0.150					**10100**	
21.5.5FN	0.008	**A (1)**	0.146					**102**	
21.51FL	0.016	**A (1)**	0.118				**104**		
21.51FR	0.016	**A (1)**	0.118			**104**			
21.51FN	0.016	**A (1)**	0.134					**104**	
21.51FR	0.016	**A (1)**	0.217		**102**				
21.51FL	0.016	**A (1)**	0.217	**102**					
21.52FN	0.031	**A (1)**	0.118					**108**	
21.52FR	0.031	**A (1)**	0.197		**104**				
21.52FL	0.031	**A (1)**	0.197	**104**					
32.50FN	0.004	**A (1)**	0.189					**11100**	
32.5.5FR	0.008	**A (1)**	0.157						**162**
32.5.5FN	0.008	**A (1)**	0.185					**112**	
32.51FL	0.016	**A (1)**	0.157				**114**		
32.51FR	0.016	**A (1)**	0.157			**114**			**164**
32.51FN	0.016	**A (1)**	0.169					**114**	
32.51FR	0.016	**A (1)**	0.295		**108**				
32.51FL	0.016	**A (1)**	0.295	**108**					
32.52FN	0.031	**A (1)**	0.157					**118**	
32.52FR	0.031	**A (1)**	0.276		**110**				
32.52FL	0.031	**A (1)**	0.276	**110**					

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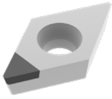
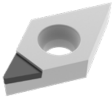
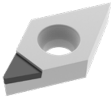
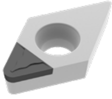
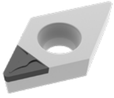
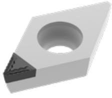
→ v_c Page 164–171

DCGW / DCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

-Q CTDPS30	**-Q** CTDPS30	**-Q** CTDPS30	**-CB1** CTDPS30	**-CB2** CTDPS30	**-CB3** CTDPU20
○	○	○	○	○	○
					
F	**F**	**F**	**F**	**M**	**R**
DIAMOND DCGW	**DIAMOND** DCGT	**DIAMOND** DCGT	**DIAMOND** DCGT	**DIAMOND** DCGT	**DIAMOND** DCGT
71 139 ...	71 144 ...	71 145 ...	71 310 ...	71 311 ...	71 312 ...

ANSI	RE inch	**TCE (NOI)**	LE inch	71 139 ...	71 144 ...	71 145 ...	71 310 ...	71 311 ...	71 312 ...
21.50FL	0.004	**A (1)**	0.118			**151**			
21.50FR	0.004	**A (1)**	0.118		**15000**				
21.50FN	0.004	**A (1)**	0.150				**20100**		
21.5.5FL	0.008	**A (1)**	0.118			**152**			
21.5.5FR	0.008	**A (1)**	0.118		**152**				
21.5.5FN	0.008	**A (1)**	0.146				**202**	**202**	
21.51FN	0.016	**A (1)**	0.134				**204**	**204**	**204**
21.52FN	0.031	**A (1)**	0.118					**208**	
32.50FR	0.004	**A (1)**	0.157		**161**				
32.50FL	0.004	**A (1)**	0.157			**161**			
32.50FN	0.004	**A (1)**	0.189				**21100**	**21100**	
32.5.5FL	0.008	**A (1)**	0.157			**162**			
32.5.5FR	0.008	**A (1)**	0.157		**162**				
32.5.5FN	0.008	**A (1)**	0.185				**212**	**212**	
32.51FL	0.016	**A (1)**	0.157	**164**					
32.51FN	0.016	**A (1)**	0.169				**214**	**214**	**214**
32.52FN	0.031	**A (1)**	0.157				**218**	**218**	**218**

	71 139 ...	71 144 ...	71 145 ...	71 310 ...	71 311 ...	71 312 ...
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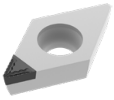
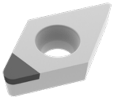
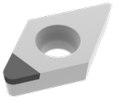
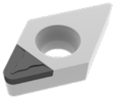
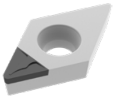
O	●	●	●	●	●	●

→ v_c Page 164–171

DCGT / DCGW

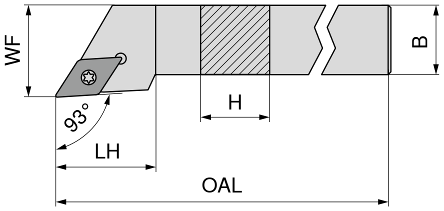
▲ TCE(NOI) = Design and number of equipped cutting edge corners

					NEW	NEW		
				-CB3 CTDPU20	CTDPU20	CTDCD10	**-CB1** CTDCD10	**-CB2** CTDCD10
								
				R **DIAMOND** DCGT	**F** **DIAMOND** DCGW	**F** **DIAMOND** DCGW	**F** **DIAMOND** DCGT	**M** **DIAMOND** DCGT
				71 312 ...	71 177 ...	71 177 ...	71 310 ...	71 311 ...
ANSI	RE inch	**TCE (NOI)**	LE inch					
21.5.5FN	0.008	**A (1)**	0.102			**40001**	**302**	**30200**
21.51FN	0.016	**A (1)**	0.091			**40101**	**304**	**304**
21.51FN	0.016	**A (1)**	0.134	**204**	**30001**			
21.52FN	0.031	**A (1)**	0.079			**40201**		**308**
21.52FN	0.031	**A (1)**	0.118		**30101**			
32.5.5FN	0.008	**A (1)**	0.102			**40301**	**31200**	**31200**
32.51FN	0.016	**A (1)**	0.091			**40401**	**314**	**314**
32.51FN	0.016	**A (1)**	0.169	**214**	**30201**			
32.52FN	0.031	**A (1)**	0.079			**40501**	**318**	**318**
32.52FN	0.031	**A (1)**	0.157	**218**	**30301**			

P					
M					
K					
N	●	●	●	●	●
S					
H					
O	●	●	●	●	●

→ v_c Page 164–171

MaxiLock-S – SDJC 93° – Toolholder with screw clamping



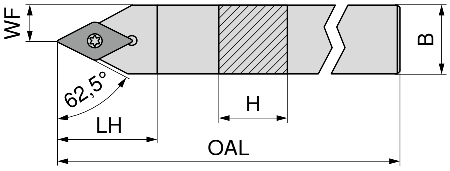
Illustrations show right-hand versions

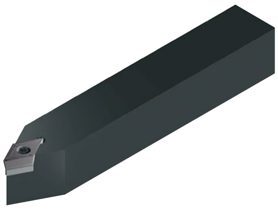
Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand 78 555 ...	Right-hand 78 554 ...
SDJC R/L 06-2	0.375	0.375	2.500	0.590	0.500	DC..21.5..	**00602**	**00602**
SDJC R/L 08-2	0.500	0.500	3.500	0.670	0.625	DC..21.5..	**00802**	**00802**
SDJC R/L 10-2	0.625	0.625	4.000	0.670	0.750	DC..21.5..	**01002**	**01002**
SDJC R/L 12-2B	0.750	0.750	4.500	0.708	1.000	DC..21.5..	**01222**	**01222**
SDJC R/L 12-3B	0.750	0.750	4.500	1.000	1.000	DC..32.5..	**01223**	**01223**
SDJC R/L 16-3D	1.000	1.000	6.000	1.100	1.250	DC..32.5..	**01643**	**01643**




Spare parts for Article no.	Key I 78 950 ...	Clamping screw 78 950 ...	Solid Carbide Seat D 78 950 ...	Threaded sleeve 78 950 ...
78 554 00602 / 78 555 00602	**06400**	**06200**		
78 554 00802 / 78 555 00802	**06400**	**06200**		
78 554 01002 / 78 555 01002	**06400**	**06200**		
78 554 01222 / 78 555 01222	**06400**	**06200**		
78 554 01223 / 78 555 01223	**05400**	**05100**	**06000**	**05300**
78 554 01643 / 78 555 01643	**05400**	**05100**	**06000**	**05300**

MaxiLock-S – SDPC 62.5° – Toolholder with screw clamping



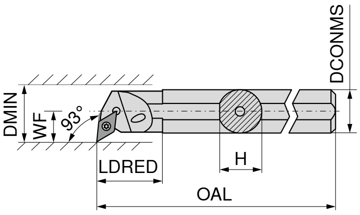


Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Neutral 78 582 ...
SDPC N 06-2	0.375	0.375	2.500	0.370	0.197	DC..21.5..	**00602**
SDPC N 08-2	0.500	0.500	3.500	0.492	0.260	DC..21.5..	**00802**
SDPC N 10-3	0.625	0.625	4.000	0.630	0.232	DC..32.5..	**01003**
SDPC N 12-3B	0.750	0.750	4.500	0.744	0.382	DC..32.5..	**01223**
SDPC N 16-3D	1.000	1.000	6.000	0.984	0.520	DC..32.5..	**01643**




Spare parts for Article no.	Key I 78 950 ...	Clamping screw 78 950 ...	Solid Carbide Seat D 78 950 ...	Threaded sleeve 78 950 ...
78 582 00602	**06400**	**06200**		
78 582 00802	**06400**	**06200**		
78 582 01003	**05400**	**05100**	**06000**	**05300**
78 582 01223	**05400**	**05100**	**06000**	**05300**
78 582 01643	**05400**	**05100**	**06000**	**05300**

MaxiLock-S – SDUC 93° – Boring bar with screw clamping



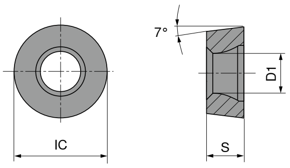
Illustrations show right-hand versions

Designation	DCONMS inch	H inch	OAL inch	LDRED inch	WF inch	DMIN inch	Insert	Left-hand 78 721 ...	Right-hand 78 720 ...
S06M SDUC R/L 2	0.375	0.340	6.000	0.830	0.375	0.750	DC..21.5..	**20617**	**20617**
A06M SDUC R/L 2	0.375	0.340	6.000	0.830	0.375	0.750	DC..21.5..	**20606**	**20606**
S08M SDUC R/L 2	0.500	0.460	6.000	0.910	0.438	0.875	DC..21.5..	**20818**	**20818**
A08M SDUC R/L 2	0.500	0.460	6.000	0.910	0.438	0.875	DC..21.5..	**20808**	**20808**
S10R SDUC R/L 2	0.625	0.580	8.000	1.060	0.500	1.000	DC..21.5..	**21021**	**21021**
A10R SDUC R/L 2	0.625	0.580	8.000	1.060	0.500	1.000	DC..21.5..	**21010**	**21010**
S12S SDUC R/L 2EX	0.750	0.710	10.000	0.760	0.625	1.250	DC..21.5..	**21222**	**21222**
S16T SDUC R/L 2DX	1.000	0.900	12.000	1.000	0.750	1.500	DC..21.5..	**21626**	**21626**
S12S SDUC R/L 3M	0.750	0.710	10.000	1.580	0.625	1.250	DC..32.5..	**91222**	**91222**
A12S SDUC R/L 3M	0.750	0.710	10.000	1.580	0.625	1.250	DC..32.5..	**91212**	**91212**
S16T SDUC R/L 3M	1.000	0.910	12.000	1.810	0.750	1.500	DC..32.5..	**91626**	**91626**
S20U SDUC R/L 3M	1.250	1.180	14.000	1.890	0.875	1.750	DC..32.5..	**92030**	**92030**
S20U SDUC R/L 3X	1.250	1.180	14.000	1.270	0.765	1.750	DC..32.5..	**32030**	**32030**

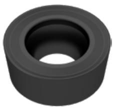
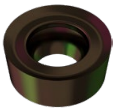
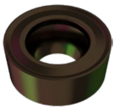
Spare parts for Article no.	 Key I 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat D 78 950 ...	 Threaded sleeve 78 950 ...
78 720 20617 / 78 721 20617	**06400**	**05200**		
78 720 20606 / 78 721 20606	**06400**	**05200**		
78 720 20818 / 78 721 20818	**06400**	**05200**		
78 720 20808 / 78 721 20808	**06400**	**06200**		
78 720 21021 / 78 721 21021	**06400**	**05200**		
78 720 21010 / 78 721 21010	**06400**	**06200**		
78 720 21222 / 78 721 21222	**06400**	**06200**		
78 720 21626 / 78 721 21626	**06400**	**06200**		
78 720 91222 / 78 721 91222	**05700**	**05600**		
78 720 91212 / 78 721 91212	**05700**	**05600**		
78 720 91626 / 78 721 91626	**05700**	**05600**		
78 720 92030 / 78 721 92030	**05400**	**05100**	**06000**	**05300**
78 720 32030 / 78 721 32030	**05400**	**05100**	**06000**	**05300**

RCMT / RCGT

Designation	S inch	D1 inch	IC inch
RCGT 06..	0.094	0.110	0.236
RCGT 08..	0.125	0.134	0.315
RC.T 10..	0.125	0.157	0.394
RCMT 12..	0.187	0.193	0.472
RCMT 16..	0.250	0.209	0.630
RCMT 20..	0.250	0.256	0.787
RCMT 25..	0.313	0.283	0.984



RCMT / RCGT

		-SMF CTCK110	**-SM** CTCP115	**-SM** CTCP125	**-SM** CTCP125	**-SM** CTCP135	**-SM** CTCP135
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		● ○ ○	● ○ ○	○ ● ○	○ ● ○	○ ○ ●	○ ○ ●
							
		F	**M**	**M**	**M**	**M**	**M**
		RCMT	RCMT	RCGT	RCMT	RCGT	RCMT
		70 188 ...	**76 264 ...**	**76 262 ...**	**76 264 ...**	**76 262 ...**	**76 264 ...**
ANSI	RE inch						
0602MOEN	0.118			**502**		**702**	
0803MOEN	0.157			**512**		**712**	
1003MOSN	0.197				**514**		**714**
1204MOSN	0.236		**328**		**526**		**726**
1606MOEN	0.315	**038**					
1606MOSN	0.315		**340**		**538**		**738**
2006MOSN	0.394				**550**		**750**
2507MOSN	0.492		**36200**		**562**		**762**
P		○	●	●	●	●	●
M						○	○
K		●	○	○	○		
N							
S							
H							
O							

RCGT

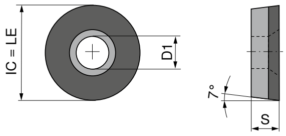
ANSI	RE inch	-27 H10T  **M** RCGT **70 266 ...**	-27 CWN15  **M** RCGT **70 266 ...**	NEW -27 CTPX715 DRAGONSKIN  **M** RCGT **70 266 ...**
0602MOFN	0.118	**600**	**300**	
0803MOFN	0.157	**602**	**302**	
082MOFN	0.157			**80200**
1003MOFN	0.197	**604**		
102MOFN	0.197			**80400**

P			●
M		○	●
K	○		○
N	●	●	●
S			●
H			
O	○		○

→ v_c Page 160–181

RCGW

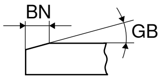
Designation	S inch	D1 inch	IC inch
RCGW 12..	0.187	0.173	0.472



RCGW F

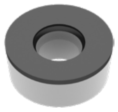
RCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



NEW

CTBS10U



F

CBN

RCGW

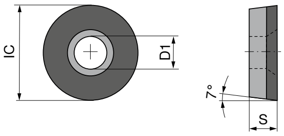
ANSI	RE inch	BN inch	GB	**TCE (NOI)**	LE inch	**71 425 ...**
1204M0TN	0.236	0.005	20°	**F**	0.472	**10000**

P	
M	
K	●
N	
S	●
H	
O	

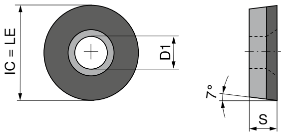
→ v_c Page 164–171

RCGW / RCGT

Designation	S inch	D1 inch	IC inch
RCG. 06..	0.094	0.110	0.236
RCGW 08..	0.125	0.134	0.315
RCG. 10..	0.156	0.173	0.394
RCGW 12..	0.187	0.173	0.472



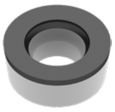
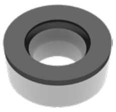
RCGT F



RCGW F

RCGW / RCGT

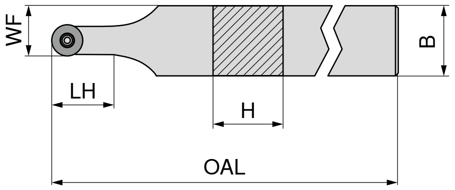
▲ TCE(NOI) = Design and number of equipped cutting edge corners

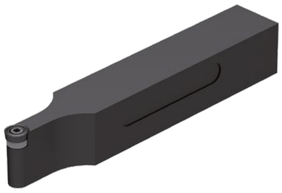
				NEW		NEW		
					-CB1		-CB1	-CB2
				CTDPD20	CTDPD20	CTDPS30	CTDPS30	CTDPS30
				○	○	○	○	○
								
				F	**F**	**F**	**F**	**M**
				DIAMOND	**DIAMOND**	**DIAMOND**	**DIAMOND**	**DIAMOND**
				RCGW	RCGT	RCGW	RCGT	RCGT
				71 179 ...	71 315 ...	71 179 ...	71 315 ...	71 316 ...
ANSI	RE inch	**TCE (NOI)**	LE inch					
0803M0FN	0.157	**F**	0.315	**10101**		**20101**		
0602M0FN	0.118	**F**	0.236	**10001**	**102**	**20001**	**202**	**202**
10T3M0FN	0.197	**F**	0.394		**104**		**204**	**204**
1003M0FN	0.236	**F**	0.394	**10201**				
1204M0FN	0.236	**F**	0.472	**10301**				

P					
M					
K					
N	●	●	●	●	●
S					
H					
O	●	●	●	●	●

→ v_c Page 164–171

MaxiLock-S – SRDC 0° – Toolholder with screw clamping





Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Neutral 78 583 ...
SRDC N 08-2	0.500	0.500	3.500	0.500	0.407	RC..0803M0	**00802**
SRDC N 10-3	0.625	0.625	4.000	0.630	0.510	RC..10T3M0	**01003**
SRDC N 12-3B	0.750	0.750	4.500	1.000	0.570	RC..10T3M0	**01223**
SRDC N 16-4D	1.000	1.000	6.000	1.000	0.756	RC..1204M0	**01644**
SRDC N 20-4D	1.250	1.250	6.000	1.000	0.861	RC..1204M0	**02044**


Key I

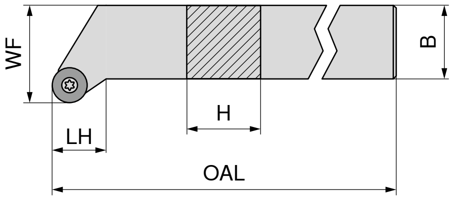

Clamping screw


Solid carbide support R


Threaded sleeve

Spare parts for Article no.	Key I 78 950 ...	Clamping screw 78 950 ...	Solid carbide support R 78 950 ...	Threaded sleeve 78 950 ...
78 583 00802	**00100**	**00200**		
78 583 01003	**05400**	**05100**	**05900**	**05300**
78 583 01223	**05400**	**05100**	**05900**	**05300**
78 583 01644	**05400**	**05100**	**06300**	**05300**
78 583 02044	**05400**	**05100**	**06300**	**05300**

MaxiLock-S – SRGC – Toolholder with screw clamping



Illustrations show right-hand versions

Designation	H inch	B inch	OAL inch	WF inch	Insert	Left-hand 78 557 ...	Right-hand 78 556 ...
SRGC R/L 12-3B	0.750	0.750	4.500	1.000	RC..10T3M0	**01223**	**01223**
SRGC R/L 16-3D	1.000	1.000	6.000	1.250	RC..10T3M0	**01643**	**01643**
SRGC R/L 16-4D	1.000	1.000	6.000	1.250	RC..1204M0	**01644**	**01644**
SRGC R/L 20-4D	1.250	1.250	6.000	1.500	RC..1204M0	**02044**	**02044**
SRGC R/L 85-4D	1.250	1.000	6.000	1.250	RC..1204M0	**08544**	**08544**


Key I

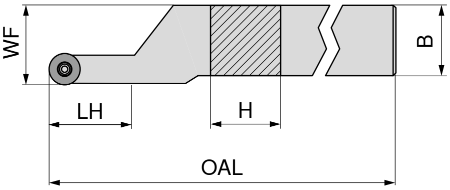

Clamping screw


Solid carbide support R

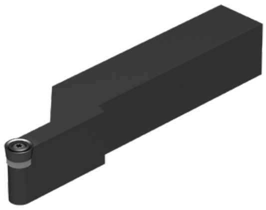

Threaded sleeve

Spare parts for Article no.	Key I 78 950 ...	Clamping screw 78 950 ...	Solid carbide support R 78 950 ...	Threaded sleeve 78 950 ...
78 556 01223 / 78 557 01223	**05400**	**05100**	**05900**	**05300**
78 556 01643 / 78 557 01643	**05400**	**05100**	**05900**	**05300**
78 556 01644 / 78 557 01644	**05400**	**05100**	**06300**	**05300**
78 556 02044 / 78 557 02044	**05400**	**05100**	**06300**	**05300**
78 556 08544 / 78 557 08544	**05400**	**05100**	**06300**	**05300**

MaxiLock-S – SRSC 45° – Toolholder with screw clamping



Illustrations show right-hand versions

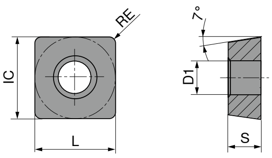


Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand 78 559 ...	Right-hand 78 558 ...
SRSC R/L 16-3D	1.000	1.000	6.000	0.750	1.250	RC..10T3M0	**01643**	**01643**
SRSC R/L 20-3D	1.250	1.250	6.000	0.750	1.500	RC..10T3M0	**02043**	**02043**
SRSC R/L 12-4B	0.750	0.750	4.500	0.750	1.000	RC..1204M0	**01224**	**01224**
SRSC R/L 16-4D	1.000	1.000	6.000	1.000	1.250	RC..1204M0	**01644**	**01644**
SRSC R/L 20-4D	1.250	1.250	6.000	1.000	1.500	RC..1204M0	**02044**	**02044**

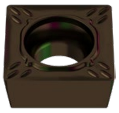
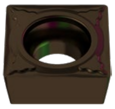
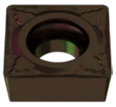
Spare parts **for Article no.**	 Key I 78 950 ...	 Clamping screw 78 950 ...	 Solid carbide support R 78 950 ...	 Threaded sleeve 78 950 ...
78 558 01643 / 78 559 01643	**05400**	**05100**	**05900**	**05300**
78 558 02043 / 78 559 02043	**05400**	**05100**	**05900**	**05300**
78 558 01224 / 78 559 01224	**05400**	**05100**	**06300**	**05300**
78 558 01644 / 78 559 01644	**05400**	**05100**	**06300**	**05300**
78 558 02044 / 78 559 02044	**05400**	**05100**	**06300**	**05300**

SCGT / SCMT / SCMX

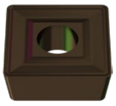
Designation	L inch	S inch	D1 inch	IC inch
SC.T 32..	0.375	0.156	0.173	0.375
SC.. 43..	0.500	0.187	0.217	0.500



SCGT / SCMT

		-CF05 CTEP110	**-CF55** CTEP110	**-SF** TCM10	**-SF** TCM407	**-SF** CTCP125	**-SMF** CTCP115	**-SMF** CTCP135
		DRAGONSKIN	DRAGONSKIN			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		○ ○ ○	**○** ○ ○	**○** ○ ○	**○** ○ ○	○ **○** ○	**○** ○ ○	○ ○ **○**
								
		F	**F**	**F**	**F**	**F**	**F**	**F**
		CERMET	**CERMET**	**CERMET**	**CERMET**			
		SCGT	SCMT	SCGT	SCGT	SCMT	SCMT	SCMT
		76 261 ...	76 260 ...	70 271 ...	70 271 ...	76 269 ...	76 267 ...	76 267 ...
ANSI	RE inch							
32.51EN	0.016	**004**	**004**	**902**		**504**	**304**	
32.52EN	0.031	**006**	**006**	**904**	**852**	**506**	**306**	
432EN	0.031					**518**		**718**
P		●	●	●	●	●	●	●
M		○	○	○	○			○
K		○	○	○	○	○	○	
N								
S								
H								
O								

SCMT / SCMX

		-SM CTCK110	**-SM** CTCK120	**-SM** CTCP115	**-SM** CTCP125	**-SM** CTCP135	CTCP135
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		○ ○ ○	○ **○** ○	**○** ○ ○	○ **○** ○	○ ○ **○**	○ ○ **○**
							
		M	**M**	**M**	**M**	**M**	**M**
		SCMT	SCMT	SCMT	SCMT	SCMT	SCMX
		70 268 ...	70 268 ...	76 268 ...	76 268 ...	76 268 ...	76 182 ...
ANSI	RE inch						
32.51EN	0.016	**004**	**504**	**304**	**504**	**704**	
32.52EN	0.031	**006**	**506**	**306**	**506**	**706**	
432EN	0.031	**018**	**518**	**318**	**518**	**718**	**718**
433EN	0.047	**020**	**520**		**520**		
P		○	○	●	●	●	●
M						○	○
K		●	●	○	○		
N							
S							
H							
O							

→ v_c Page 160–181

SCMT

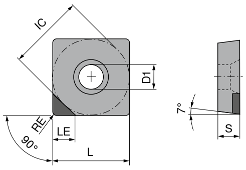
		NEW		NEW
		-M55 CTCM120	**-M55** CTPM125	**-M55** CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
		M	**M**	**M**
		SCMT	SCMT	SCMT
		75 216 ...	**75 216 ...**	**75 216 ...**
ANSI	RE inch			
32.52EN	0.031	**10600**	**206**	**30600**
432EN	0.031	**11800**	**218**	**31800**
P		○	○	○
M		●	●	●
K				
N				
S				○
H				
O				

SCGT

			NEW	NEW		
		-25P H210T	**-25P** CTPX710	**-27** CTPX715	**-27** H10T	**-27** CWN15
			DRAGONSKIN	DRAGONSKIN		
						
		F	**M**	**M**	**M**	**M**
		SCGT	SCGT	SCGT	SCGT	SCGT
		70 283 ...	**70 283 ...**	**70 270 ...**	**70 270 ...**	**70 270 ...**
ANSI	RE inch					
32.51FN	0.016			**80400**	**600**	**300**
32.52FN	0.031			**80600**	**602**	**302**
432FN	0.031	**634**	**71600**		**604**	**304**
P			●	●		
M			●	●		○
K		○		○	○	
N		●	●	●	●	●
S		○	●	●		
H						
O		○		○	○	

SCGW

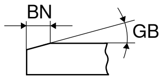
Designation	L inch	S inch	D1 inch	IC inch
SCGW 32..	0.375	0.156	0.173	0.375
SCGW 43..	0.500	0.187	0.217	0.500



SCGW A

SCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



NEW

CTBS10U

○

F

CBN

SCGW

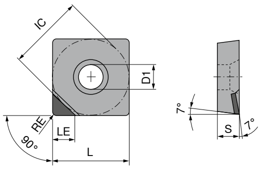
71 426 ...

ANSI	RE inch	BN inch	GB	**TCE (NOI)**	LE inch	**71 426 ...**
32.51TN	0.016	0.005	20°	**A (1)**	0.138	**10100**
32.51FN	0.016			**A (1)**	0.138	**10000**
32.52FN	0.031			**A (1)**	0.134	**10200**
32.52TN	0.031	0.005	20°	**A (1)**	0.134	**10300**
431FN	0.016			**A (1)**	0.138	**10400**
431TN	0.016	0.005	20°	**A (1)**	0.138	**10500**
432TN	0.031	0.005	20°	**A (1)**	0.134	**10700**
432FN	0.031			**A (1)**	0.134	**10600**

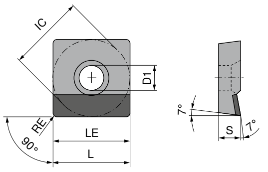
P	
M	
K	●
N	
S	●
H	
O	

SCGW / SCGT

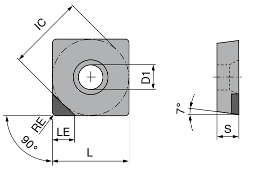
Designation	L inch	S inch	D1 inch	IC inch
SCG. 32..	0.375	0.156	0.173	0.375
SCG. 43..	0.500	0.187	0.217	0.500



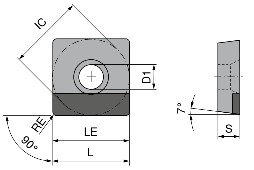
SCGT A



SCGT A



SCGW A



SCGW A

SCGW / SCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				NEW	NEW		NEW	NEW
				CTDPD20	CTDPD20	**-CB1** CTDPD20	CTDPS30	CTDPS30
								
				F	**F**	**F**	**F**	**F**
				DIAMOND SCGW	**DIAMOND** SCGW	**DIAMOND** SCGT	**DIAMOND** SCGW	**DIAMOND** SCGT
ANSI	RE inch	**TCE (NOI)**	LE inch	71 182 ...	71 183 ...	71 320 ...	71 182 ...	71 180 ...
32.51FN	0.016	**A (1)**	0.173	**10001**		**114**	**20601**	**20001**
32.51FNN	0.016	**A (1)**	0.375		**10001**			
32.52FN	0.031	**A (1)**	0.169	**10101**		**118**		**20101**
32.52FNN	0.031	**A (1)**	0.375		**10101**			
32.53FN	0.047	**A (1)**	0.165	**10201**				**20201**
431FN	0.016	**A (1)**	0.173	**10301**				
431FNN	0.016	**A (1)**	0.500		**10201**			
432FN	0.031	**A (1)**	0.169	**10401**				
432FNN	0.031	**A (1)**	0.500		**10301**			
433FN	0.047	**A (1)**	0.165	**10501**				
433FNN	0.047	**A (1)**	0.500		**10401**			
P								
M								
K								
N				●	●	●	●	●
S								
H								
O				●	●	●	●	●

→ v_c Page 164–171

SCGT

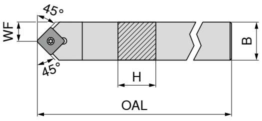
▲ TCE(NOI) = Design and number of equipped cutting edge corners

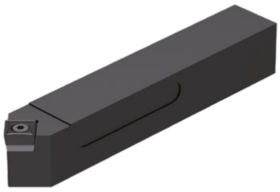
ANSI	RE inch	TCE (NOI)	LE inch	NEW CTDPS30 F DIAMOND SCGT 71 181 ...	NEW -CB2 CTDPS30 M DIAMOND SCGT 71 321 ...	-CB3 CTDPU20 R DIAMOND SCGT 71 322 ...
32.51FN	0.016	**A (1)**	0.173		**214**	**214**
32.52FN	0.031	**A (1)**	0.169		**218**	**218**
32.52FNN	0.031	**A (1)**	0.374	**20001**		
432FNN	0.031	**A (1)**	0.500	**20101**		
433FNN	0.047	**A (1)**	0.472	**20201**		

	71 181 ...	71 321 ...	71 322 ...
P			
M			
K			
N	●	●	●
S			
H			
O	●	●	●

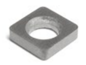
→ v_c Page 164–171

MaxiLock-S – SSDC 45° – Toolholder with screw clamping

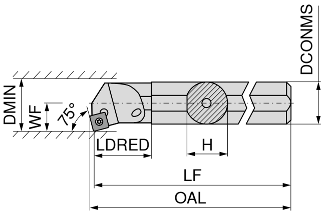




Designation	H inch	B inch	OAL inch	WF inch	Insert	Neutral 78 584 ...
SSDC N 08-3	0.500	0.500	3.500	0.263	SC..32.5..	**00803**
SSDC N 10-3	0.625	0.625	4.000	0.325	SC..32.5..	**01003**
SSDC N 12-4B	0.750	0.750	4.500	0.388	SC..43..	**01224**

Spare parts for Article no.	 Key I 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide support S 78 950 ...	 Threaded sleeve 78 950 ...
78 584 00803	**05700**	**05600**		
78 584 01003	**05700**	**05600**		
78 584 01224	**04700**	**04600**	**04400**	**04800**

MaxiLock-S – SSKC 75° – Boring bar with screw clamping



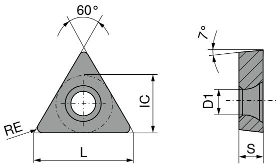
Illustrations show right-hand versions

Designation	DCONMS inch	H inch	OAL inch	LDRED inch	WF inch	DMIN inch	Insert	Left-hand 78 723 ...	Right-hand 78 722 ...
S10R SSKC R/L 3	0.625	0.580	8.000	1.060	0.406	0.812	SC..32.5..	**31021**	**31021**
S12S SSKC R/L 3	0.750	0.710	10.000	1.580	0.500	1.000	SC..32.5..	**31222**	**31222**
S16T SSKC R/L 3	1.000	0.900	12.000	1.810	0.640	1.280	SC..32.5..	**31626**	**31626**

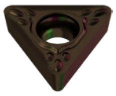
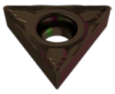
Spare parts **for Article no.**	 Key I 78 950 ...	 Clamping screw 78 950 ...
78 722 31021 / 78 723 31021	**05700**	**05800**
78 722 31222 / 78 723 31222	**05700**	**05600**
78 722 31626 / 78 723 31626	**05700**	**05600**

TCGT / TCMT

Designation	L inch	S inch	D1 inch	IC inch
TCMT 1...	0.378	0.094	0.098	0.219
TC.T 21..	0.433	0.094	0.110	0.250
TC.T 32..	0.650	0.156	0.173	0.375
TCMT 43..	0.866	0.187	0.203	0.500

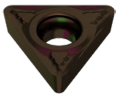
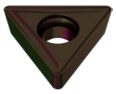


TCGT / TCMT

		-CF05 CTEP110	**-CF55** CTEP110	**-SF** TCM10	**-SMF** TCM10	**-SF** CTCP125	**-SMF** CTCP115
		DRAGONSKIN	DRAGONSKIN			DRAGONSKIN	DRAGONSKIN
		● ○ ○	● ○ ○	● ○ ○	● ○ ○	○ ● ○	● ○ ○
							
		F	**F**	**F**	**F**	**F**	**F**
		CERMET TCGT	**CERMET** TCMT	**CERMET** TCGT	**CERMET** TCMT	TCMT	TCMT
		76 272 ...	**76 266 ...**	**70 273 ...**	**70 284 ...**	**76 275 ...**	**76 284 ...**
ANSI	RE inch						
21.5.5EN	0.008	**014**		**900**			
21.51EN	0.016	**016**	**016**	**902**	**902**	**516**	
21.52EN	0.031	**018**				**518**	**318**
32.51EN	0.016	**028**		**906**		**528**	**328**
32.52EN	0.031		**030**			**530**	**330**
P		●	●	●	●	●	●
M		○	○	○	○		
K		○	○	○	○	○	○
N							
S							
H							
O							

4

TCMT / TCGT

		-SMF CTCP135 DRAGONSKIN  F TCMT 76 284 ...	-SM CTCP135 DRAGONSKIN  M TCGT 76 270 ...	-SM CTCK110 DRAGONSKIN  M TCMT 70 274 ...	-SM CTCK120 DRAGONSKIN  M TCMT 70 274 ...	-SM CTCP115 DRAGONSKIN  M TCMT 76 274 ...	-SM CTCP125 DRAGONSKIN  M TCMT 76 274 ...	-SM CTCP135 DRAGONSKIN  M TCMT 76 274 ...
ANSI	RE inch							
1.81.51EN	0.016						504	704
21.5.5EN	0.008		714					
21.51EN	0.016			016	516	316	516	716
21.52EN	0.031	718		018	518	318		718
32.51EN	0.016			028	528	328	528	728
32.52EN	0.031			030	530	330	530	730
32.53EN	0.047			032	532			
432EN	0.031						542	742
P		●	●	○	○	●	●	●
M		○	○					○
K				●	●	○	○	
N								
S								
H								
O								

TCMT

		NEW -M25 CTCM120 DRAGONSKIN  F TCMT 75 217 ...	-M25 CTPM125 DRAGONSKIN  F TCMT 75 217 ...	NEW -M25 CTCM130 DRAGONSKIN  F TCMT 75 217 ...	NEW -M55 CTCM120 DRAGONSKIN  M TCMT 75 218 ...	-M55 CTPM125 DRAGONSKIN  M TCMT 75 218 ...	NEW -M55 CTCM130 DRAGONSKIN  M TCMT 75 218 ...
ANSI	RE inch						
1.81.51EN	0.016				10400	204	30400
21.51EN	0.016	11600	216	31600	11600	216	31600
32.51EN	0.016	12800	228	32800			
32.52EN	0.031	13000	230	33000	13000	230	33000
P		○	○	○	○	○	○
M		●	●	●	●	●	●
K							
N							
S				○			○
H							
O							

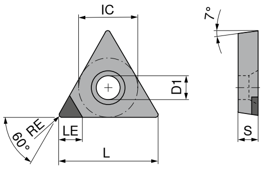
TCGT

				NEW
		-27 H10T	**-27** CWN15	**-27** CTPX715 DRAGONSKIN
				
		M TCGT	**M** TCGT	**M** TCGT
ANSI	RE inch	**70 276 ...**	**70 276 ...**	**70 276 ...**
21.5.5FN	0.008	**600**		
21.51FN	0.016	**602**	**302**	**81600**
21.5FN	0.008		**300**	
32.5.5FN	0.008	**604**	**304**	
32.51FN	0.016	**606**	**306**	
32.52FN	0.031	**608**	**308**	**83000**
P				●
M			○	●
K		○		○
N		●	●	●
S				●
H				
O		○		○

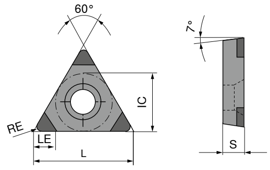
→ v_c Page 160–181

TCGW

Designation	L inch	S inch	D1 inch	IC inch
TCGW 1...	0.378	0.094	0.098	0.219
TCGW 21..	0.433	0.094	0.110	0.250
TCGW 32..	0.650	0.156	0.173	0.375



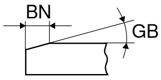
TCGW A



TCGW C

TCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



ANSI	RE inch	BN inch	GB	TCE (NOI)	LE inch	CTBS10U  F CBN TCGW 71 140 ...	NEW CTBH15U  F CBN TCGW 71 028 ...	NEW CTBH15U  F CBN TCGW 71 029 ...	CTBH20U  F CBN TCGW 71 140 ...	NEW CTBS20U  F CBN TCGW 71 427 ...	CTBS20C  F CBN TCGW 71 164 ...
1.81.5.5SN	0.008	0.004	10°	**C (3)**	0.102						**120**
1.81.5.5FN	0.008			**A (1)**	0.150				**400**		
1.81.5.5EN	0.008			**C (3)**	0.102			**00200**			
1.81.5.5SN	0.008	0.004	15°	**C (3)**	0.102			**30214**			**130**
1.81.5.5TN	0.008	0.005	20°	**A (1)**	0.150	**300**			**500**		
1.81.5.5TN	0.008	0.006	20°	**C (3)**	0.102						**140**
1.81.5.5SN	0.008	0.006	20°	**C (3)**	0.102						**150**
1.81.5.1SN	0.016	0.004	10°	**C (3)**	0.087						**121**
1.81.5.1SN	0.016	0.004	15°	**C (3)**	0.087		**30414**				**131**
1.81.5.1TN	0.016	0.005	15°	**A (1)**	0.138					**20000**	
1.81.5.1TN	0.016	0.005	20°	**A (1)**	0.138	**302**			**502**		
1.81.5.1SN	0.016	0.006	20°	**C (3)**	0.087						**151**
1.81.5.1EN	0.016			**C (3)**	0.087		**00400**				**111**
1.81.5.1FN	0.016			**A (1)**	0.138	**202**			**402**		
1.81.5.1TN	0.016	0.007	25°	**C (3)**	0.087						**161**
1.81.5.2SN	0.031	0.004	10°	**C (3)**	0.071						**122**
1.81.5.2SN	0.031	0.004	15°	**C (3)**	0.071		**30614**				**132**
1.81.5.2TN	0.031	0.005	20°	**A (1)**	0.118				**504**		
1.81.5.2TN	0.031	0.006	20°	**C (3)**	0.071						**142**
1.81.5.2EN	0.031			**C (3)**	0.071		**00600**				
1.81.5.2TN	0.031	0.007	25°	**C (3)**	0.071						**162**
21.5.5SN	0.008	0.004	10°	**C (3)**	0.114						**123**
21.5.5FN	0.008			**A (1)**	0.150	**206**			**406**		
21.5.5SN	0.008	0.004	15°	**C (3)**	0.114						**133**
21.5.5TN	0.008	0.005	20°	**A (1)**	0.150	**306**			**506**		
21.5.5TN	0.008	0.006	20°	**C (3)**	0.114						**143**
21.5.5SN	0.008	0.006	20°	**C (3)**	0.114						**153**
21.51SN	0.016	0.004	10°	**C (3)**	0.098						**124**
21.51SN	0.016	0.004	15°	**C (3)**	0.098						**134**
21.51TN	0.016	0.005	20°	**A (1)**	0.138	**308**			**508**		
21.51TN	0.016	0.006	20°	**C (3)**	0.098						**144**
21.51SN	0.016	0.006	20°	**C (3)**	0.098						**154**
21.51TN	0.016	0.007	25°	**C (3)**	0.098						**164**
21.51EN	0.016			**C (3)**	0.098						**114**
21.51FN	0.016			**A (1)**	0.138	**208**			**40700**		

	71 140 ...	71 028 ...	71 029 ...	71 140 ...	71 427 ...	71 164 ...
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→ v_c Page 164–171

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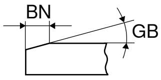
TCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



ANSI	RE inch	BN inch	GB	TCE (NOI)	LE inch	CTBS10U  F CBN TCGW 71 140 ...	NEW CTBH15U  F CBN TCGW 71 028 ...	NEW CTBH15U  F CBN TCGW 71 029 ...	CTBH20U  F CBN TCGW 71 140 ...	NEW CTBS20U  F CBN TCGW 71 427 ...	CTBS20C  F CBN TCGW 71 164 ...
21.52SN	0.031	0.004	10°	**C (3)**	0.083						125
21.52SN	0.031	0.004	15°	**C (3)**	0.083						135
21.52TN	0.031	0.005	20°	**A (1)**	0.118	310			510		
21.52TN	0.031	0.006	20°	**C (3)**	0.083						145
21.52TN	0.031	0.007	25°	**C (3)**	0.083						165
21.52FN	0.031			**A (1)**	0.118	210			410		
32.51SN	0.016	0.004	10°	**C (3)**	0.126						126
32.51SN	0.016	0.004	15°	**C (3)**	0.126						136
32.52SN	0.031	0.004	10°	**C (3)**	0.106						127
32.52SN	0.031	0.004	15°	**C (3)**	0.106						137
32.52SN	0.031	0.006	20°	**C (3)**	0.106						157
32.52EN	0.031			**C (3)**	0.106						117
32.52TN	0.031	0.007	25°	**C (3)**	0.106						167

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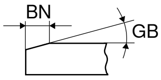
→ v_c Page 164–171

TCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



ANSI	RE inch	BN inch	GB	TCE (NOI)	LE inch	NEW CTBH15C  F CBN TCGW 71 027 ...	NEW CTBH15C  F CBN TCGW 71 034 ...	CTBH20C  F CBN TCGW 71 164 ...	CTBH40U  F CBN TCGW 71 140 ...	CTBH40C  F CBN TCGW 71 164 ...
1.81.5.5SN	0.008	0.004	15°	**C (3)**	0.102		**30214**			
1.81.5.5SN	0.008	0.004	20°	**C (3)**	0.102			**250**		**330**
1.81.5.5TN	0.008	0.004	20°	**C (3)**	0.102					**320**
1.81.5.5TN	0.008	0.004	25°	**C (3)**	0.102					**340**
1.81.5.5TN	0.008	0.005	25°	**A (1)**	0.150				**900**	
1.81.5.5FN	0.008			**A (1)**	0.150				**80100**	
1.81.5.5FN	0.008			**C (3)**	0.102			**210**		
1.81.5.5EN	0.008			**C (3)**	0.102		**00200**	**220**		
1.81.5.1FN	0.016			**A (1)**	0.138				**802**	
1.81.5.1TN	0.016	0.004	20°	**C (3)**	0.087					**321**
1.81.5.1TN	0.016	0.004	25°	**C (3)**	0.087					**341**
1.81.5.1SN	0.016	0.004	25°	**C (3)**	0.087					**351**
1.81.5.1TN	0.016	0.006	30°	**C (3)**	0.087					**361**
1.81.5.1SN	0.016	0.006	30°	**C (3)**	0.087					**371**
1.81.5.1TN	0.016	0.005	25°	**A (1)**	0.138				**902**	
1.81.5.1EN	0.016			**C (3)**	0.087	**00400**		**221**		
1.81.5.1SN	0.016	0.004	15°	**C (3)**	0.087	**30414**		**241**		
1.81.5.1TN	0.016	0.006	25°	**C (3)**	0.087			**261**		
1.81.5.1SN	0.016	0.006	25°	**C (3)**	0.087			**271**		
1.81.5.2SN	0.031	0.004	10°	**C (3)**	0.071			**232**		
1.81.5.2SN	0.031	0.004	15°	**C (3)**	0.071	**30614**		**242**		
1.81.5.2SN	0.031	0.004	20°	**C (3)**	0.071			**252**		
1.81.5.2TN	0.031	0.006	20°	**C (3)**	0.071					**362**
1.81.5.2SN	0.031	0.004	25°	**C (3)**	0.071					**352**
1.81.5.2TN	0.031	0.004	25°	**C (3)**	0.071					**342**
1.81.5.2TN	0.031	0.005	25°	**A (1)**	0.118				**904**	
1.81.5.2EN	0.031			**C (3)**	0.071	**00600**				**312**
21.5.5FN	0.008			**A (1)**	0.150				**806**	
21.5.5TN	0.008	0.004	20°	**C (3)**	0.114					**323**
21.5.5SN	0.008	0.004	20°	**C (3)**	0.114			**253**		**333**
21.5.5TN	0.008	0.004	25°	**C (3)**	0.114					**343**
21.5.5TN	0.008	0.006	30°	**C (3)**	0.114					**363**
21.5.5TN	0.008	0.005	25°	**A (1)**	0.150				**906**	
21.5.5FN	0.008			**C (3)**	0.114			**213**		
21.5.5EN	0.008			**C (3)**	0.114			**223**		
21.5.5SN	0.008	0.004	15°	**C (3)**	0.114		**31414**			
21.5.5SN	0.008	0.006	25°	**C (3)**	0.114		**31429**			
21.51FN	0.016			**A (1)**	0.138				**808**	
21.51TN	0.016	0.004	20°	**C (3)**	0.098					**324**
21.51TN	0.016	0.004	25°	**C (3)**	0.098					**344**
21.51SN	0.016	0.004	25°	**C (3)**	0.098					**354**
21.51TN	0.016	0.006	30°	**C (3)**	0.098					**364**
21.51SN	0.016	0.006	30°	**C (3)**	0.098					**374**
21.51TN	0.016	0.005	25°	**A (1)**	0.138				**908**	
21.51FN	0.016			**C (3)**	0.098			**214**		
21.51EN	0.016			**C (3)**	0.098			**224**		
21.51SN	0.016	0.004	10°	**C (3)**	0.098			**234**		

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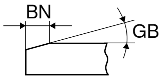
TCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



NEW	NEW			
CTBH15C	CTBH15C	CTBH20C	CTBH40U	CTBH40C
				
F	F	F	F	F
CBN	**CBN**	**CBN**	**CBN**	**CBN**
TCGW	TCGW	TCGW	TCGW	TCGW
71 027 ...	71 034 ...	71 164 ...	71 140 ...	71 164 ...

ANSI	RE inch	BN inch	GB	**TCE (NOI)**	LE inch	71 027 ...	71 034 ...	71 164 ...	71 140 ...	71 164 ...
21.51SN	0.016	0.004	15°	**C (3)**	0.098		**31614**	**244**		
21.51TN	0.016	0.006	25°	**C (3)**	0.098			**264**		
21.51SN	0.016	0.006	25°	**C (3)**	0.098			**274**		
21.51SN	0.016	0.006	25°	**C (3)**	0.098		**31629**			
21.52EN	0.031			**C (3)**	0.083					**315**
21.52TN	0.031	0.004	20°	**C (3)**	0.083					**325**
21.52SN	0.031	0.004	25°	**C (3)**	0.083					**355**
21.52TN	0.031	0.006	30°	**C (3)**	0.083					**365**
21.52SN	0.031	0.006	30°	**C (3)**	0.083					**375**
21.52TN	0.031	0.005	25°	**A (1)**	0.118				**910**	
21.52SN	0.031	0.004	10°	**C (3)**	0.083			**235**		
21.52SN	0.031	0.004	15°	**C (3)**	0.083	**31814**		**245**		
21.52SN	0.031	0.004	20°	**C (3)**	0.083			**255**		
21.52TN	0.031	0.006	25°	**C (3)**	0.083			**265**		
21.52SN	0.031	0.006	25°	**C (3)**	0.083	**31829**				
32.51SN	0.016	0.004	20°	**C (3)**	0.126			**256**		**336**
32.51SN	0.016	0.004	25°	**C (3)**	0.126					**356**
32.51TN	0.016	0.004	25°	**C (3)**	0.126					**346**
32.51SN	0.016	0.006	25°	**C (3)**	0.126			**276**		
32.51TN	0.016	0.006	30°	**C (3)**	0.126					**366**
32.51SN	0.016	0.007	35°	**C (3)**	0.126					**386**
32.51FN	0.016			**C (3)**	0.126			**216**		
32.51EN	0.016			**C (3)**	0.126			**226**		
32.52SN	0.031	0.004	15°	**C (3)**	0.106			**247**		
32.52SN	0.031	0.004	20°	**C (3)**	0.106					**337**
32.52SN	0.031	0.004	25°	**C (3)**	0.106					**357**
32.52TN	0.031	0.004	25°	**C (3)**	0.106					**347**
32.52TN	0.031	0.006	25°	**C (3)**	0.106			**267**		
32.52SN	0.031	0.006	25°	**C (3)**	0.106			**277**		
32.52TN	0.031	0.006	30°	**C (3)**	0.106					**367**
32.52SN	0.031	0.006	30°	**C (3)**	0.106					**377**
32.52EN	0.031			**C (3)**	0.106			**227**		**317**
32.52SN	0.031	0.007	30°	**C (3)**	0.106			**287**		

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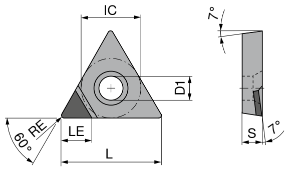
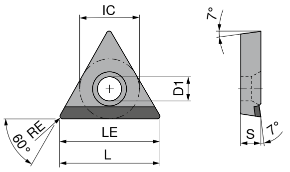
TCGW / TCGT

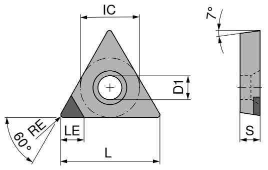
Designation	L inch	S inch	D1 inch	IC inch
TCGT 18..	0.378	0.094	0.098	0.219
TCGW 1...	0.378	0.094	0.098	0.219
TCG. 21..	0.433	0.094	0.110	0.250
TCG. 32..	0.650	0.156	0.173	0.375



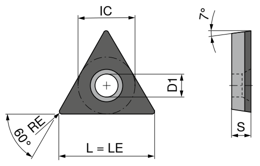
TCGT A



TCGT A



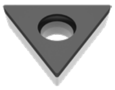
TCGW A



TCGW F

TCGW / TCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

ANSI	RE inch	TCE (NOI)	LE inch	NEW CTDPD20 ○ ○ ○  F DIAMOND TCGW 71 188 ...	NEW CTDPD20 ○ ○ ○  F DIAMOND TCGW 71 187 ...	CTDPD20 ○ ○ ○  F DIAMOND TCGW 71 140 ...	NEW CTDPD20 ○ ○ ○  F DIAMOND TCGT 71 184 ...	-CB1 CTDPD20 ○ ○ ○  F DIAMOND TCGT 71 325 ...	NEW CTDPS30 ○ ○ ○  F DIAMOND TCGT 71 184 ...
1.81.5.5FN	0.008	**A (1)**	0.146			100			
181.5.5FN	0.008	**A (1)**	0.146					112	20001
1.81.5.1FN	0.016	**A (1)**	0.134			102			
181.5.1FN	0.016	**A (1)**	0.134					114	20101
1.81.5.2FN	0.031	**A (1)**	0.118			104			
181.5.2FN	0.031	**A (1)**	0.118				10001		
1.81.5.2FNN	0.031	**A (1)**	0.378	10001					
21.5.5FN	0.008	**A (1)**	0.146			106	10101	122	
21.5.5FN	0.008	**F**	0.433		10001				
21.51FN	0.016	**A (1)**	0.134			108	10201	124	20201
21.51FN	0.016	**F**	0.433		10101				
21.51FNN	0.016	**A (1)**	0.433	10101					
21.52FN	0.031	**A (1)**	0.118			110	10301		
21.52FNN	0.031	**A (1)**	0.433	10201					
32.51FN	0.016	**A (1)**	0.181			112	10401	134	20301
32.51FNN	0.016	**A (1)**	0.650	10301					
32.52FN	0.031	**A (1)**	0.165			114	10501	13600	
32.52FNN	0.031	**A (1)**	0.650	10401					
32.53FN	0.047	**A (1)**	0.150			11600			
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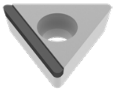
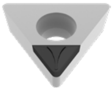
TCGW / TCGT

▲ TCE(NOI) = Design and number of equipped cutting edge corners

NEW	NEW		NEW		NEW
CTDPS30	CTDPS30	-CB2 CTDPS30	CTDPU20	-CB3 CTDPU20	CTDCD10
○ ◌ ◌	○ ◌ ◌	○ ◌ ◌	○ ◌ ◌	○ ◌ ◌	○ ◌ ◌
					
F	F	M	F	R	F
DIAMOND	DIAMOND	DIAMOND	DIAMOND	DIAMOND	DIAMOND
TCGW	TCGT	TCGT	TCGW	TCGT	TCGW
71 186 ...	71 185 ...	71 326 ...	71 188 ...	71 327 ...	71 186 ...

ANSI	RE inch	TCE (NOI)	LE inch	71 186 ...	71 185 ...	71 326 ...	71 188 ...	71 327 ...	71 186 ...
181.5.5FN	0.008	**A (1)**	0.146			**212**			
1.81.5.5FN	0.008	**A (1)**	0.146	**20001**					
181.5.1FN	0.016	**A (1)**	0.134			**214**			
181.5.1FNN	0.016	**A (1)**	0.378		**20001**				
21.5.5FN	0.008	**A (1)**	0.102						**40001**
21.5.5FN	0.008	**A (1)**	0.146	**20101**		**222**			
21.51FN	0.016	**A (1)**	0.091						**40101**
21.51FN	0.016	**A (1)**	0.134	**20201**		**224**		**224**	
21.51FNN	0.016	**A (1)**	0.433		**20101**		**30001**		
21.52FN	0.031	**A (1)**	0.079						**40201**
21.52FNN	0.031	**A (1)**	0.433		**20201**				
32.51FN	0.016	**A (1)**	0.091						**40301**
32.51FN	0.016	**A (1)**	0.181			**234**			
32.51FNN	0.016	**A (1)**	0.650		**20301**				
32.52FN	0.031	**A (1)**	0.079						**40401**
32.52FN	0.031	**A (1)**	0.165					**238**	
32.52FNN	0.031	**A (1)**	0.650		**20401**				

	71 186 ...	71 185 ...	71 326 ...	71 188 ...	71 327 ...	71 186 ...
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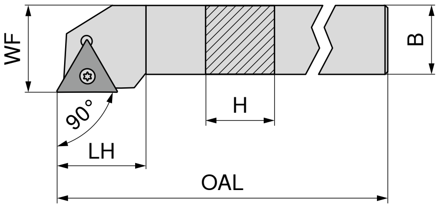
MaxiLock-S – STGC 90° – Toolholder with screw clamping

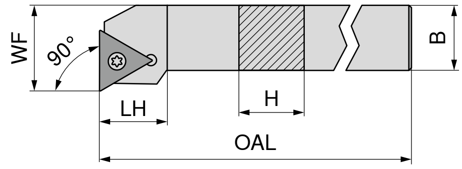


Illustrations show right-hand versions

Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand 78 565 ...	Right-hand 78 564 ...
STGC R/L 06-2	0.375	0.375	2.500	0.500	0.500	TC..21.5..	00602	00602
STGC R/L 08-2	0.500	0.500	3.500	0.560	0.625	TC..21.5..	00802	00802
STGC R/L 10-3	0.625	0.625	4.000	1.000	0.750	TC..32.5..	01003	01003
STGC R/L 12-3B	0.750	0.750	4.500	1.000	1.000	TC..32.5..	01223	01223
STGC R/L 16-3D	1.000	1.000	6.000	1.000	1.250	TC..32.5..	01643	01643

Spare parts for Article no.	 Key I 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat T 78 950 ...	 Threaded sleeve 78 950 ...
78 564 00602 / 78 565 00602	06400	06200		
78 564 00802 / 78 565 00802	06400	06200		
78 564 01003 / 78 565 01003	05400	05100	06100	05300
78 564 01223 / 78 565 01223	05400	05100	06100	05300
78 564 01643 / 78 565 01643	05400	05100	06100	05300

MaxiLock-S – STFC 90° – Toolholder with screw clamping

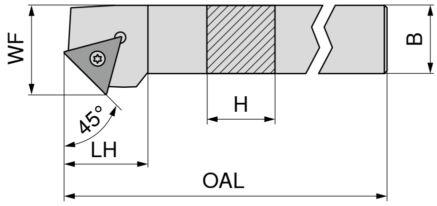


Illustrations show right-hand versions

Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand 78 563 ...	Right-hand 78 562 ...
STFC R/L 06-2	0.375	0.375	2.500	0.400	0.500	TC..21.5..	00602	00602
STFC R/L 08-2	0.500	0.500	3.500	0.689	0.625	TC..21.5..	00802	00802
STFC R/L 10-3	0.625	0.625	4.000	1.000	0.750	TC..32.5..	01003	01003
STFC R/L 12-3B	0.750	0.750	4.500	1.000	1.000	TC..32.5..	01223	01223
STFC R/L 16-3D	1.000	1.000	6.000	1.000	1.250	TC..32.5..	01643	01643

Spare parts for Article no.	 Key I 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat T 78 950 ...	 Threaded sleeve 78 950 ...
78 562 00602 / 78 563 00602	06400	06200		
78 562 00802 / 78 563 00802	06400	06200		
78 562 01003 / 78 563 01003	05400	05100	06100	05300
78 562 01223 / 78 563 01223	05400	05100	06100	05300
78 562 01643 / 78 563 01643	05400	05100	06100	05300

MaxiLock-S – STDC 45° – Toolholder with screw clamping

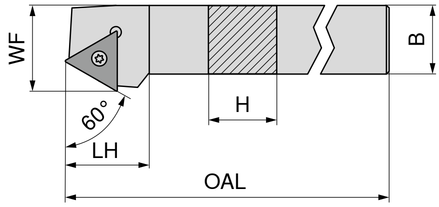


Illustrations show right-hand versions

Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand 78 561 ...	Right-hand 78 560 ...
STDC R/L 06-2	0.375	0.375	2.500	0.410	0.433	TC..21.5..	00602	00602
STDC R/L 08-2	0.500	0.500	3.500	0.570	0.512	TC..21.5..	00802	00802
STDC R/L 10-3	0.625	0.625	4.000	1.000	0.669	TC..32.5..	01003	01003
STDC R/L 12-3B	0.750	0.750	4.500	1.000	0.866	TC..32.5..	01223	01223
STDC R/L 16-3D	1.000	1.000	6.000	1.000	1.063	TC..32.5..	01643	01643

Spare parts for Article no.	 Key I 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat T 78 950 ...	 Threaded sleeve 78 950 ...
78 560 00602 / 78 561 00602	06400	06200		
78 560 00802 / 78 561 00802	06400	06200		
78 560 01003 / 78 561 01003	05400	05100	06100	05300
78 560 01223 / 78 561 01223	05400	05100	06100	05300
78 560 01643 / 78 561 01643	05400	05100	06100	05300

MaxiLock-S – STTC 60° – Toolholder with screw clamping

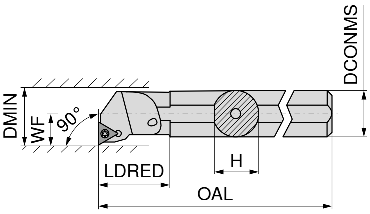


Illustrations show right-hand versions

Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand 78 567 ...	Right-hand 78 566 ...
STTC R/L 12-3B	0.750	0.750	4.500	1.000	0.718	TC..32.5..	01223	01223
STTC R/L 16-3D	1.000	1.000	6.000	1.000	0.860	TC..32.5..	01643	01643

Spare parts for Article no.	 Key I 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat T 78 950 ...	 Threaded sleeve 78 950 ...
78 566 01223 / 78 567 01223	05400	05100	06100	05300
78 566 01643 / 78 567 01643	05400	05100	06100	05300

MaxiLock-S – STFC 90° – Boring bar with screw clamping



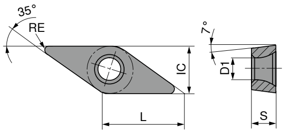
Illustrations show right-hand versions

Designation	DCONMS inch	H inch	OAL inch	LDRED inch	WF inch	DMIN inch	Insert	Left-hand 78 725 ...	Right-hand 78 724 ...
S06M STFC R/L 2	0.375	0.340	6.000	0.850	0.250	0.500	TC..21.5..	**20617**	**20617**
A06M STFC R/L	0.375	0.340	6.000	0.850	0.250	0.500	TC..21.5..	**20606**	**20606**
S08M STFC R/L 2	0.500	0.460	6.000	0.800	0.312	0.625	TC..21.5..	**20818**	**20818**
A08M STFC R/L	0.500	0.460	6.000	0.800	0.312	0.625	TC..21.5..	**20808**	**20808**
S10R STFC R/L 2	0.625	0.580	8.000	0.960	0.406	0.812	TC..21.5..	**21021**	**21021**
A10R STFC R/L	0.625	0.580	8.000	0.960	0.406	0.812	TC..21.5..	**21010**	**21010**
S12S STFC R/L 2	0.750	0.710	10.000	1.420	0.500	1.000	TC..21.5..	**21222**	**21222**
A12S STFC R/L	0.750	0.710	10.000	1.420	0.500	1.000	TC..21.5..	**21212**	**21212**
S16T STFC R/L 3	1.000	0.900	12.000	1.930	0.640	1.280	TC..32.5..	**31626**	**31626**
S20U STFC R/L 3	1.250	1.180	14.000	1.970	0.765	1.530	TC..32.5..	**32030**	**32030**
S24V STFC R/L 3	1.500	1.370	16.000	2.360	0.890	1.780	TC..32.5..	**32435**	**32435**

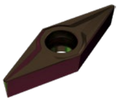
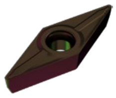
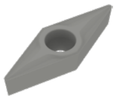
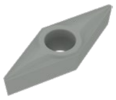
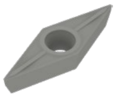
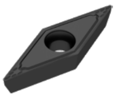
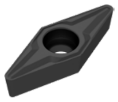
Spare parts for Article no.	 Key I 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat T 78 950 ...	 Threaded sleeve 78 950 ...
78 724 20617 / 78 725 20617	**06400**	**05200**		
78 724 20606 / 78 725 20606	**06400**	**05200**		
78 724 20818 / 78 725 20818	**06400**	**05200**		
78 724 20808 / 78 725 20808	**06400**	**06200**		
78 724 21021 / 78 725 21021	**06400**	**06200**		
78 724 21010 / 78 725 21010	**06400**	**06200**		
78 724 21222 / 78 725 21222	**06400**	**06200**		
78 724 21212 / 78 725 21212	**06400**	**06200**		
78 724 31626 / 78 725 31626	**05700**	**05600**		
78 724 32030 / 78 725 32030	**05400**	**05100**	**06100**	**05300**
78 724 32435 / 78 725 32435	**05400**	**05100**	**06100**	**05300**

VCGT / VCMT / VCET

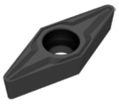
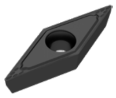
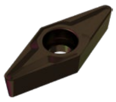
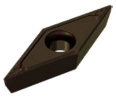
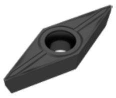
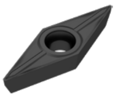
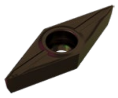
Designation	L inch	S inch	D1 inch	IC inch
VC.T 22..	0.437	0.125	0.114	0.250
VC.T 33..	0.654	0.187	0.173	0.375
VCGT 43..	0.870	0.219	0.217	0.500



VCGT / VCMT

		-CF05 CTEP110	**-CF55** CTEP110	**-SF** TCM10	**-SF** TCM407	**-SMF** TCM10	**-SF** CTCP115	**-SF** CTCP115
		DRAGONSKIN	DRAGONSKIN				DRAGONSKIN	DRAGONSKIN
		○ ◐ ◌	**○** ◐ ◌	**○** ◐ ◌	**○** ◐ ◌	**○** ◐ ◌	**○** ◐ ◌	**○** ◐ ◌
								
		F	**F**	**F**	**F**	**F**	**F**	**F**
		CERMET VCGT	**CERMET** VCMT	**CERMET** VCGT	**CERMET** VCGT	**CERMET** VCMT	VCMT	VCGT
		76 276 ...	**76 292 ...**	**70 277 ...**	**70 277 ...**	**70 288 ...**	**76 279 ...**	**76 277 ...**
ANSI	RE inch							
22.5EN	0.008	**014**		**894**	**844**			**314**
220EN	0.004			**892**				
221EN	0.016	**016**	**016**	**896**	**846**	**896**		**316**
222EN	0.031							**318**
331EN	0.016	**028**	**028**	**900**	**850**	**900**	**328**	
332EN	0.031	**030**	**030**	**902**		**902**	**330**	
P		●	●	●	●	●	●	●
M		○	○	○	○	○		
K		○	○	○	○	○	○	○
N								
S								
H								
O								

VCGT / VCMT

		-SF CTCP125	**-SF** CTCP125	**-SF** CTCP135	**-SF** CTCP135	**-SMF** CTCP115	**-SMF** CTCP125	**-SMF** CTCP135
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		○ **◐** ◌	○ **◐** ◌	○ ◐ **◌**	○ ◐ **◌**	**○** ◐ ◌	○ **◐** ◌	○ ◐ **◌**
								
		F	**F**	**F**	**F**	**F**	**F**	**F**
		VCGT	VCMT	VCGT	VCMT	VCMT	VCMT	VCGT
		76 277 ...	**76 279 ...**	**76 277 ...**	**76 279 ...**	**76 288 ...**	**76 288 ...**	**76 285 ...**
ANSI	RE inch							
22.5EN	0.008	**514**		**714**				**714**
221EN	0.016	**516**		**716**		**316**	**516**	
222EN	0.031	**518**		**718**				
331EN	0.016		**528**		**728**	**328**	**528**	
332EN	0.031		**530**			**330**	**530**	
P		●	●	●	●	●	●	●
M				○	○			○
K		○	○			○	○	
N								
S								
H								
O								

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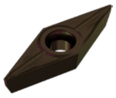
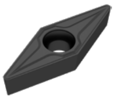
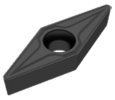
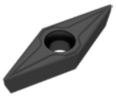
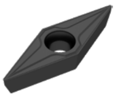
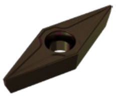
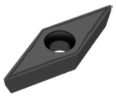
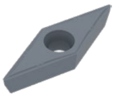
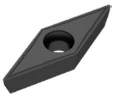
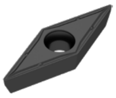
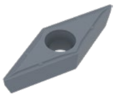
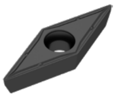
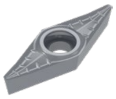
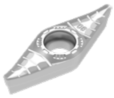
VCMT

		-SMF CTCP135	**-SM** CTCK110	**-SM** CTCK120	**-SM** CTCP115	**-SM** CTCP125	**-SM** CTCP135
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		○ ○ ●	● ○ ○	○ ● ○	● ○ ○	○ ● ○	○ ○ ●
							
		F VCMT **76 288 ...**	**M** VCMT **70 278 ...**	**M** VCMT **70 278 ...**	**M** VCMT **76 278 ...**	**M** VCMT **76 278 ...**	**M** VCMT **76 278 ...**
ANSI	RE inch						
221EN	0.016	**716**					
331.5EN	0.024				**329**		
331EN	0.016	**728**	**028**	**528**	**328**	**528**	**728**
332EN	0.031	**730**	**030**	**530**	**330**	**530**	**730**
333EN	0.047		**032**	**532**	**33200**	**53200**	**732**
P		●	○	○	●	●	●
M		○					○
K			●	●	○	○	
N							
S							
H							
O							

VCMT

		NEW		**NEW**	**NEW**		**NEW**
		-M25 CTCM120	**-M25** CTPM125	**-M25** CTCM130	**-M55** CTCM120	**-M55** CTPM125	**-M55** CTCM130
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		● ○ ○	○ ● ○	○ ○ ●	● ○ ○	○ ● ○	○ ○ ●
							
		F VCMT **75 219 ...**	**F** VCMT **75 219 ...**	**F** VCMT **75 219 ...**	**M** VCMT **75 220 ...**	**M** VCMT **75 220 ...**	**M** VCMT **75 220 ...**
ANSI	RE inch						
331EN	0.016	**12800**	**228**	**32800**	**12800**	**228**	**32800**
332EN	0.031	**13000**	**23000**	**33000**	**13000**	**230**	**33000**
P		○	○	○	○	○	○
M		●	●	●	●	●	●
K							
N							
S				○			○
H							
O							

VCGT / VCMT

		NEW				NEW	NEW
	-25P H210T	-25P CTPX710	-25Q H210T	-27 H10T	-27 CWN15	-27 CTPX715	-29 H216T
		DRAGONSKIN				DRAGONSKIN	
							
	F	M	M	M	M	M	M
	VCGT	VCGT	VCGT	VCGT	VCGT	VCGT	VCMT
	70 282 ...	70 282 ...	70 282 ...	70 280 ...	70 280 ...	70 280 ...	70 247 ...

ANSI	RE inch	70 282 ...	70 282 ...	70 282 ...	70 280 ...	70 280 ...	70 280 ...	70 247 ...
22.5FN	0.008	638	71400		606	306	81400	
221FL	0.016			670				
221FN	0.016	640	71600		608	308	81600	
221FR	0.016			680				
222FN	0.031				610	310		
331EN	0.016							62800
331FN	0.016	642	72800		612	312	82800	
332EN	0.031							63000
332FN	0.031	644	73000		614	314	83000	
333EN	0.047							63200
333FN	0.047	646	73200		616	316		
43.57.5FN	0.118	648	75000		618			
P			●				●	
M			●			○	●	
K		○		○	○		○	○
N		●	●	●	●	●	●	●
S		○	●	○			●	
H								
O		○		○	○		○	○

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VCET

NEW

-F05
CTPX710

DRAGONSKIN

F
VCET
76 255 ...

ANSI	RE inch	
22.5FN	0.008	**12000**
2205FN	0.006	**11800**
220FN	0.004	**11600**
221FN	0.016	**12200**
22X0FN	0.002	**11400**

P	●
M	●
K	
N	●
S	●
H	
O	

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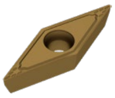
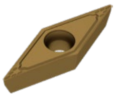
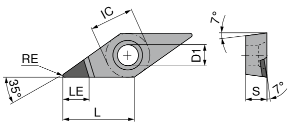
VCMT

		NEW	NEW	NEW	NEW
		-FMS CT-P15	**-FMS** CT-P25	**-MRS** CT-P15	**-MRS** CT-P25
		● ○ ○	○ ● ○	● ○ ○	○ ● ○
					
		F VCMT	**F** VCMT	**M** VCMT	**M** VCMT
		75 308 ...	75 308 ...	75 309 ...	75 309 ...
ANSI	RE inch				
221EN	0.016	**01609**	**11609**		
331EN	0.016	**02809**	**12809**	**02809**	**12809**
332EN	0.031	**03009**	**13009**	**03009**	**13009**
P		●	●	●	●
M		○	○	○	○
K					
N					
S					
H					
O					

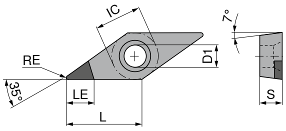
→ v_c Page 160–181

VCGW / VCGT

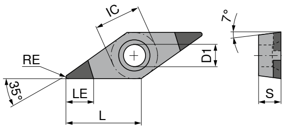
Designation	L inch	S inch	D1 inch	IC inch
VCG. 22..	0.437	0.125	0.114	0.250
VCG. 33..	0.654	0.187	0.173	0.375
VCGW 1...	0.272	0.094	0.087	0.156



VCGT A



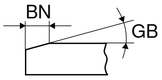
VCGW A



VCGW B

VCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



						CTBS10U	NEW CTBS20U	CTBS20C	NEW CTBH15U	NEW CTBH15C
						F **CBN** VCGW	**F** **CBN** VCGW	**F** **CBN** VCGW	**F** **CBN** VCGW	**F** **CBN** VCGW
ANSI	RE inch	BN inch	GB	**TCE (NOI)**	LE inch	**71 160 ...**	**71 429 ...**	**71 165 ...**	**71 036 ...**	**71 035 ...**
22.5SN	0.008	0.004	15°	**B (2)**	0.134				**32014**	**32014**
22.5TN	0.008	0.005	15°	**A (1)**	0.185		**20000**			
22.5EN	0.008			**B (2)**	0.134				**02000**	**02000**
22.5FN	0.008			**A (1)**	0.185	**200**				
22.5TN	0.008	0.005	20°	**A (1)**	0.185	**300**				
22.5SN	0.008	0.006	25°	**B (2)**	0.134				**32029**	**32029**
221SN	0.016	0.004	10°	**B (2)**	0.122			**121**		
221SN	0.016	0.004	15°	**B (2)**	0.122			**131**	**32214**	**32214**
221TN	0.016	0.005	20°	**A (1)**	0.177	**302**				
221TN	0.016	0.006	20°	**B (2)**	0.122			**141**		
221EN	0.016			**B (2)**	0.122				**02200**	**02200**
221FN	0.016			**A (1)**	0.177	**202**				
221SN	0.016	0.006	20°	**B (2)**	0.122			**151**		
221SN	0.016	0.006	25°	**B (2)**	0.122					**32229**
221SN	0.016	0.007	25°	**B (2)**	0.122			**171**		
222SN	0.031	0.004	10°	**B (2)**	0.098			**122**		
222EN	0.031			**B (2)**	0.098			**112**	**02400**	**02400**
222FN	0.031			**A (1)**	0.165	**204**				
222SN	0.031	0.004	15°	**B (2)**	0.098			**132**	**32414**	**32414**
222TN	0.031	0.005	20°	**A (1)**	0.165	**304**				
222SN	0.031	0.006	20°	**B (2)**	0.098			**152**		
221SN	0.031	0.006	25°	**B (2)**	0.122				**32229**	
222SN	0.031	0.006	25°	**B (2)**	0.098				**32429**	**32429**
222TN	0.031	0.007	25°	**B (2)**	0.098			**162**		
222SN	0.031	0.007	25°	**B (2)**	0.098			**172**		
33.5RN	0.008			**B (2)**	0.134					**23600**
33.5SN	0.008	0.004	15°	**B (2)**	0.134				**33614**	**33614**
33.5SN	0.008	0.006	25°	**B (2)**	0.134				**33629**	**33629**
33.5FN	0.008			**A (1)**	0.209	**205**				
33.5TN	0.008	0.005	20°	**A (1)**	0.209	**305**				
331SN	0.016	0.004	10°	**B (2)**	0.122			**125**		
331SN	0.016	0.004	15°	**B (2)**	0.122			**135**	**33814**	**33814**
331TN	0.016	0.005	15°	**A (1)**	0.197		**20100**			

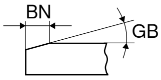
	CTBS10U	CTBS20U	CTBS20C	CTBH15U	CTBH15C
P					
M					
K	●	●	●		
N					
S	●	●	●		
H				●	●
O					

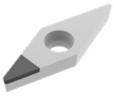
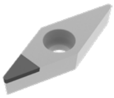
→ v_c Page 164–171

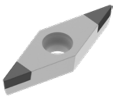
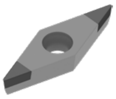
Continued on next page

VCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



ANSI	RE inch	BN inch	GB	TCE (NOI)	LE inch	CTBS10U F CBN VCGW 71 160 ...	NEW CTBS20U F CBN VCGW 71 429 ...	CTBS20C F CBN VCGW 71 165 ...	NEW CTBH15U F CBN VCGW 71 036 ...	NEW CTBH15C F CBN VCGW 71 035 ...
331TN	0.016	0.005	20°	**A (1)**	0.197	**306**				
331TN	0.016	0.006	20°	**B (2)**	0.122			**145**		
331RN	0.016			**B (2)**	0.122				**23800**	**23800**
33.5RN	0.016			**B (2)**	0.134				**23600**	
331FN	0.016			**A (1)**	0.197	**206**				
331SN	0.016	0.006	20°	**B (2)**	0.122			**155**		
331SN	0.016	0.006	25°	**B (2)**	0.122				**33829**	**33829**
331SN	0.016	0.007	25°	**B (2)**	0.122			**175**		
332SN	0.031	0.004	10°	**B (2)**	0.098			**126**		
332SN	0.031	0.004	15°	**B (2)**	0.098			**136**	**34014**	**34014**
332SN	0.031	0.005	15°	**A (1)**	0.173		**20200**			
332TN	0.031	0.005	20°	**A (1)**	0.173	**308**				
332SN	0.031	0.006	20°	**B (2)**	0.098			**156**		
332RN	0.031			**B (2)**	0.098				**24000**	**24000**
332EN	0.031			**B (2)**	0.098			**116**		
332FN	0.031			**A (1)**	0.173	**208**				
332SN	0.031	0.006	25°	**B (2)**	0.098				**34029**	**34029**
332TN	0.031	0.007	25°	**B (2)**	0.098			**166**		
332SN	0.031	0.007	25°	**B (2)**	0.098			**176**		

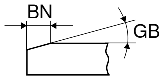
	71 160	71 429	71 165	71 036	71 035
P					
M					
K	●	●	●		
N					
S	●	●	●		
H				●	●
O					

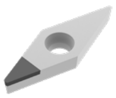
4

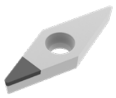
→ v_c Page 164–171

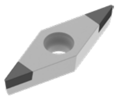
VCGW / VCGT

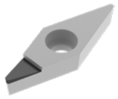
▲ TCE(NOI) = Design and number of equipped cutting edge corners











ANSI	RE inch	BN inch	GB	TCE (NOI)	LE inch	CTBH20U F CBN VCGW 71 160 ...	CTBH21U F CBN VCGW 71 160 ...	NEW CTBH21U F CBN VCGW 71 430 ...	NEW CTBH21U F CBN VCGT 71 428 ...	CTBH20C F CBN VCGW 71 165 ...
1.21.5.5TN	0.008	0.005	25°	**A (1)**	0.138		**55000**			
1.21.51FN	0.016			**A (1)**	0.126		**45000**			
22.5TN	0.008	0.005	20°	**A (1)**	0.185	**500**				
22.5TN	0.008	0.005	25°	**B (2)**	0.138			**40100**		
22.5FN	0.008			**B (2)**	0.138			**40000**		
22.5FN	0.008			**A (1)**	0.185	**400** 1)				
221FN	0.016			**A (1)**	0.126				**40000**	
221FN	0.016			**B (2)**	0.122					**211**
221EN	0.016			**B (2)**	0.122					**221**
221SN	0.016	0.004	20°	**B (2)**	0.122					**251**
221TN	0.016	0.006	25°	**B (2)**	0.122					**261**
221SN	0.016	0.006	25°	**B (2)**	0.122					**271**
221FN	0.016			**B (2)**	0.126			**40200**		
221TN	0.016	0.005	25°	**B (2)**	0.126			**40300**		
221FN	0.016			**A (1)**	0.177	**402** 1)				
221TN	0.016	0.005	20°	**A (1)**	0.177	**502**				
222SN	0.031	0.004	15°	**B (2)**	0.098					**242**
222SN	0.031	0.004	20°	**B (2)**	0.098					**252**
222TN	0.031	0.005	20°	**A (1)**	0.165	**504**				
222TN	0.031	0.006	25°	**B (2)**	0.098					**262**
222SN	0.031	0.006	25°	**B (2)**	0.098					**272**
222EN	0.031			**B (2)**	0.098					**222**
222FN	0.031			**A (1)**	0.165	**404** 1)				
222SN	0.031	0.007	30°	**B (2)**	0.098					**282**
33.5FN	0.008			**A (1)**	0.138		**43000**		**40100**	
33.5TN	0.008	0.005	25°	**B (2)**	0.138			**40400**		
33.5TN	0.008	0.005	25°	**A (1)**	0.138		**52000**			
33.5FN	0.008			**A (1)**	0.209	**405** 1)				
33.5TN	0.008	0.005	20°	**A (1)**	0.209	**505**				
331FN	0.016			**B (2)**	0.126			**40500**		
331FN	0.016			**B (2)**	0.122					**215**
331EN	0.016			**B (2)**	0.122					**225**
331SN	0.016	0.004	20°	**B (2)**	0.122					**255**
331TN	0.016	0.006	25°	**B (2)**	0.122					**265**
331SN	0.016	0.004	15°	**B (2)**	0.122					**24400**
331TN	0.016	0.005	25°	**B (2)**	0.126			**40600**		
331FN	0.016			**A (1)**	0.126		**41200**			
331TN	0.016	0.005	25°	**A (1)**	0.126		**52200**			
331FN	0.016			**A (1)**	0.197	**406** 1)				
331TN	0.016	0.005	20°	**A (1)**	0.197	**506**				
332SN	0.031	0.004	15°	**B (2)**	0.098					**246**
332SN	0.031	0.004	20°	**B (2)**	0.098					**256**
332TN	0.031	0.005	20°	**A (1)**	0.173	**508**				
332TN	0.031	0.005	25°	**B (2)**	0.110			**40800**		
332TN	0.031	0.006	25°	**B (2)**	0.098					**266**
332SN	0.031	0.006	25°	**B (2)**	0.098					**276**
332SN	0.031	0.007	30°	**B (2)**	0.098					**286**
332EN	0.031			**B (2)**	0.098					**226**
332FN	0.031			**B (2)**	0.110			**40700**		
332FN	0.031			**A (1)**	0.173	**408** 1)				
333TN	0.047	0.005	20°	**A (1)**	0.154	**510**				
P										
M										
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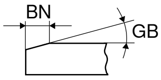
S										
H						●	●	●	●	●
O										

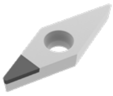
1) Machining to 60 HRC

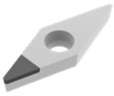
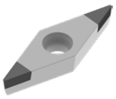
→ v_c Page 164–171

VCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners





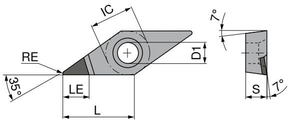
ANSI	RE inch	BN inch	GB	TCE (NOI)	LE inch	CTBH40U F CBN VCGW 71 160 ...	CTBH40C F CBN VCGW 71 165 ...	NEW CTBH41U F CBN VCGW 71 429 ...	NEW CTBH41U F CBN VCGW 71 430 ...
1.21.5.5FN	0.008			**A (1)**	0.138			**70000**	
1.21.51FN	0.016			**A (1)**	0.126			**70100**	
22.5FN	0.008			**A (1)**	0.185	**800**			
22.5FN	0.008			**B (2)**	0.138				**70000**
22.5TN	0.008	0.005	25°	**A (1)**	0.185	**900**			
221SN	0.016	0.004	20°	**B (2)**	0.122		**331**		
221SN	0.016	0.004	25°	**B (2)**	0.122		**351**		
221FN	0.016			**B (2)**	0.126				**70100**
221FN	0.016			**A (1)**	0.177	**802**			
221TN	0.016	0.004	25°	**B (2)**	0.122		**341**		
221TN	0.016	0.005	25°	**A (1)**	0.177	**902**			
221TN	0.016	0.006	30°	**B (2)**	0.122		**361**		
221SN	0.016	0.007	35°	**B (2)**	0.122		**381**		
222SN	0.031	0.004	20°	**B (2)**	0.098		**332**		
222SN	0.031	0.004	25°	**B (2)**	0.098		**352**		
222EN	0.031			**B (2)**	0.098		**312**		
222FN	0.031			**A (1)**	0.165	**804**			
222TN	0.031	0.004	25°	**B (2)**	0.098		**342**		
222TN	0.031	0.006	30°	**B (2)**	0.098		**362**		
222SN	0.031	0.006	30°	**B (2)**	0.098		**372**		
222SN	0.031	0.007	35°	**B (2)**	0.098		**382**		
33.5FN	0.008			**A (1)**	0.209	**805**			
33.5FN	0.008			**B (2)**	0.138				**70200**
33.5FN	0.008			**A (1)**	0.138			**70200**	
33.5TN	0.008	0.005	25°	**A (1)**	0.209	**905**			
331SN	0.016	0.004	20°	**B (2)**	0.122		**335**		
331SN	0.016	0.004	25°	**B (2)**	0.122		**355**		
331FN	0.016			**B (2)**	0.126				**70300**
331FN	0.016			**A (1)**	0.126			**70300**	
331FN	0.016			**A (1)**	0.197	**806**			
331TN	0.016	0.004	25°	**B (2)**	0.122		**345**		
331TN	0.016	0.005	25°	**A (1)**	0.197	**906**			
331TN	0.016	0.003	30°	**A (1)**	0.126			**70400**	
331TN	0.016	0.006	30°	**B (2)**	0.122		**365**		
331SN	0.016	0.007	35°	**B (2)**	0.122		**385**		
332SN	0.031	0.004	20°	**B (2)**	0.098		**336**		
332SN	0.031	0.004	25°	**B (2)**	0.098		**356**		
332TN	0.031	0.004	25°	**B (2)**	0.098		**346**		
332TN	0.031	0.005	25°	**A (1)**	0.173	**908**			
332TN	0.031	0.006	30°	**B (2)**	0.098		**366**		
332FN	0.031			**B (2)**	0.110				**70400**
332FN	0.031			**A (1)**	0.110			**70500**	
332EN	0.031			**B (2)**	0.098		**316**		
332FN	0.031			**A (1)**	0.173	**808**			
332SN	0.031	0.006	30°	**B (2)**	0.098		**376**		
332SN	0.031	0.007	35°	**B (2)**	0.098		**386**		
333TN	0.047	0.005	25°	**A (1)**	0.154	**90900**			

	71 160 ...	71 165 ...	71 429 ...	71 430 ...
P				
M				
K				
N				
S				
H	●	●	●	●
O				

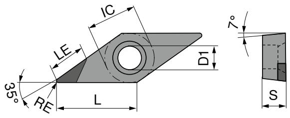
→ v_c Page 164–171

VCGT / VCGW

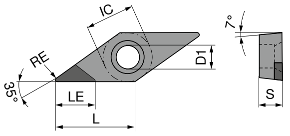
Designation	L inch	S inch	D1 inch	IC inch
VCG. 1...	0.272	0.094	0.087	0.156
VCG. 22..	0.437	0.125	0.114	0.250
VCG. 2...	0.524	0.125	0.134	0.313
VCG. 33..	0.654	0.187	0.173	0.375



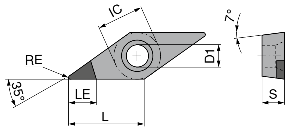
VCGT A



VCGT A L



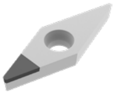
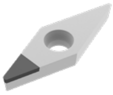
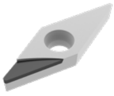
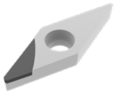
VCGT A R



VCGW A

VCGT / VCGW

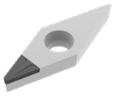
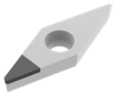
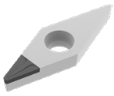
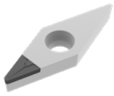
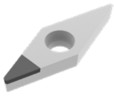
▲ TCE(NOI) = Design and number of equipped cutting edge corners

ANSI	RE inch	TCE (NOI)	LE inch	NEW CTDMD05 ○  F DIAMOND VCGT 71 189 ...	CTDMD05 ○  F DIAMOND VCGW 71 160 ...	CTDPD20 ○  F DIAMOND VCGW 71 160 ...	CTDPD20 ○  F DIAMOND VCGT 71 062 ...	CTDPD20 ○  F DIAMOND VCGT 71 063 ...	CTDPD20 ○  F DIAMOND VCGT 71 064 ...
1.21.5.5FN	0.008	**A (1)**		50001					
1.21.51FN	0.016	**A (1)**		50101					
220FN	0.004	**A (1)**	0.213				10100		
22.5FN	0.008	**A (1)**	0.118		050				
22.5FN	0.008	**A (1)**	0.181	50201		100	100		
221FN	0.016	**A (1)**	0.118		052				
221FN	0.016	**A (1)**	0.154	50301		102	102		
221FR	0.016	**A (1)**	0.256					102	
221FL	0.016	**A (1)**	0.256						102
222FN	0.031	**A (1)**	0.130			104	104		
222FR	0.031	**A (1)**	0.236					104	
222FL	0.031	**A (1)**	0.236						104
330FN	0.004	**A (1)**	0.236				10700		
33.5FN	0.008	**A (1)**	0.232			105	105		
33.5FN	0.008	**A (1)**		50401					
331FN	0.016	**A (1)**	0.217			106	106		
331FN	0.016	**A (1)**		50501					
331FR	0.016	**A (1)**	0.295					106	
331FL	0.016	**A (1)**	0.295						106
332FN	0.031	**A (1)**	0.197		07800	108	108		
332FR	0.031	**A (1)**	0.276					108	
332FL	0.031	**A (1)**	0.276						108
332FN	0.031	**A (1)**		50601					
333FN	0.047	**A (1)**	0.177			110	110		
333FR	0.047	**A (1)**	0.276					110	
333FL	0.047	**A (1)**	0.276						110
P									
M									
K									
N				●	●	●	●	●	●
S									
H									
O				●	●	●	●	●	●

→ v_c Page 164–171

VCGT / VCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

					NEW	NEW			NEW
				-CB1 CTDPD20	CTDPS30	CTDPS30	-CB1 CTDPS30	-CB2 CTDPS30	CTDPU20
				○	○	○	○	○	○
									
				F	F	F	F	M	F
				DIAMOND VCGT	DIAMOND VCGW	DIAMOND VCGT	DIAMOND VCGT	DIAMOND VCGT	DIAMOND VCGW
				71 330 ...	71 191 ...	71 189 ...	71 330 ...	71 331 ...	71 191 ...
ANSI	RE inch	**TCE (NOI)**	LE inch						
1.21.50FN	0.004	**A (1)**	0.150			**20001**			
1.21.5.5FN	0.008	**A (1)**	0.142		**20001**				
1.21.51FN	0.016	**A (1)**	0.126		**20101**				
220FN	0.004	**A (1)**	0.213	**11000**	**20201**	**20101**			
22.5FN	0.008	**A (1)**	0.181	**112**	**20301**	**20201**	**21200**	**212**	
221FN	0.016	**A (1)**	0.154	**114**	**20401**	**20301**	**214**	**214**	
222FN	0.031	**A (1)**	0.130					**21800**	
2.52.5FN	0.008	**A (1)**	0.232		**20501**	**20401**			
330FN	0.004	**A (1)**	0.236		**20601**	**20501**			
33.5FN	0.008	**A (1)**	0.232	**13200**		**20601**		**23200**	
331FN	0.016	**A (1)**	0.217	**134**	**20701**	**20701**	**234**	**234**	**30001**
332FN	0.031	**A (1)**	0.197	**138**	**20801**		**238**	**238**	
333FN	0.047	**A (1)**	0.177	**14000**	**20901**		**24000**	**242**	

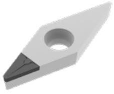
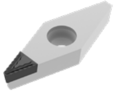
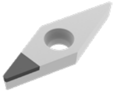
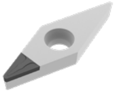
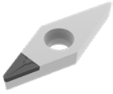
P						
M						
K						
N	●	●	●	●	●	●
S						
H						
O	●	●	●	●	●	●

4

→ v_c Page 164–171

VCGT / VCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				NEW		NEW		
				-CB2 CTDPU20	**-CB3** CTDPU20	CTDCD10	**-CB1** CTDCD10	**-CB2** CTDCD10
								
				M **DIAMOND** VCGT	**R** **DIAMOND** VCGT	**F** **DIAMOND** VCGW	**F** **DIAMOND** VCGT	**M** **DIAMOND** VCGT
				71 190 ...	71 332 ...	71 191 ...	71 330 ...	71 331 ...
ANSI	RE inch	**TCE (NOI)**	LE inch					
220FN	0.004	**A (1)**	0.118				**31000**	
22.5FN	0.008	**A (1)**	0.118			**40001**	**312**	**312**
221FN	0.016	**A (1)**	0.118			**40101**	**314**	**314**
221FN	0.016	**A (1)**	0.154		**214**			
222FN	0.031	**A (1)**	0.118			**40201**		
33.5FN	0.008	**A (1)**	0.118			**40301**	**32200**	**33200**
331FN	0.016	**A (1)**	0.118			**40401**	**32400**	**334**
331FN	0.016	**A (1)**	0.217	**30001**	**234**			
332FN	0.031	**A (1)**	0.118			**40501**	**32600**	**338**
333FN	0.047	**A (1)**	0.118				**32800**	**34000**

P					
M					
K					
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S					
H					
O	●	●	●	●	●

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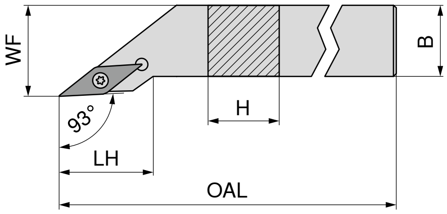
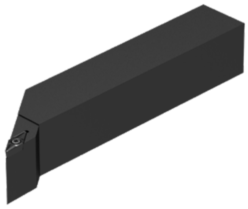
MaxiLock-S – SVJC 93° – Toolholder with screw clamping



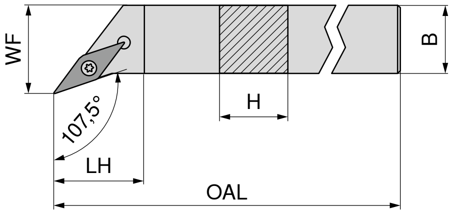
Illustrations show right-hand versions



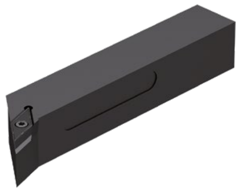
Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand 78 571 ...	Right-hand 78 570 ...
SVJC R/L 12-3B	0.750	0.750	4.500	1.610	1.000	VC..33..	01223	01223
SVJC R/L 16-3D	1.000	1.000	6.000	1.610	1.250	VC..33..	01643	01643
SVJC R/L 20-3D	1.250	1.250	6.000	1.610	1.500	VC..33..	02043	02043

Spare parts **for Article no.**	 Key I 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat V 78 950 ...	 Threaded sleeve 78 950 ...
78 570 01223 / 78 571 01223	05400	05100	05500	05300
78 570 01643 / 78 571 01643	05400	05100	05500	05300
78 570 02043 / 78 571 02043	05400	05100	05500	05300

MaxiLock-S – SVHC 107.5° – Toolholder with screw clamping



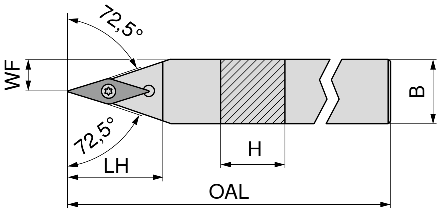
Illustrations show right-hand versions

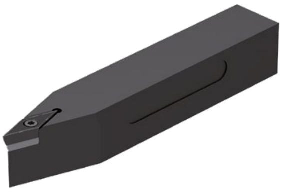


Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Left-hand 78 569 ...	Right-hand 78 568 ...
SVHC R/L 12-3B	0.750	0.750	4.500	0.744	1.000	VC..33..	01223	01223
SVHC R/L 16-3D	1.000	1.000	6.000	0.756	1.250	VC..33..	01643	01643

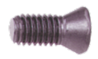
Spare parts **for Article no.**	 Key I 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat V 78 950 ...	 Threaded sleeve 78 950 ...
78 568 01223 / 78 569 01223	05400	05100	05500	05300
78 568 01643 / 78 569 01643	05400	05100	05500	05300

MaxiLock-S – SVVC 72.5° – Toolholder with screw clamping

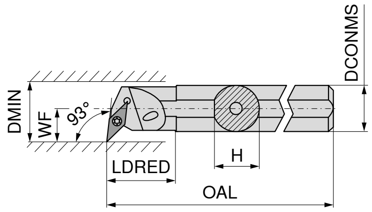




Designation	H inch	B inch	OAL inch	LH inch	WF inch	Insert	Neutral 78 585 ...
SVVC N 12-3B	0.750	0.750	4.500	1.212	0.398	VC..33..	**01223**
SVVC N 16-3D	1.000	1.000	6.000	1.610	0.523	VC..33..	**01643**
SVVC N 20-3D	1.250	1.250	6.000	2.008	0.648	VC..33..	**02043**

Spare parts **for Article no.**	 Key I 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat V 78 950 ...	 Threaded sleeve 78 950 ...
78 585 01223	**05400**	**05100**	**05500**	**05300**
78 585 01643	**05400**	**05100**	**05500**	**05300**
78 585 02043	**05400**	**05100**	**05500**	**05300**

MaxiLock-S – SVUC 93° – Boring bar with screw clamping

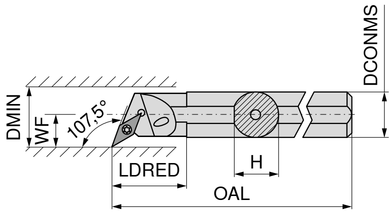


Illustrations show right-hand versions

Designation	DCONMS inch	H inch	OAL inch	LDRED inch	WF inch	DMIN inch	Insert	Left-hand 78 729 ...	Right-hand 78 728 ...
S10R SVUC R/L 2E	0.625	0.580	8.000	1.060	0.500	0.867	VC..22..	**21021**	**21021**
S12S SVUC R/L 2E	0.750	0.710	10.000	1.580	0.625	1.060	VC..22..	**21222**	**21222**
S16T SVUC R/L 2D	1.000	0.900	12.000	1.810	0.750	1.300	VC..22..	**21626**	**21626**
S20U SVUC R/L 3	1.250	1.180	14.000	3.000	1.000	2.000	VC..33..	**32030**	**32030**
S24V SVUC R/L 3	1.500	1.370	16.000	3.000	1.250	2.250	VC..33..	**32435**	**32435**
S32W SVUC R/L 3	2.000	1.870	18.000	4.000	1.375	2.750	VC..33..	**33243**	**33243**

Spare parts for Article no.	 Key I 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat V 78 950 ...	 Threaded sleeve 78 950 ...
78 728 21021 / 78 729 21021	**06400**	**06200**		
78 728 21222 / 78 729 21222	**06400**	**06200**		
78 728 21626 / 78 729 21626	**06400**	**06200**		
78 728 32030 / 78 729 32030	**05400**	**05100**	**05500**	**05300**
78 728 32435 / 78 729 32435	**05400**	**05100**	**05500**	**05300**
78 728 33243 / 78 729 33243	**05400**	**05100**	**05500**	**05300**

MaxiLock-S – SVQC 107.5° – Boring bar with screw clamping



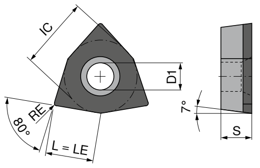
Illustrations show right-hand versions

Designation	DCONMS inch	H inch	OAL inch	LDRED inch	WF inch	DMIN inch	Insert	Left-hand 78 727 ...	Right-hand 78 726 ...
S16T SVQC R/L 3	1.000	0.900	12.000	0.910	0.750	1.375	VC..33..	**31626**	**31626**
S20U SVQC R/L 3	1.250	1.180	14.000	1.060	0.875	1.625	VC..33..	**32030**	**32030**
S24V SVQC R/L 3	1.500	1.370	16.000	1.370	1.063	2.000	VC..33..	**32435**	**32435**

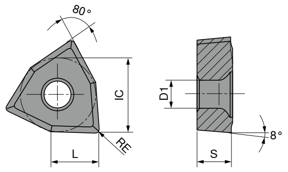
Spare parts for Article no.	 Key I 78 950 ...	 Clamping screw 78 950 ...	 Solid Carbide Seat V 78 950 ...	 Threaded sleeve 78 950 ...
78 726 31626 / 78 727 31626	**05700**	**05600**		
78 726 32030 / 78 727 32030	**05400**	**05100**	**05500**	**05300**
78 726 32435 / 78 727 32435	**05400**	**05100**	**05500**	**05300**

WCGT / WCGW

Designation	L inch	S inch	D1 inch	IC inch
WCGW 1..	0.106	0.062	0.091	0.156
WCGW 1..	0.106	0.063	0.091	0.156
WCGT 1..	0.107	0.063	0.083	0.156

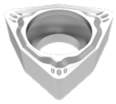


CBN/PKD WCGW F



WCGT

WCGT

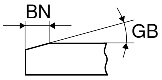
ANSI	RE inch	**-SF** TCM10  **F** **CERMET** WCGT 70 287 ...	**-SF** CTPP430 DRAGONSKIN  **F** WCGT 70 287 ...	**-SF** H216T  **F** WCGT 70 287 ...
1.21.5EN	0.008		**450**	
1.21.5FN	0.008	**900**		**600**
1.211EN	0.016		**452**	
1.211FN	0.016	**902**		**602**

P	●	●	
M	○	●	
K	○	○	○
N		○	●
S		○	
H			
O			○

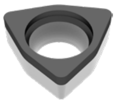
→ v_c Page 160–171

WCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners



NEW

						CTBS10U	CTBH15U	CTBH20U	CTBH40U
						F	F	F	F
						CBN WCGW	CBN WCGW	CBN WCGW	CBN WCGW
						71 154 ...	71 037 ...	71 154 ...	71 154 ...
ANSI	RE inch	BN inch	GB	**TCE (NOI)**	LE inch				
1.21.5SN	0.008	0.004	15°	**F**	0.106		**30214**		
1.21.5TN	0.008	0.005	20°	**F**	0.106			**500**	
1.21.5FN	0.008			**F**	0.106	**200**	**00200**	**400** 1)	**800**
1.21.5TN	0.008	0.005	25°	**F**	0.106				**900**
1.211SN	0.016	0.004	15°	**F**	0.106		**30414**		
1.211TN	0.016	0.005	20°	**F**	0.106			**502**	
1.211FN	0.016			**F**	0.106			**402** 1)	**80100**
1.211EN	0.016			**F**	0.106		**00400**		
1.211TN	0.016	0.005	25°	**F**	0.106				**902**
P									
M									
K						●			
N									
S						●			
H							●	●	●
O									

1) Machining to 60 HRC

WCGW

▲ TCE(NOI) = Design and number of equipped cutting edge corners

				CTDPD20
				F
				DIAMOND WCGW
				71 154 ...
ANSI	RE inch	**TCE (NOI)**	LE inch	
1.21.5FN	0.008	**F**	0.106	**100**
1.211FN	0.016	**F**	0.106	**102**
P				
M				
K				
N				●
S				
H				
O				●

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength lbf/in^{2*} / HB / HRC	Material number	Material designation	Material number	Material designation
P	Unalloyed steel	P.1.1	< 0.15 % C	Annealed	60900 lbf/in^2 / 125 HB	1.0401	1015	1.0301	1010
		P.1.2	< 0.45 % C	Annealed	92800 lbf/in^2 / 190 HB	1.1191	1045	1.0737	12L14
		P.1.3		Tempered	121800 lbf/in^2 / 250 HB	1.1191	1045	1.0503	1043
		P.1.4	< 0.75 % C	Annealed	132000 lbf/in^2 / 270 HB	1.1223	1060	1.0535	1055
		P.1.5		Tempered	146500 lbf/in^2 / 300 HB	1.1223	1060	1.1274	1095
	Low-alloy steel	P.2.1		Annealed	88500 lbf/in^2 / 180 HB	1.7131	5115	1.6523	8620
		P.2.2		Tempered	134900 lbf/in^2 / 275 HB	1.7131	5115	1.6582	4340
		P.2.3		Tempered	146500 lbf/in^2 / 300 HB	1.7225	4142	1.7131	5115
		P.2.4		Tempered	174000 lbf/in^2 / 375 HB	1.7225	4142	17223	4140
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	98600 lbf/in^2 / 200 HB	1.4021	420	1.2379	D2
		P.3.2		Hardened and tempered	159500 lbf/in^2 / 300 HB	1.2343	H11	1.3343	M2
		P.3.3		Hardened and tempered	188500 lbf/in^2 / 400 HB	1.2343	H11	1.2363	A2
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	98600 lbf/in^2 / 200 HB	1.4016	430	1.4125	440C
		P.4.2	Martensitic	Tempered	117500 lbf/in^2 / 250 HB	1.4112	S44003	1.4021	420
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	88500 lbf/in^2 / 200 HB	1.4301	304	1.4401	316
		M.2.1	Austenitic	Tempered	300 HB	1.4841	314	1.4568	17-7 PH
		M.3.1	Austenitic / ferritic (Duplex)		113100 lbf/in^2 / 230 HB	1.4462	S32205	1.4410	S32750
K	Grey cast iron	K.1.1	Pearlitic / ferritic		88500 lbf/in^2 / 180 HB	0.6010	A48-20B	0.6025	A48-40 B
		K.1.2	Pearlitic (martensitic)		127600 lbf/in^2 / 260 HB	0.6030	A48-45B	0.6040	A48-60 B
	Spherulitic graphite cast iron	K.2.1	Ferritic		78300 lbf/in^2 / 160 HB	0.7040	60-40-18	0.7050	65-45-12
		K.2.2	Pearlitic		122600 lbf/in^2 / 250 HB	0.7070	100-70-03	0.7660	A439 Type D2
	Malleable iron	K.3.1	Ferritic		63800 lbf/in^2 / 130 HB	0.8035	GTW-35-04		
		K.3.2	Pearlitic		113100 lbf/in^2 / 230 HB	0.8170	70003		
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB	3.0255	A91060	3.0255	A91060
		N.1.2	Hardenable		49300 lbf/in^2 / 100 HB	3.1355	2024	3.1355	2024
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		36300 lbf/in^2 / 75 HB	3.2581	A04130 / A413-0	3.2581	A04130 / A413-0
		N.2.2	≤ 12 % Si, hardenable		43500 lbf/in^2 / 90 HB	3.2134	G-AlSi5Cu1Mg		
		N.2.3	> 12 % Si, non-hardenable		63800 lbf/in^2 / 130 HB		G-AlSi17Cu4Mg		
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		54400 lbf/in^2 / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0380	C37700
		N.3.2	CuZn, CuSnZn		43500 lbf/in^2 / 90 HB	2.0331	CuZn15	2.0331	C34000
		N.3.3	CuSn, lead-free copper and electrolytic copper		49300 lbf/in^2 / 100 HB	2.0060	E-Cu57		
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn		
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	98600 lbf/in^2 / 200 HB	1.4864	X12NiCrSi 36-16	1.4864	330
		S.1.2			137800 lbf/in^2 / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4980	S66286
		S.2.1	Ni or Co basis	Annealed	121800 lbf/in^2 / 250 HB	2.4856	Inconel 625	2.4812	Hastelloy C
		S.2.2			171100 lbf/in^2 / 350 HB	2.4952	Nimonic 80A	2.4668	Inconel 718
		S.2.3		Cast	156600 lbf/in^2 / 320 HB	2.4674	Nimocast PK24	2.4670	Nimocast 713
	Titanium alloys	S.3.1	Pure titanium		5800 lbf/in^2	3.7025	Ti99,8		
		S.3.2	Alpha + beta alloys		152300 lbf/in^2	3.7165	TiAl6V4		
		S.3.3	Beta alloys		203100 lbf/in^2 / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr		
H	Hardened steel	H.1.1		Hardened and tempered	46-55 HRC				
		H.1.2		Hardened and tempered	56-60 HRC				
		H.1.3		Hardened and tempered	61-65 HRC				
		H.1.4		Hardened and tempered	66-70 HRC				
	Chilled iron	H.2.1		Cast	400 HB				
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC				
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 21800 lbf/in^2				
		O.1.2	Plastics, thermoplastic		≤ 14500 lbf/in^2				
		O.2.1	Aramid fibre-reinforced		≤ 145000 lbf/in^2				
		O.2.2	Glass/carbon-fibre reinforced		≤ 145000 lbf/in^2				
		O.3.1	Graphite						

* Tensile Strength at Rupture (Rm)

Cutting data standard values

			DRAGONSKIN													
	TCM407	TCM10	CTEP110	CTCP115	CTCP125	CTCP135	CTCK110	CTCK120	CTPM125	CTCM120	CTCM130	CTPX710 -M34	CTPX710 -25P/-25Q	CTPX715 -27	H210T	H10T/ H216T	CWN15
Index	v_c in ft/min																
P.1.1	**1250**	**1020**	**1530**	**1220**	**970**	**690**	1300	1080	670	750	610	**1070**	**1120**	**910**			
P.1.2	**1080**	**880**	**1330**	**1040**	**830**	**580**	1140	930	560	660	500	**940**	**990**	**780**			
P.1.3	**930**	**750**	**1150**	**890**	**690**	**480**	980	780	470	570	400	**830**	**860**	**660**			
P.1.4	**870**	**700**	**1090**	**830**	**660**	**450**	930	740	440	540	370	**790**	**830**	**620**			
P.1.5	**790**	**640**	**1000**	**760**	**590**	**400**	850	670	390	500	320	**730**	**780**	**560**			
P.2.1	**1110**	**900**	**1360**	**1070**	**860**	**590**	1160	950	580	670	520	**960**	**990**	**800**			
P.2.2	**860**	**690**	**1070**	**830**	**640**	**430**	920	730	430	530	360	**780**	**830**	**610**			
P.2.3	**790**	**640**	**1000**	**760**	**590**	**400**	850	670	390	500	320	**730**	**780**	**560**			
P.2.4	**600**	**480**	**770**	**560**	**430**	**280**	660	490	270	380	200	**580**	**630**	**410**			
P.3.1	**930**	**720**	**1140**	**660**	**560**	**500**	900	730	470	520	410	**460**	**500**	**450**			
P.3.2	**740**	**550**	**920**	**460**	**350**	**310**	740	580	320	380	270	**280**	**310**	**270**			
P.3.3	**550**	**380**	**700**	**280**	**130**	**120**	590	430	170	240	130	**100**	**120**	**80**			
P.4.1	**930**	**720**	**1140**	**660**	**560**	**510**			470	520	410	**460**	**510**	**450**			
P.4.2	**830**	**640**	**1030**	**560**	**450**	**410**			390	450	340	**370**	**430**	**360**			
M.1.1	930	720	1140			510			**470**	**520**	**410**	**460**	**500**	**450**			330
M.2.1						310			**320**	**380**	**270**	**280**	**300**	**270**			180
M.3.1						450			**420**	**480**	**370**	**410**	**430**	**400**			280
K.1.1			1350	840	560		**1320**	**910**						660	560	460	
K.1.2			1020	780	530		**1020**	**870**						530	430	380	
K.2.1	1170	860	1450	890	590		**1060**	**960**						630	590	500	
K.2.2	1040	710	1160	680	530		**910**	**760**						500	430	360	
K.3.1	1070	990	1370	830	660		**1020**	**910**						690	630	560	
K.3.2	830	680	830	690	530		**870**	**760**						590	530	460	
N.1.1												6070	**6070**	**5780**	**5450**	**4620**	**5450**
N.1.2												5280	**5280**	**4950**	**4460**	**3630**	**4620**
N.2.1												4130	**4130**	**3960**	**3960**	**3140**	**4130**
N.2.2												4130	**4130**	**3960**	**3630**	**3140**	**3960**
N.2.3												2480	**2480**	**2310**	**1980**	**1650**	**2480**
N.3.1												2150	**2150**	**2060**	**1730**	**1400**	**1980**
N.3.2												2080	**2080**	**1980**	**1650**	**1320**	**1880**
N.3.3												1650	**1650**	**1570**	**1240**	**910**	**1520**
N.4.1												1120	**1120**	**1070**	**910**	**740**	**920**
S.1.1											115	**330**	**365**	**130**	140		
S.1.2											85	**265**	**280**	**100**	110		
S.2.1											65	**210**	**250**	**100**	110		
S.2.2											65	**130**	**150**	**80**	80		
S.2.3											60	**125**	**140**	**65**	65		
S.3.1											365	**315**	**330**	**365**	365		
S.3.2											210	**180**	**200**	**230**	230		
S.3.3											150	**130**	**150**	**165**	165		
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1														460	530	430	
O.1.2																	
O.2.1														495	460	350	
O.2.2																	
O.3.1																	

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values

	CT-P15	CT-P25	CT-P35
Index	v_c in ft/min		
P.1.1	**960**	**780**	**540**
P.1.2	**830**	**660**	**460**
P.1.3	**710**	**560**	**380**
P.1.4	**660**	**530**	**360**
P.1.5	**610**	**480**	**330**
P.2.1	**860**	**690**	**480**
P.2.2	**660**	**510**	**350**
P.2.3	**610**	**480**	**310**
P.2.4	**450**	**350**	**210**
P.3.1	**530**	**450**	**400**
P.3.2	**380**	**280**	**250**
P.3.3	**210**	**110**	**90**
P.4.1	**530**	**450**	**400**
P.4.2	**460**	**360**	**330**
M.1.1	500	430	400
M.2.1	410	350	250
M.3.1	460	400	360
K.1.1			
K.1.2			
K.2.1			
K.2.2			
K.3.1			
K.3.2			
N.1.1			
N.1.2			
N.2.1			
N.2.2			
N.2.3			
N.3.1			
N.3.2			
N.3.3			
N.4.1			
S.1.1			
S.1.2			
S.2.1			
S.2.2			
S.2.3			
S.3.1			
S.3.2			
S.3.3			
H.1.1			
H.1.2			
H.1.3			
H.1.4			
H.2.1			
H.3.1			
O.1.1			
O.1.2			
O.2.1			
O.2.2			
O.3.1			

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Machinability of non-ferrous metals with carbide indexable inserts

	Material group	Material examples			Machinability of aluminium alloys *	Comments
N	Pure aluminium	non hardenable	Al 99,5	W7	5	▲ Snarl chips ▲ Possibly bad surface ▲ Excessive built-up edge ▲ Long tool life ▲ Use coolant emulsion
			Al 99,5	F13	4	
			Al 99	W8	5	
			Al 99	F14	4	
	Aluminium wrought alloys	non hardenable	Al Mn	W10	5	▲ Snarl, continuous or fragmented chip ▲ Large feed rates necessary for good chip control ▲ Built-up edge ▲ Long tool life ▲ Emulsion coolant is advantageous
			Al Mn	F16	4	
			Al Mg 1	W10	5	
			Al Mg 1	F19	4	
			Al Mg 3	W18	4	
			Al Mg 3	F25	3	
			Al Mg 5	W25	4	
			AL Mg 5	F28	2	
			Al Mg 4,5 Mn	W27	4	
			Al Mg 4,5 Mn	G35	3	
		hardenable	Al Mg Si 0,5	W	4	▲ Good chip control with higher feed rates
			Al Mg Si 0,5	F13-25	3	
			Al Mg Si 1	W	4	
			Al Mg Si 1	F21-30	3	
			Al Mg Si Pb	F20-28	2	▲ Very good chip control ▲ No built up edge ▲ Very good surface quality
			Al Cu Si Pb	F28-37	1	
			Al Cu Mg Pb	F34-37	1	
			Al Cu Mg 1	W	3	▲ Good chip control ▲ Good surface quality ▲ Little built-up edge
			Al Cu Mg 1	F33-40	2	
			Al Cu Mg 2	W	3	
			Al Cu Mg 2	F40-47	2	
			Al Cu Si Mn	W	3	
			Al Cu Si Mn	F43-46	2	
			Al Zn Mg Cu 1,5	F50-52	2	
			Al Sn 6 Cu		1	
	Cast Aluminium Alloys	non hardenable	G-Al Si 12		3	▲ Good chip control ▲ Built-up edge ▲ Higher Si content results in lower tool life
			G-Al Si 10 Mg		3	
			G-Al Si 5 Mg		2	
			G-Al Si 7 Mg (9 Mg)		2	
			G-Al Si Cu 3		2	▲ High wear of the carbide
			G-Al Si 6 Cu 4		2	
			G-Al Mg 3 (Mg 5)		2	▲ Good chip control ▲ Good surface quality ▲ Long tool life
			G-Al Mg 9		2	
			G-Al Mg 10		2	
			G-Al Mg 3 Si (5 Si)		2	
			G-Al Cu 4 Ti (Mg)		2	
			G-Al Si 12 Cu Mg Ni		2	
	Copper wrought alloys		Cu Ag			
			Cu As			
			Cu Cd			
			Cu Cd Sn			
			Cu Mg			
			Cu Mn			
		brass	Cu Zn Al			
		bronze	Cu Sn			
			Cu Sn Zn			
			Cu Ni			
			Cu Ni Fe			
			Cu Al			
O	Non metal materials	Duroplastics				
		Fibre-reinforced plastics				
		hard rubber				

* 1 = good machinability, 5 = bad machinability

Cutting data values for CBN inserts

			CTB S05U					
	Cutting edges code negative insert*		EN			F / TN-F		
	Cutting edges code positive insert*		EN			TN-D		
Index	**Material**	**Strength N/mm^2* / HB / HRC**	v_c	f	a_p	v_c	f	a_p
	Sintered steels (< HV300)							
	general sintered steel (> HV300)							
	high density sintered steel (> HV600)							
K.1.1	Grey cast iron	350 N/mm^2 / 180 HB	3000–5300	0.0008–0.010	0.0060–0.400	3000–5300	0.0008–0.010	0.0060–0.400
K.1.2		500 N/mm^2 / 260 HB	3000–5300	0.0008–0.010	0.0060–0.400	3000–5300	0.0008–0.010	0.0060–0.400
K.2.1	Spherulitic graphite cast iron	540 N/mm^2 / 160 HB	3300–5800	0.0008–0.010	0.0060–0.400	3300–5800	0.0008–0.010	0.0060–0.400
K.2.2		845 N/mm^2 / 250 HB	3300–5800	0.0008–0.010	0.0060–0.400	3300–5800	0.0008–0.010	0.0060–0.400
K.3.1	Malleable iron	440 N/mm^2 / 130 HB	3300–5800	0.0008–0.010	0.0060–0.400	3300–5800	0.0008–0.010	0.0060–0.400
K.3.2		780 N/mm^2 / 220 HB	3300–5800	0.0008–0.010	0.0060–0.400	3300–5800	0.0008–0.010	0.0060–0.400
S.1.1	Heat-resistant alloys	680 N/mm^2 / 200 HB						
S.1.2		950 N/mm^2 / 280 HB						
S.2.1		840 N/mm^2 / 250 HB						
S.2.2		1180 N/mm^2 / 350 HB						
S.2.3		1080 N/mm^2 / 320 HB						
S.3.1	Titanium alloys	400 N/mm^2						
S.3.2		1050 N/mm^2 / 320 HB						
S.3.3		1400 N/mm^2 / 410 HB						

* Tensile strength

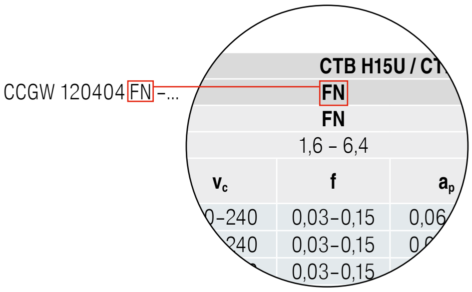
			CTB S10U / CTB S10C					
	Cutting edges code negative insert*		EN			F / FN		
	Cutting edges code positive insert*		EN / FN			TN-D		
Index	**Material**	**Strength N/mm^2* / HB / HRC**	v_c	f	a_p	v_c	f	a_p
	Sintered steels (< HV300)		800–2500	0.0008–0.010	0.0008–0.016	700–1800	0.0032–0.014	0.0040–0.016
	general sintered steel (> HV300)		660–2300	0.0008–0.010	0.0008–0.016	500–1300	0.0032–0.014	0.0040–0.016
	high density sintered steel (> HV600)		150–1150	0.0008–0.010	0.0008–0.016	330–700	0.0032–0.014	0.0040–0.016
K.1.1	Grey cast iron	350 N/mm^2 / 180 HB	3000–5300	0.0008–0.010	0.0008–0.010	2300–4000	0.0032–0.014	0.0032–0.016
K.1.2		500 N/mm^2 / 260 HB	3000–5300	0.0008–0.010	0.0008–0.010	2300–4000	0.0032–0.014	0.0032–0.016
K.2.1	Spherulitic graphite cast iron	540 N/mm^2 / 160 HB	3300–5800	0.0008–0.010	0.0008–0.010	2600–4100	0.0032–0.014	0.0032–0.016
K.2.2		845 N/mm^2 / 250 HB	3300–5800	0.0008–0.010	0.0008–0.010	2600–4100	0.0032–0.014	0.0032–0.016
K.3.1	Malleable iron	440 N/mm^2 / 130 HB	3300–5800	0.0008–0.010	0.0008–0.010	2600–4100	0.0032–0.014	0.0032–0.016
K.3.2		780 N/mm^2 / 220 HB	3300–5800	0.0008–0.010	0.0008–0.010	2600–4100	0.0032–0.014	0.0032–0.016
S.1.1	Heat-resistant alloys	680 N/mm^2 / 200 HB	300–700	0.0008–0.010	0.0008–0.016	250–400	0.0032–0.014	0.0032–0.016
S.1.2		950 N/mm^2 / 280 HB	300–700	0.0008–0.010	0.0008–0.016	250–400	0.0032–0.014	0.0032–0.016
S.2.1		840 N/mm^2 / 250 HB	300–700	0.0008–0.010	0.0008–0.016	250–400	0.0032–0.014	0.0032–0.016
S.2.2		1180 N/mm^2 / 350 HB	300–700	0.0008–0.010	0.0008–0.016	250–400	0.0032–0.014	0.0032–0.016
S.2.3		1080 N/mm^2 / 320 HB	300–700	0.0008–0.010	0.0008–0.016	250–400	0.0032–0.014	0.0032–0.016
S.3.1	Titanium alloys	400 N/mm^2						
S.3.2		1050 N/mm^2 / 320 HB						
S.3.3		1400 N/mm^2 / 410 HB						

* Tensile strength

* Note chamfer width: The wider the chamfer, the more stable the cutting edge.

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

	CTB S10C								
	TN-B			TN-C			TN-D / TN-E		
	SN-B			SN-C / TN-C			TN-D / SN-D		
	v_c	f	a_p	v_c	f	a_p	v_c	f	a_p
	660–1300	0.0020–0.016	0.0024–0.016	500–1150	0.0024–0.020	0.0032–0.020	500–1000	0.0040–0.014	0.0040–0.016
	1150–1800	0.0020–0.016	0.0024–0.016	1000–1650	0.0024–0.020	0.0032–0.020	800–1500	0.0040–0.014	0.0040–0.016
	1000–1650	0.0020–0.016	0.0024–0.016	650–1300	0.0024–0.020	0.0032–0.020	650–1300	0.0040–0.014	0.0040–0.016
	2500–4000	0.0020–0.016	0.0024–0.016	2650–4300	0.0024–0.020	0.0032–0.020	2000–3600	0.0040–0.014	0.0040–0.016
	2500–4000	0.0020–0.016	0.0024–0.016	2650–4300	0.0024–0.020	0.0032–0.020	2000–3600	0.0040–0.014	0.0040–0.016
	2500–4000	0.0020–0.016	0.0024–0.016	2650–4300	0.0024–0.020	0.0032–0.020	2000–3600	0.0040–0.014	0.0040–0.016
	2500–4000	0.0020–0.016	0.0024–0.016	2650–4300	0.0024–0.020	0.0032–0.020	2000–3600	0.0040–0.014	0.0040–0.016
	2500–4000	0.0020–0.016	0.0024–0.016	2650–4300	0.0024–0.020	0.0032–0.020	2000–3600	0.0040–0.014	0.0040–0.016
	2500–4000	0.0020–0.016	0.0024–0.016	2650–4300	0.0024–0.020	0.0032–0.020	2000–3600	0.0040–0.014	0.0040–0.016
	400–600	0.0020–0.016	0.0024–0.016	300–500	0.0024–0.020	0.0032–0.020	250–450	0.0040–0.014	0.0040–0.016
	400–600	0.0020–0.016	0.0024–0.016	300–500	0.0024–0.020	0.0032–0.020	250–450	0.0040–0.014	0.0040–0.016
	400–600	0.0020–0.016	0.0024–0.016	300–500	0.0024–0.020	0.0032–0.020	250–450	0.0040–0.014	0.0040–0.016
	400–600	0.0020–0.016	0.0024–0.016	300–500	0.0024–0.020	0.0032–0.020	250–450	0.0040–0.014	0.0040–0.016
	400–600	0.0020–0.016	0.0024–0.016	300–500	0.0024–0.020	0.0032–0.020	250–450	0.0040–0.014	0.0040–0.016



Cutting data values for CBN inserts

			CTB S20C / CTB S20U					
Index	Cutting edges code negative insert*		**EN / FN**			**SN-B**		
	Cutting edges code positive insert*		**EN / FN**			**SN-B**		
	Material	**Strength N/mm²* / HB / HRC**	v_c	f	a_p	v_c	f	a_p
	Sintered steels (< HV300)		800–2300	0.0008–0.010	0.0008–0.016	800–2300	0.0032–0.010	0.0012–0.016
	general sintered steel (> HV300)		650–2300	0.0008–0.010	0.0008–0.016	650–2300	0.0032–0.010	0.0012–0.016
	high density sintered steel (> HV600)		500–1150	0.0008–0.010	0.0008–0.016	500–1150	0.0032–0.010	0.0012–0.016
K.1.1	Grey cast iron	350 N/mm^2 / 180 HB	2650–4800	0.0008–0.010	0.0020–0.010	2300–4600	0.0016–0.010	0.0020–0.010
K.1.2		500 N/mm^2 / 260 HB	2650–4800	0.0008–0.010	0.0020–0.010	2300–4600	0.0016–0.010	0.0020–0.010
K.2.1	Spherulitic graphite cast iron	540 N/mm^2 / 160 HB	3000–5300	0.0008–0.010	0.0020–0.010	2600–5300	0.0016–0.010	0.0020–0.010
K.2.2		845 N/mm^2 / 250 HB	3000–5300	0.0008–0.010	0.0020–0.010	2600–5300	0.0016–0.010	0.0020–0.010
K.3.1	Malleable iron	440 N/mm^2/ 130 HB	3000–5300	0.0008–0.010	0.0020–0.010	2600–5300	0.0016–0.010	0.0020–0.010
K.3.2		780 N/mm^2 / 220 HB	3000–5300	0.0008–0.010	0.0020–0.010	2600–5300	0.0016–0.010	0.0020–0.010
S.1.1	Heat-resistant alloys	680 N/mm^2 / 200 HB	200–600	0.0008–0.010	0.0008–0.016	200–550	0.0016–0.010	0.0012–0.016
S.1.2		950 N/mm^2 / 280 HB	200–600	0.0008–0.010	0.0008–0.016	200–550	0.0016–0.010	0.0012–0.016
S.2.1		840 N/mm^2 / 250 HB	200–600	0.0008–0.010	0.0008–0.016	200–550	0.0016–0.010	0.0012–0.016
S.2.2		1180 N/mm^2 / 350 HB	200–600	0.0008–0.010	0.0008–0.016	200–550	0.0016–0.010	0.0012–0.016
S.2.3		1080 N/mm^2 / 320 HB	200–600	0.0008–0.010	0.0008–0.016	200–550	0.0016–0.010	0.0012–0.016
S.3.1	Titanium alloys	400 N/mm^2						
S.3.2		1050 N/mm^2 / 320 HB						
S.3.3		1400 N/mm^2 / 410 HB						

* Tensile strength

			CTB S20C / CTB S20U					
Index	Cutting edges code negative insert*					**SN-E**		
	Cutting edges code positive insert*		**TN-E**			**SN-E**		
	Material	**Strength N/mm²* / HB / HRC**	v_c	f	a_p	v_c	f	a_p
	Sintered steels (< HV300)		700–1800	0.0032–0.014	0.0040–0.016	650–1700	0.0040–0.014	0.0040–0.016
	general sintered steel (> HV300)		500–1300	0.0032–0.014	0.0040–0.016	450–1150	0.0040–0.014	0.0040–0.016
	high density sintered steel (> HV600)		350–750	0.0032–0.014	0.0040–0.016	350–650	0.0040–0.014	0.0040–0.016
K.1.1	Grey cast iron	350 N/mm^2 / 180 HB	1800–3300	0.0032–0.014	0.0032–0.016	1800–3150	0.0040–0.014	0.0040–0.016
K.1.2		500 N/mm^2 / 260 HB	1800–3300	0.0032–0.014	0.0032–0.016	1800–3150	0.0040–0.014	0.0040–0.016
K.2.1	Spherulitic graphite cast iron	540 N/mm^2 / 160 HB	2300–4000	0.0032–0.014	0.0032–0.016	2300–3600	0.0040–0.014	0.0040–0.016
K.2.2		845 N/mm^2 / 250 HB	2300–4000	0.0032–0.014	0.0032–0.016	2300–3600	0.0040–0.014	0.0040–0.016
K.3.1	Malleable iron	440 N/mm^2/ 130 HB	2300–4000	0.0032–0.014	0.0032–0.016	2300–3600	0.0040–0.014	0.0040–0.016
K.3.2		780 N/mm^2 / 220 HB	2300–4000	0.0032–0.014	0.0032–0.016	2300–3600	0.0040–0.014	0.0040–0.016
S.1.1	Heat-resistant alloys	680 N/mm^2 / 200 HB	150–350	0.0032–0.014	0.0032–0.016	150–320	0.0040–0.014	0.0040–0.016
S.1.2		950 N/mm^2 / 280 HB	150–350	0.0032–0.014	0.0032–0.016	150–320	0.0040–0.014	0.0040–0.016
S.2.1		840 N/mm^2 / 250 HB	150–350	0.0032–0.014	0.0032–0.016	150–320	0.0040–0.014	0.0040–0.016
S.2.2		1180 N/mm^2 / 350 HB	150–350	0.0032–0.014	0.0032–0.016	150–320	0.0040–0.014	0.0040–0.016
S.2.3		1080 N/mm^2 / 320 HB	150–350	0.0032–0.014	0.0032–0.016	150–320	0.0040–0.014	0.0040–0.016
S.3.1	Titanium alloys	400 N/mm^2						
S.3.2		1050 N/mm^2 / 320 HB						
S.3.3		1400 N/mm^2 / 410 HB						

* Tensile strength

* Note chamfer width: The wider the chamfer, the more stable the cutting edge.

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

	CTB S20C / CTB S20U								
				SN-C / TN-C			SN-D		
	SN-C / TN-C			TN-D			SN-D		
	v_c	f	a_p	v_c	f	a_p	v_c	f	a_p
	800–2000	0.0020–0.010	0.0024–0.016	800–2000	0.0020–0.014	0.0024–0.016	750–1900	0.0024–0.014	0.0032–0.016
	660–2000	0.0020–0.010	0.0024–0.016	600–1800	0.0020–0.014	0.0024–0.016	550–1700	0.0024–0.014	0.0032–0.016
	500–1650	0.0020–0.010	0.0024–0.016	450–1000	0.0020–0.014	0.0024–0.016	400–850	0.0024–0.014	0.0032–0.016
	2150–4300	0.0020–0.010	0.0024–0.016	2150–3650	0.0020–0.014	0.0024–0.016	2000–3300	0.0024–0.014	0.0032–0.020
	2150–4300	0.0020–0.010	0.0024–0.016	2150–3650	0.0020–0.014	0.0024–0.016	2000–3300	0.0024–0.014	0.0032–0.020
	2600–4600	0.0020–0.010	0.0024–0.016	2500–4300	0.0020–0.014	0.0024–0.016	2300–4100	0.0024–0.014	0.0032–0.020
	2600–4600	0.0020–0.010	0.0024–0.016	2500–4300	0.0020–0.014	0.0024–0.016	2300–4100	0.0024–0.014	0.0032–0.020
	2600–4600	0.0020–0.010	0.0024–0.016	2500–4300	0.0020–0.014	0.0024–0.016	2300–4100	0.0024–0.014	0.0032–0.020
	2600–4600	0.0020–0.010	0.0024–0.016	2500–4300	0.0020–0.014	0.0024–0.016	2300–4100	0.0024–0.014	0.0032–0.020
	200–550	0.0020–0.010	0.0024–0.016	180–500	0.0020–0.016	0.0024–0.016	180–450	0.0024–0.020	0.0032–0.020
	200–550	0.0020–0.010	0.0024–0.016	180–500	0.0020–0.016	0.0024–0.016	180–450	0.0024–0.020	0.0032–0.020
	200–550	0.0020–0.010	0.0024–0.016	180–500	0.0020–0.016	0.0024–0.016	180–450	0.0024–0.020	0.0032–0.020
	200–550	0.0020–0.010	0.0024–0.016	180–500	0.0020–0.016	0.0024–0.016	180–450	0.0024–0.020	0.0032–0.020
	200–550	0.0020–0.010	0.0024–0.016	180–500	0.0020–0.016	0.0024–0.016	180–450	0.0024–0.020	0.0032–0.020

4

	CTB S20C / CTB S20U		
	SN-F		
	SN-F		
	v_c	f	a_p
	600–1600	0.0048–0.014	0.0048–0.016
	250–850	0.0048–0.014	0.0048–0.016
	250–500	0.0048–0.014	0.0048–0.016
	1600–2800	0.0048–0.014	0.0048–0.016
	1600–2800	0.0048–0.014	0.0048–0.016
	2150–3300	0.0048–0.014	0.0048–0.016
	2150–3300	0.0048–0.014	0.0048–0.016
	2150–3300	0.0048–0.014	0.0048–0.016
	2150–3300	0.0048–0.014	0.0048–0.016
	130–300	0.0048–0.014	0.0048–0.016
	130–300	0.0048–0.014	0.0048–0.016
	130–300	0.0048–0.014	0.0048–0.016
	130–300	0.0048–0.014	0.0048–0.016
	130–300	0.0048–0.014	0.0048–0.016

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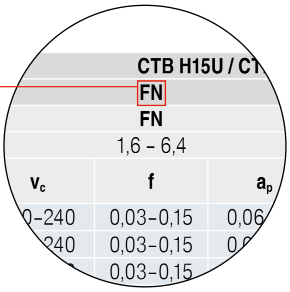


CTB H15U / CT
FN
FN
1,6 – 6,4
v_c f a_p
0–240 0,03–0,15 0,06
240 0,03–0,15 0
0,03–0,15

Cutting data values for CBN inserts

Index	Material	Strength			CTB H15U / CTB H15C					
	Cutting edges code negative insert*				FN			EN		
	Cutting edges code positive insert*				FN			EN		
		Ra (theo.)			1,6–6,4			1,0–3,2		
Index	**Material**	**Strength**			v_c	f	a_p	v_c	f	a_p
H.1.1	Hardened steel	46–55 HRC	x		525–800	0.0012–0.006	0.0024–0.012	525–800	0.0012–0.006	0.0024–0.012
H.1.2		56–60 HRC	x		525–800	0.0012–0.006	0.0024–0.012	525–800	0.0012–0.006	0.0024–0.012
H.1.3		61–65 HRC	x		525–800	0.0012–0.006	0.0024–0.012	525–800	0.0012–0.006	0.0024–0.012
H.1.4		66–70 HRC	x		525–800	0.0012–0.006	0.0024–0.012	525–800	0.0012–0.006	0.0024–0.012
H.2.1	Chilled iron	400 HB	x		525–800	0.0012–0.006	0.0024–0.012	525–800	0.0012–0.006	0.0024–0.012
H.3.1	Hardened cast iron	55 HRC								

Index	Material	Strength			CTB H21U / CTB H20C / CTB H21C					
	Cutting edges code negative insert*				FN			TN-C		
	Cutting edges code positive insert*				EN / FN			TN-C		
		Ra (theo.)			1,6–6,4			1,0–4,5		
Index	**Material**	**Strength**			v_c	f	a_p	v_c	f	a_p
H.1.1	Hardened steel	46–55 HRC	x		1000–1250	0.0016–0.020	0.0020–0.020	925–1150	0.0020–0.006	0.0020–0.020
H.1.2		56–60 HRC	x		1000–1250	0.0016–0.020	0.0020–0.020	925–1150	0.0020–0.006	0.0020–0.020
H.1.3		61–65 HRC	x		1000–1250	0.0016–0.020	0.0020–0.020	925–1150	0.0020–0.006	0.0020–0.020
H.1.4		66–70 HRC	x		1000–1250	0.0016–0.020	0.0020–0.020	925–1150	0.0020–0.006	0.0020–0.020
H.2.1	Chilled iron	400 HB	x		1000–1250	0.0016–0.020	0.0020–0.020	925–1150	0.0020–0.006	0.0020–0.020
H.3.1	Hardened cast iron	55 HRC								

Index	Material	Strength			CTB H21U / CTB H20C / CTB H21C					
	Cutting edges code negative insert*				TN-E / SN-E			SN-F		
	Cutting edges code positive insert*				TN-E			TN-F / SN-E		
		Ra (theo.)			0,35–1,6			0,2–0,8		
Index	**Material**	**Strength**			v_c	f	a_p	v_c	f	a_p
H.1.1	Hardened steel	46–55 HRC	x		700–850	0.0020–0.006	0.0040–0.020	600–750	0.0024–0.008	0.0040–0.020
H.1.2		56–60 HRC	x		700–850	0.0020–0.006	0.0040–0.020	600–750	0.0024–0.008	0.0040–0.020
H.1.3		61–65 HRC	x		700–850	0.0020–0.006	0.0040–0.020	600–750	0.0024–0.008	0.0040–0.020
H.1.4		66–70 HRC	x		700–850	0.0020–0.006	0.0040–0.020	600–750	0.0024–0.008	0.0040–0.020
H.2.1	Chilled iron	400 HB	x		700–850	0.0020–0.006	0.0040–0.020	600–750	0.0024–0.008	0.0040–0.020
H.3.1	Hardened cast iron	55 HRC								

Index	Material	Strength			CTB H40U / CTB H40C / CTB H41U / CTB H41C					
	Cutting edges code negative insert*				FN / EN					
	Cutting edges code positive insert*				FN / EN			SN-B / TN-B		
		Ra (theo.)			1,0–3,2			1,6–3,2		
Index	**Material**	**Strength**			v_c	f	a_p	v_c	f	a_p
H.1.1	Hardened steel	46–55 HRC	x		625–825	0.0012–0.006	0.0012–0.020	600–825	0.0012–0.008	0.0020–0.003
H.1.2		56–60 HRC	x		625–825	0.0012–0.006	0.0012–0.020	600–825	0.0012–0.008	0.0020–0.003
H.1.3		61–65 HRC	x		625–825	0.0012–0.006	0.0012–0.020	600–825	0.0012–0.008	0.0020–0.003
H.1.4		66–70 HRC	x		625–825	0.0012–0.006	0.0012–0.020	600–825	0.0012–0.008	0.0020–0.003
H.2.1	Chilled iron	400 HB	x		625–825	0.0012–0.006	0.0012–0.020	600–825	0.0012–0.008	0.0020–0.003
H.3.1	Hardened cast iron	55 HRC								

Index	Material	Strength			CTB H40U / CTB H40C / CTB H41U / CTB H41C					
	Cutting edges code negative insert*				EN-T / SN-E			TN-E / SN-E		
	Cutting edges code positive insert*				EN-T / TN-E / SN-E			TN-F		
		Ra (theo.)			0,5–1,6			0,4–1,0		
Index	**Material**	**Strength**			v_c	f	a_p	v_c	f	a_p
H.1.1	Hardened steel	46–55 HRC	x		450–650	0.0020–0.006	0.0032–0.020	600–750	0.0020–0.010	0.0040–0.020
H.1.2		56–60 HRC	x		450–650	0.0020–0.006	0.0032–0.020	600–750	0.0020–0.010	0.0040–0.020
H.1.3		61–65 HRC	x		450–650	0.0020–0.006	0.0032–0.020	600–750	0.0020–0.010	0.0040–0.020
H.1.4		66–70 HRC	x		450–650	0.0020–0.006	0.0032–0.020	600–750	0.0020–0.010	0.0040–0.020
H.2.1	Chilled iron	400 HB	x		450–650	0.0020–0.006	0.0032–0.020	600–750	0.0020–0.010	0.0040–0.020
H.3.1	Hardened cast iron	55 HRC								

* Note chamfer width: The wider the chamfer, the more stable the cutting edge.

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

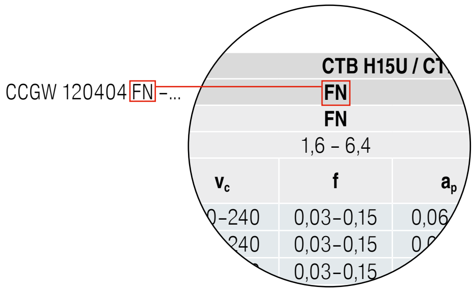
CTB H15U / CTB H15C								
SN-C			**SN-E**			**RN** (Rounded chamfer)		
SN-C			**SN-E**			**RN** (Rounded chamfer)		
0,5–1,6			0,1–0,8			0,1–0,8		
v_c	f	a_p	v_c	f	a_p	v_c	f	a_p
450–650	0.0024–0.008	0.0032–0.012	400–600	0.0024–0.010	0.0040–0.016	425–700	0.0024–0.008	0.0032–0.012
450–650	0.0024–0.008	0.0032–0.012	400–600	0.0024–0.010	0.0040–0.016	425–700	0.0024–0.008	0.0032–0.012
450–650	0.0024–0.008	0.0032–0.012	400–600	0.0024–0.010	0.0040–0.016	425–700	0.0024–0.008	0.0032–0.012
450–650	0.0024–0.008	0.0032–0.012	400–600	0.0024–0.010	0.0040–0.016	425–700	0.0024–0.008	0.0032–0.012
450–650	0.0024–0.008	0.0032–0.012	400–600	0.0024–0.010	0.0040–0.016	425–700	0.0024–0.008	0.0032–0.012

CTB H21U / CTB H20C / CTB H21C								
TN-D			**TN-D / SN-D**			**TN-E**		
SN-B			**TN-D / SN-C**			**SN-D**		
0,8–3,0			0,5–2,0			0,35–2,5		
v_c	f	a_p	v_c	f	a_p	v_c	f	a_p
900–1100	0.0024–0.010	0.0020–0.020	825–1050	0.0024–0.010	0.0032–0.004	725–950	0.0020–0.006	0.0032–0.020
900–1100	0.0024–0.010	0.0020–0.020	825–1050	0.0024–0.010	0.0032–0.004	725–950	0.0020–0.006	0.0032–0.020
900–1100	0.0024–0.010	0.0020–0.020	825–1050	0.0024–0.010	0.0032–0.004	725–950	0.0020–0.006	0.0032–0.020
900–1100	0.0024–0.010	0.0020–0.020	825–1050	0.0024–0.010	0.0032–0.004	725–950	0.0020–0.006	0.0032–0.020
900–1100	0.0024–0.010	0.0020–0.020	825–1050	0.0024–0.010	0.0032–0.004	725–950	0.0020–0.006	0.0032–0.020

CTB H21U / CTB H20C / CTB H21C		
SN-G		
TN-G / SN-F		
0,1–0,5		
v_c	f	a_p
525–650	0.0020–0.005	0.0040–0.020
525–650	0.0020–0.005	0.0040–0.020
525–650	0.0020–0.005	0.0040–0.020
525–650	0.0020–0.005	0.0040–0.020
525–650	0.0020–0.005	0.0040–0.020

CTB H40U / CTB H40C / CTB H41U / CTB H41C								
SN-C			**SN-D**					
SN-C / TN-D			**SN-D**			**TN-D**		
0,8–3,0			0,8–2,0			0,5–1,6		
v_c	f	a_p	v_c	f	a_p	v_c	f	a_p
600–800	0.0016–0.006	0.0012–0.020	525–725	0.0016–0.006	0.0012–0.020	500–700	0.0016–0.010	0.0032–0.020
600–800	0.0016–0.006	0.0012–0.020	525–725	0.0016–0.006	0.0012–0.020	500–700	0.0016–0.010	0.0032–0.020
600–800	0.0016–0.006	0.0012–0.020	525–725	0.0016–0.006	0.0012–0.020	500–700	0.0016–0.010	0.0032–0.020
600–800	0.0016–0.006	0.0012–0.020	525–725	0.0016–0.006	0.0012–0.020	500–700	0.0016–0.010	0.0032–0.020
600–800	0.0016–0.006	0.0012–0.020	525–725	0.0016–0.006	0.0012–0.020	500–700	0.0016–0.010	0.0032–0.020

CTB H40U / CTB H40C / CTB H41U / CTB H41C					
TN-F / SN-F			**SN-G**		
SN-F			**SN-G**		
0,2–0,8			0,1–0,5		
v_c	f	a_p	v_c	f	a_p
425–650	0.0016–0.006	0.0040–0.020	400–625	0.0016–0.005	0.0040–0.020
425–650	0.0016–0.006	0.0040–0.020	400–625	0.0016–0.005	0.0040–0.020
425–650	0.0016–0.006	0.0040–0.020	400–625	0.0016–0.005	0.0040–0.020
425–650	0.0016–0.006	0.0040–0.020	400–625	0.0016–0.005	0.0040–0.020
425–650	0.0016–0.006	0.0040–0.020	400–625	0.0016–0.005	0.0040–0.020



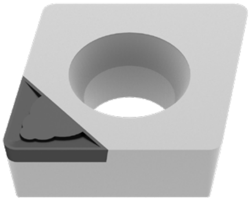
Cutting data standard values for diamond cutting materials CTD PD20 / PS30 / PU20 / CD10 / MD05

Index	Material group			a_p = 0.0015"–0.016"		a_p = 0.0016"–0.040"		a_p = 0.0016"–0.100"	
				Surface roughness R_z in µm		Surface roughness R_z in µm		Surface roughness R_z in µm	
				2,5–5,0	5,0–10	2,5–5,0	5,0–10	2,5–5,0	5,0–10
				CTD ...	CTD ...	CTD ...	CTD ...	CTD ...	CTD ...
N.1.1 **N.1.2**	Aluminium wrought alloys without Si f=0.002–0.020 inch/rev.	○	Tool Material v_c in ft/min	PD20 / PU20 / CD10 / MD05 **1300–8250**	PD20 / PU20 / CD10 / MD05 **1300–8250**	PD20 / PU20 / CD10 / MD05 **1300–6600**	PD20 / PU20 / CD10 / MD05 **1300–6600**	PD20 / PU20 / CD10 / MD05 **1300–5300**	PD20 / PU20 / CD10 / MD05 **1300–5300**
		◐	Tool Material v_c in ft/min		PD20 / CD10 **1300–8250**		PD20 / CD10 **1300–6600**		PD20 / CD10 **1300–5300**
		◌	Tool Material v_c in ft/min	PD20 / PU20 **1300–8250**	PD20 / PU20 **1300–8250**	PD20 / PU20 **1300–6600**	PD20 / PU20 **1300–6600**	PD20 / PU20 **1300–5300**	PD20 / PU20 **1300–5300**
N.2.1	Cast Aluminium Alloys Si≤12 % – hardened or Si=12–20% – non hardened f=0.002–0.020 inch/rev.	○	Tool Material v_c in ft/min	PS30 / PU20 / CD10 / MD05 **2000–6600**	PS30 / PU20 / CD10 / MD05 **2000–7000**	PS30 / PU20 / CD10 / MD05 **2000–6000**	PS30 / PU20 / CD10 / MD05 **2000–6600**	PS30 / PU20 / CD10 / MD05 **2000–5000**	PS30 / PU20 / CD10 / MD05 **2000–6000**
		◐	Tool Material v_c in ft/min	PD20 / PU20 / CD10 **1300–6600**	PD20 / PU20 / CD10 **1300–7000**	PD20 / PU20 / CD10 **1300–6000**	PS30 / PU20 / CD10 **2000–6600**	PS30 / PU20 / CD10 **1000–5000**	PS30 / PU20 / CD10 **1300–6000**
		◌	Tool Material v_c in ft/min	PS30 **2000–6600**	PS30 **2000–7000**	PS30 **2000–6000**	PS30 **2000–6600**	PS30 **2000–5000**	
N.2.2 **N.2.3**	Aluminium cast alloys Si=12–20 % f=0.002–0.020 inch/rev.	○	Tool Material v_c in ft/min	PU20 / CD10 / MD05 **2600–4000**	PU20 / CD10 / MD05 **1300–6000**	PU20 / CD10 / MD05 **2300–3300**	PU20 / CD10 / MD05 **1000–5000**	PU20 / CD10 / MD05 **2000–3000**	PU20 / CD10 / MD05 **1200–4000**
		◐	Tool Material v_c in ft/min		PU20 / CD10 **2000–6000**		PU20 / CD10 **2000–5000**		PU20 / CD10 **2000–4000**
		◌	Tool Material v_c in ft/min		PU20 **2000–6000**		PU20 **2000–5000**		
N.3.1 **N.3.2** **N.3.3**	Copper and copper wrought alloys f=0.002–0.020 inch/rev.	○	Tool Material v_c in ft/min	PD20 / PU20 / CD10 / MD05 **1300–6000**	PD20 / PU20 / CD10 / MD05 **1000–5200**	PD20 / PU20 / CD10 / MD05 **1300–5300**	PS30 / PU20 / CD10 / MD05 **1000–5000**	PD20 / PU20 / CD10 / MD05 **1300–4600**	PD20 / PU20 / CD10 / MD05 **1300–5300**
		◐	Tool Material v_c in ft/min	PU20 / CD10 **1000–5000**	PD20 / PU20 / CD10 **1000–5000**	PD20 / PU20 / CD10 **1300–5300**	PS30 / PU20 / CD10 **1000–5000**	PD20 / PU20 / CD10 **1300–5300**	PD20 / PU20 / CD10 **1000–5000**
		◌	Tool Material v_c in ft/min		PD20 / PU20 **1000–6000**		PS30 / PU20 **1000–5700**	PD20 / PU20 **1000–5000**	PS30 / PU20 **650–4300**
O.1.1 **O.1.2**	Plastic materials without reinforcement (acrylic glass) f=0.002–0.028 inch/rev.	○	Tool Material v_c in ft/min		PD20 / CD10 / MD05 **1200–4000**		PD20 / CD10 / MD05 **1000–3300**		PS30 / CD10 / MD05 **650–3300**
		◐	Tool Material v_c in ft/min		PD20 / CD10 **1000–4000**		PD20 / CD10 **650–3300**		PS30 / CD10 **650–3000**
		◌	Tool Material v_c in ft/min		PD20 / CD10 **1200–4000**		PD20 / CD10 **1000–3300**		PD20 / CD10 **650–3300**
O.2.1 **O.2.2**	Plastic materials with reinforcement (glass-fibre, carbon-fibre reinforced) f=0.002–0.028 inch/rev.	○	Tool Material v_c in ft/min	PS30 / PU20 / CD10 / MD05 **1650–3300**		PS30 / PU20 / CD10 / MD05 **1200–3000**	PS30 / PU20 / CD10 / MD05 **1000–3000**	PS30 / PU20 / CD10 / MD05 **1300–5300**	PS30 / PU20 / CD10 / MD05 **650–4000**
		◐	Tool Material v_c in ft/min	PS30 / PU20 / CD10 **1300–3000**		PS30 / PU20 / CD10 **1300–5300**	PS30 / PU20 / CD10 **650–3000**	PS30 / PU20 / CD10 **650–3000**	PS30 / PU20 / CD10 **650–4600**
		◌	Tool Material v_c in ft/min	PU20 **1650–3300**		PU20 **1300–2600**	PU20 **1000–3300**	PU20 **1300–5300**	
O.3.1	Graphite		Tool Material v_c in ft/min	PD20 / PS30 / PU20 / CD10 **330–11000**		PD20 / PS30 / PU20 / CD10 **330–10000**		PD20 / PS30 / PU20 / CD10 **330–10000**	

○ Smooth cut	◐ Irregular cutting depth	◌ Interrupted cut

Cutting data standard values for the CB chip breaker geometries

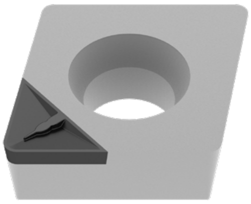
-CB1



3D-Chip Breaker -CB1				
Corner Radius	a_p inch		f_z inch/rev.	
	min.	max.	min.	max.
0.004	0.002	0.012	0.001	0.002
0.008	0.002	0.016	0.001	0.003
0.016	0.004	0.031	0.002	0.006
0.032	0.006	0.039	0.003	0.008
0.064	0.012	0.059	0.005	0.010

- ▲ Finish and Superfinish
- ▲ Extremely sharp cutting edge geometry
- ▲ Depth of Cut a_p: 0.002–0.06 inch
- ▲ Smallest cutting pressure for highest accuracies
- ▲ For machining of thin-walled and unstable workpieces

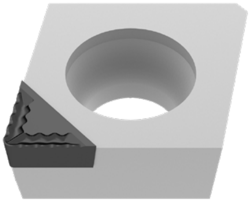
-CB2



3D-Chip Breaker -CB2				
Corner Radius	a_p inch		f_z inch/rev.	
	min.	max.	min.	max.
0.008	0.020	0.031	0.003	0.005
0.016	0.024	0.059	0.003	0.008
0.032	0.028	0.059	0.006	0.012
0.064	0.031	0.079	0.008	0.016

- ▲ Semi-finish and Finish machining
- ▲ Negative edge preperation
- ▲ Cutting Depth a_p: 0.020–0.078 inch
- ▲ High surface quality and tight tolerances
- ▲ Machining of solid workpieces under stable conditions

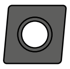
-CB3

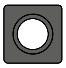


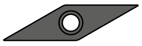
3D-Chip Breaker -CB3				
Corner Radius	a_p inch		f_z inch/rev.	
	min.	max.	min.	max.
0.016	0.039	0.118	0.004	0.008
0.032	0.039	0.118	0.006	0.014

- ▲ Medium and rough machining
- ▲ Highly aggressive chip breaker
- ▲ Cutting depth a_p: 0.04–0.12 inch
- ▲ Stable component conditions necessary
- ▲ Cooling must be ensured

Cutting data standard values for negative inserts








Designation	-CF20 (Cermet)						-F50					
	f			a$_p$			f			a$_p$		
	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
		inch/rev.			inch			inch/rev.			inch	
CN.. 321							0.002	**0.006**	0.010	0.008	**0.020**	0.059
CN.. 322							0.004	**0.008**	0.012	0.016	**0.039**	0.079
CN.. 431	0.002	**0.006**	0.010	0.012	**0.020**	0.059	0.002	**0.006**	0.010	0.008	**0.024**	0.059
CN.. 432	0.003	**0.006**	0.010	0.012	**0.020**	0.059	0.004	**0.008**	0.012	0.016	**0.039**	0.079
CN.. 433							0.006	**0.010**	0.014	0.024	**0.055**	0.102
CN.. 434												
CN.. 542												
CN.. 543												
CN.. 544												
CN.. 546												
CN.. 642												
CN.. 643												
CN.. 644												
CN.. 646												
CN.. 866												
DN.. 330.5							0.002	**0.004**	0.008	0.004	**0.016**	0.091
DN.. 331	0.002	**0.006**	0.010	0.012	**0.020**	0.059	0.002	**0.006**	0.010	0.008	**0.024**	0.059
DN.. 332	0.003	**0.006**	0.010	0.012	**0.020**	0.059	0.004	**0.008**	0.012	0.016	**0.039**	0.079
DN.. 333							0.006	**0.010**	0.014	0.024	**0.055**	0.102
DN.. 431							0.002	**0.006**	0.010	0.008	**0.024**	0.059
DN.. 432							0.004	**0.008**	0.012	0.016	**0.039**	0.079
DN.. 433							0.006	**0.010**	0.014	0.024	**0.055**	0.102
DN.. 434												
DN.. 441	0.002	**0.006**	0.010	0.012	**0.020**	0.059	0.002	**0.006**	0.010	0.008	**0.024**	0.059
DN.. 442	0.003	**0.006**	0.010	0.012	**0.020**	0.059	0.004	**0.008**	0.012	0.016	**0.039**	0.079
DN.. 443	0.004	**0.008**	0.012	0.020	**0.028**	0.059	0.006	**0.010**	0.014	0.024	**0.055**	0.102
DN.. 444												
SN.. 332							0.004	**0.008**	0.012	0.016	**0.039**	0.079
SN.. 431							0.002	**0.006**	0.010	0.008	**0.024**	0.059
SN.. 432							0.004	**0.008**	0.012	0.016	**0.039**	0.079
SN.. 433							0.006	**0.010**	0.014	0.024	**0.055**	0.102
SN.. 434												
SN.. 442												
SN.. 443												
SN.. 444												
SN.. 543												
SN.. 544												
SN.. 546												
SN.. 856												
SN.. 866												
TN.. 221							0.002	**0.006**	0.010	0.008	**0.024**	0.059
TN.. 222							0.004	**0.008**	0.012	0.016	**0.039**	0.079
TN.. 331	0.002	**0.006**	0.010	0.012	**0.020**	0.059	0.002	**0.006**	0.010	0.008	**0.024**	0.059
TN.. 332	0.003	**0.006**	0.010	0.012	**0.020**	0.059	0.004	**0.008**	0.012	0.016	**0.039**	0.079
TN.. 333	0.004	**0.008**	0.012	0.020	**0.028**	0.059	0.006	**0.010**	0.014	0.024	**0.055**	0.102
TN.. 431												
TN.. 432												
TN.. 433												
TN.. 434												
VN.. 331							0.002	**0.006**	0.010	0.008	**0.024**	0.059
VN.. 332							0.004	**0.008**	0.012	0.016	**0.039**	0.079
VN.. 333												
WN.. 331	0.002	**0.006**	0.010	0.012	**0.020**	0.059	0.002	**0.006**	0.010	0.008	**0.024**	0.059
WN.. 332	0.003	**0.006**	0.010	0.012	**0.020**	0.059	0.004	**0.008**	0.012	0.016	**0.039**	0.079
WN.. 333												
WN.. 431							0.002	**0.006**	0.010	0.008	**0.024**	0.059
WN.. 432	0.003	**0.006**	0.010	0.012	**0.020**	0.059	0.004	**0.008**	0.012	0.016	**0.039**	0.079
WN.. 433							0.006	**0.010**	0.014	0.024	**0.055**	0.102
WN.. 434												

Sharp ↔ stable

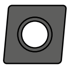
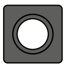
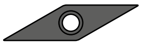
The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-TFQ						-XU						-M50					
	f			a_p			f			a_p			f			a_p		
	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
	inch/rev.			inch			inch/rev.			inch			inch/rev.			inch		
CN.. 321																		
CN.. 322																		
CN.. 431	0.004	**0.006**	0.014	0.016	**0.039**	0.118	0.003	**0.006**	0.010	0.012	**0.059**	0.098	0.004	**0.008**	0.012	0.016	**0.079**	0.197
CN.. 432	0.004	**0.010**	0.020	0.020	**0.059**	0.157	0.005	**0.010**	0.014	0.024	**0.079**	0.118	0.006	**0.010**	0.016	0.024	**0.079**	0.197
CN.. 433	0.006	**0.012**	0.028	0.031	**0.079**	0.197	0.006	**0.012**	0.018	0.035	**0.079**	0.138	0.008	**0.012**	0.020	0.039	**0.079**	0.197
CN.. 434													0.010	**0.016**	0.024	0.055	**0.079**	0.197
CN.. 542													0.006	**0.010**	0.016	0.024	**0.118**	0.315
CN.. 543													0.008	**0.012**	0.020	0.039	**0.118**	0.315
CN.. 544													0.010	**0.016**	0.024	0.055	**0.118**	0.315
CN.. 546																		
CN.. 642																		
CN.. 643																		
CN.. 644																		
CN.. 646																		
CN.. 866																		
DN.. 330.5																		
DN.. 331													0.004	**0.008**	0.012	0.016	**0.059**	0.157
DN.. 332													0.006	**0.010**	0.016	0.024	**0.059**	0.157
DN.. 333													0.008	**0.012**	0.020	0.039	**0.059**	0.157
DN.. 431													0.004	**0.008**	0.012	0.016	**0.079**	0.197
DN.. 432													0.006	**0.010**	0.016	0.024	**0.079**	0.197
DN.. 433													0.008	**0.012**	0.020	0.039	**0.079**	0.197
DN.. 434													0.010	**0.016**	0.024	0.055	**0.079**	0.197
DN.. 441	0.004	**0.006**	0.012	0.016	**0.039**	0.118	0.003	**0.006**	0.010	0.012	**0.059**	0.098	0.004	**0.008**	0.012	0.016	**0.079**	0.197
DN.. 442	0.004	**0.010**	0.016	0.020	**0.059**	0.157	0.005	**0.010**	0.014	0.024	**0.079**	0.118	0.006	**0.010**	0.016	0.024	**0.079**	0.197
DN.. 443							0.006	**0.010**	0.016	0.035	**0.079**	0.138	0.008	**0.012**	0.020	0.039	**0.079**	0.197
DN.. 444													0.010	**0.016**	0.024	0.055	**0.079**	0.197
SN.. 332																		
SN.. 431																		
SN.. 432													0.006	**0.010**	0.016	0.024	**0.079**	0.197
SN.. 433													0.008	**0.012**	0.020	0.039	**0.079**	0.197
SN.. 434													0.010	**0.016**	0.024	0.055	**0.079**	0.197
SN.. 442													0.006	**0.010**	0.016	0.024	**0.118**	0.315
SN.. 443													0.008	**0.012**	0.020	0.039	**0.118**	0.315
SN.. 444													0.010	**0.016**	0.024	0.055	**0.118**	0.315
SN.. 543																		
SN.. 544																		
SN.. 546																		
SN.. 856																		
SN.. 866																		
TN.. 221																		
TN.. 222																		
TN.. 331													0.004	**0.008**	0.012	0.016	**0.079**	0.197
TN.. 332													0.006	**0.010**	0.016	0.024	**0.079**	0.197
TN.. 333													0.008	**0.012**	0.020	0.039	**0.079**	0.197
TN.. 431																		
TN.. 432													0.006	**0.010**	0.016	0.024	**0.118**	0.315
TN.. 433													0.008	**0.012**	0.020	0.039	**0.118**	0.315
TN.. 434																		
VN.. 331								**0.006**	0.008	0.012	**0.039**	0.071	0.004	**0.008**	0.012	0.016	**0.039**	0.157
VN.. 332							0.005	**0.008**	0.012	0.024	**0.059**	0.098	0.006	**0.010**	0.016	0.024	**0.039**	0.157
VN.. 333													0.008	**0.012**	0.020	0.039	**0.039**	0.157
WN.. 331	0.004	**0.007**	0.014	0.016	**0.031**	0.118							0.004	**0.008**	0.012	0.016	**0.039**	0.118
WN.. 332	0.004	**0.008**	0.020	0.020	**0.059**	0.118							0.006	**0.010**	0.016	0.024	**0.039**	0.118
WN.. 333													0.008	**0.012**	0.020	0.039	**0.039**	0.118
WN.. 431								**0.006**	0.010	0.012	**0.059**	0.098	0.004	**0.008**	0.012	0.016	**0.059**	0.157
WN.. 432	0.004	**0.010**	0.020	0.020	**0.059**	0.157	0.005	**0.009**	0.014	0.024	**0.079**	0.118	0.006	**0.010**	0.016	0.024	**0.059**	0.157
WN.. 433	0.006	**0.012**	0.028	0.031	**0.079**	0.197	0.006	**0.010**	0.018	0.035	**0.079**	0.138	0.008	**0.012**	0.020	0.039	**0.059**	0.157
WN.. 434													0.010	**0.016**	0.024	0.055	**0.059**	0.157

Sharp ↔ stable

Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 184–191**.

Cutting data standard values for negative inserts

		-TMQ						-M70					
	Designation	f			a_p			f			a_p		
		min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
			inch/rev.			inch			inch/rev.			inch	
	CN.. 321												
	CN.. 322												
	CN.. 431												
	CN.. 432	0.008	**0.016**	0.026	0.031	**0.118**	0.197	0.008	**0.012**	0.018	0.031	**0.118**	0.236
	CN.. 433	0.010	**0.020**	0.033	0.039	**0.118**	0.236	0.010	**0.016**	0.024	0.047	**0.118**	0.236
	CN.. 434							0.012	**0.018**	0.028	0.063	**0.118**	0.236
	CN.. 542							0.008	**0.012**	0.018	0.031	**0.157**	0.315
	CN.. 543							0.010	**0.016**	0.024	0.047	**0.157**	0.315
	CN.. 544							0.012	**0.018**	0.028	0.063	**0.157**	0.315
	CN.. 546							0.016	**0.028**	0.047	0.094	**0.157**	0.315
	CN.. 642							0.008	**0.012**	0.018	0.031	**0.177**	0.354
	CN.. 643							0.010	**0.016**	0.024	0.047	**0.177**	0.354
	CN.. 644							0.012	**0.018**	0.028	0.063	**0.177**	0.354
	CN.. 646							0.016	**0.028**	0.047	0.094	**0.177**	0.354
	CN.. 866							0.016	**0.028**	0.047	0.094	**0.236**	0.512
	DN.. 330.5												
	DN.. 331												
	DN.. 332							0.008	**0.010**	0.018	0.031	**0.079**	0.197
	DN.. 333							0.010	**0.014**	0.024	0.047	**0.079**	0.197
	DN.. 431												
	DN.. 432							0.008	**0.010**	0.018	0.031	**0.098**	0.236
	DN.. 433							0.010	**0.014**	0.024	0.047	**0.098**	0.236
	DN.. 434							0.012	**0.016**	0.028	0.063	**0.098**	0.236
	DN.. 441												
	DN.. 442	0.006	**0.012**	0.020	0.031	**0.098**	0.197	0.008	**0.010**	0.018	0.031	**0.098**	0.236
	DN.. 443	0.008	**0.016**	0.024	0.039	**0.118**	0.197	0.010	**0.014**	0.024	0.047	**0.098**	0.236
	DN.. 444							0.012	**0.016**	0.028	0.063	**0.098**	0.236
	SN.. 332												
	SN.. 431												
	SN.. 432							0.008	**0.012**	0.020	0.031	**0.118**	0.236
	SN.. 433							0.010	**0.016**	0.026	0.047	**0.118**	0.236
	SN.. 434							0.012	**0.018**	0.028	0.063	**0.118**	0.236
	SN.. 442												
	SN.. 443							0.010	**0.016**	0.026	0.047	**0.157**	0.315
	SN.. 444							0.012	**0.018**	0.030	0.063	**0.157**	0.315
	SN.. 543							0.010	**0.016**	0.026	0.047	**0.177**	0.354
	SN.. 544							0.012	**0.018**	0.030	0.063	**0.177**	0.354
	SN.. 546							0.016	**0.028**	0.047	0.094	**0.177**	0.354
	SN.. 856												
	SN.. 866							0.016	**0.028**	0.047	0.094	**0.236**	0.512
	TN.. 221												
	TN.. 222												
	TN.. 331												
	TN.. 332							0.008	**0.010**	0.018	0.031	**0.098**	0.236
	TN.. 333							0.010	**0.014**	0.024	0.047	**0.098**	0.236
	TN.. 431							0.006	**0.008**	0.012	0.016	**0.118**	0.276
	TN.. 432							0.008	**0.010**	0.018	0.031	**0.118**	0.276
	TN.. 433							0.010	**0.014**	0.024	0.047	**0.118**	0.276
	TN.. 434							0.012	**0.016**	0.028	0.063	**0.118**	0.276
	VN.. 331												
	VN.. 332												
	VN.. 333												
	WN.. 331												
	WN.. 332							0.008	**0.012**	0.018	0.031	**0.079**	0.157
	WN.. 333							0.010	**0.016**	0.024	0.047	**0.079**	0.157
	WN.. 431												
	WN.. 432	0.008	**0.012**	0.026	0.031	**0.118**	0.197	0.008	**0.012**	0.018	0.031	**0.098**	0.197
	WN.. 433	0.010	**0.016**	0.033	0.039	**0.118**	0.236	0.010	**0.016**	0.024	0.047	**0.098**	0.197
	WN.. 434							0.012	**0.018**	0.028	0.063	**0.098**	0.197

Sharp ↔ stable

The data shows reference values. An adjustment to the actual conditions may be required.

Designa-tion	-R28						-R58						-R88					
	f			a$_p$			f			a$_p$			f			a$_p$		
	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.
	inch/rev.			inch			inch/rev.			inch			inch/rev.			inch		
CN.. 321																		
CN.. 322																		
CN.. 431																		
CN.. 432	0.010	**0.014**	0.022	0.031	**0.118**	0.276	0.010	**0.018**	0.028	0.039	**0.118**	0.276						
CN.. 433	0.012	**0.018**	0.028	0.039	**0.118**	0.276	0.012	**0.022**	0.033	0.059	**0.118**	0.276						
CN.. 434	0.012	**0.024**	0.035	0.059	**0.118**	0.276	0.014	**0.026**	0.039	0.079	**0.118**	0.276						
CN.. 542																		
CN.. 543	0.012	**0.018**	0.028	0.039	**0.157**	0.354	0.012	**0.022**	0.033	0.059	**0.157**	0.354						
CN.. 544	0.014	**0.024**	0.035	0.059	**0.157**	0.354	0.014	**0.026**	0.039	0.079	**0.157**	0.354						
CN.. 546							0.016	**0.030**	0.047	0.098	**0.157**	0.354	0.016	**0.028**	0.047	0.079	**0.197**	0.354
CN.. 642																		
CN.. 643	0.012	**0.018**	0.028	0.039	**0.217**	0.472	0.014	**0.022**	0.033	0.059	**0.217**	0.472						
CN.. 644	0.014	**0.024**	0.035	0.059	**0.217**	0.472	0.016	**0.026**	0.039	0.079	**0.217**	0.472	0.016	**0.028**	0.039	0.079	**0.197**	0.472
CN.. 646	0.014	**0.026**	0.039	0.079	**0.217**	0.472	0.016	**0.030**	0.047	0.098	**0.217**	0.472	0.016	**0.028**	0.047	0.079	**0.197**	0.472
CN.. 866							0.018	**0.031**	0.051	0.098	**0.315**	0.630	0.024	**0.039**	0.059	0.138	**0.394**	0.709
DN.. 330.5																		
DN.. 331																		
DN.. 332																		
DN.. 333																		
DN.. 431																		
DN.. 432																		
DN.. 433																		
DN.. 434																		
DN.. 441																		
DN.. 442																		
DN.. 443	0.010	**0.018**	0.028	0.039	**0.098**	0.236	0.012	**0.020**	0.031	0.059	**0.098**	0.236						
DN.. 444	0.012	**0.024**	0.033	0.059	**0.098**	0.236	0.014	**0.024**	0.035	0.079	**0.098**	0.236						
SN.. 332																		
SN.. 431																		
SN.. 432							0.010	**0.018**	0.028	0.039	**0.118**	0.276						
SN.. 433							0.012	**0.022**	0.033	0.059	**0.118**	0.276						
SN.. 434																		
SN.. 442																		
SN.. 443	0.012	**0.014**	0.028	0.039	**0.157**	0.354	0.012	**0.022**	0.033	0.059	**0.157**	0.354						
SN.. 444	0.014	**0.024**	0.035	0.059	**0.157**	0.354	0.014	**0.026**	0.039	0.079	**0.157**	0.354						
SN.. 543							0.014	**0.022**	0.033	0.059	**0.217**	0.472						
SN.. 544	0.014	**0.024**	0.035	0.059	**0.217**	0.472	0.016	**0.026**	0.039	0.079	**0.217**	0.472	0.016	**0.028**	0.039	0.079	**0.197**	0.472
SN.. 546							0.016	**0.030**	0.047	0.079	**0.217**	0.472	0.016	**0.028**	0.047	0.079	**0.197**	0.472
SN.. 856	0.014	**0.026**	0.039	0.079	**0.276**	0.630	0.018	**0.031**	0.051	0.098	**0.315**	0.630	0.024	**0.039**	0.059	0.138	**0.394**	0.709
SN.. 866	0.014	**0.026**	0.039	0.079	**0.276**	0.630	0.018	**0.031**	0.051	0.098	**0.315**	0.630	0.024	**0.039**	0.059	0.138	**0.394**	0.709
TN.. 221																		
TN.. 222																		
TN.. 331																		
TN.. 332																		
TN.. 333																		
TN.. 431																		
TN.. 432																		
TN.. 433							0.012	**0.020**	0.031	0.059	**0.118**	0.276						
TN.. 434	0.012	**0.022**	0.033	0.059	**0.118**	0.276												
VN.. 331																		
VN.. 332																		
VN.. 333																		
WN.. 331																		
WN.. 332																		
WN.. 333																		
WN.. 431																		
WN.. 432																		
WN.. 433																		
WN.. 434																		

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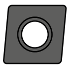
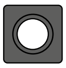
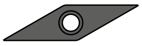
Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 184–191**.

Cutting data standard values for negative inserts

		-F30						-M30					
		f			**a_p**			**f**			**a_p**		
	Designation	**min.**	**Recommended**	**max.**	**min.**	**Recommended**	**max.**	**min.**	**Recommended**	**max.**	**min.**	**Recommended**	**max.**
		inch/rev.			**inch**			**inch/rev.**			**inch**		
	CN.. 321												
	CN.. 322												
	CN.. 431	0.002	**0.006**	0.010	0.016	**0.039**	0.079						
	CN.. 432	0.004	**0.009**	0.014	0.031	**0.059**	0.098	0.006	**0.010**	0.016	0.039	**0.079**	0.177
	CN.. 433							0.008	**0.012**	0.020	0.047	**0.098**	0.197
	CN.. 434							0.010	**0.014**	0.022	0.063	**0.098**	0.197
	CN.. 542												
	CN.. 543												
	CN.. 544												
	CN.. 546												
	CN.. 642												
	CN.. 643												
	CN.. 644												
	CN.. 646												
	CN.. 866												
	DN.. 330.5												
	DN.. 331	0.002	**0.006**	0.010	0.016	**0.039**	0.079						
	DN.. 332	0.004	**0.008**	0.014	0.031	**0.059**	0.098	0.006	**0.010**	0.016	0.039	**0.079**	0.177
	DN.. 333							0.008	**0.012**	0.020	0.047	**0.079**	0.177
	DN.. 431												
	DN.. 432												
	DN.. 433												
	DN.. 434												
	DN.. 441	0.002	**0.006**	0.010	0.016	**0.039**	0.079						
	DN.. 442	0.004	**0.008**	0.014	0.031	**0.059**	0.098	0.006	**0.010**	0.016	0.039	**0.079**	0.217
	DN.. 443							0.008	**0.012**	0.020	0.047	**0.079**	0.217
	DN.. 444												
	SN.. 332												
	SN.. 431	0.004	**0.006**	0.012	0.016	**0.039**	0.079						
	SN.. 432	0.006	**0.008**	0.016	0.031	**0.059**	0.098	0.008	**0.010**	0.018	0.039	**0.079**	0.177
	SN.. 433	0.006	**0.008**	0.016	0.047	**0.071**	0.098	0.010	**0.012**	0.020	0.047	**0.079**	0.197
	SN.. 434												
	SN.. 442												
	SN.. 443												
	SN.. 444												
	SN.. 543												
	SN.. 544												
	SN.. 546												
	SN.. 856												
	SN.. 866												
	TN.. 221												
	TN.. 222												
	TN.. 331	0.002	**0.006**	0.010	0.016	**0.039**	0.079						
	TN.. 332	0.004	**0.006**	0.014	0.031	**0.059**	0.098	0.006	**0.010**	0.016	0.039	**0.079**	0.177
	TN.. 333							0.008	**0.012**	0.020	0.047	**0.079**	0.177
	TN.. 431												
	TN.. 432												
	TN.. 433												
	TN.. 434												
	VN.. 331	0.003	**0.004**	0.008	0.016	**0.039**	0.079						
	VN.. 332	0.004	**0.006**	0.012	0.031	**0.059**	0.098	0.006	**0.010**	0.016	0.039	**0.059**	0.157
	VN.. 333												
	WN.. 331	0.002	**0.006**	0.010	0.016	**0.039**	0.079						
	WN.. 332	0.004	**0.008**	0.012	0.031	**0.059**	0.098	0.006	**0.010**	0.016	0.039	**0.059**	0.138
	WN.. 333							0.008	**0.012**	0.018	0.047	**0.059**	0.157
	WN.. 431	0.002	**0.006**	0.010	0.016	**0.039**	0.079						
	WN.. 432	0.004	**0.008**	0.014	0.031	**0.059**	0.098	0.006	**0.010**	0.016	0.039	**0.079**	0.177
	WN.. 433							0.008	**0.012**	0.020	0.047	**0.079**	0.197
	WN.. 434												

Sharp ⟷ stable

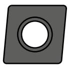
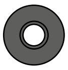
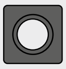
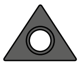
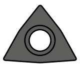
ⓘ The data shows reference values. An adjustment to the actual conditions may be required.

Designation	-M60						-M34					
	f			a_p			f			a_p		
	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
	inch/rev.			inch			inch/rev.			inch		
CN.. 321												
CN.. 322												
CN.. 431							0.003	**0.005**	0.007	0.039	**0.059**	0.118
CN.. 432	0.010	**0.012**	0.020	0.059	**0.098**	0.236	0.004	**0.006**	0.014	0.039	**0.071**	0.138
CN.. 433	0.012	**0.014**	0.022	0.079	**0.118**	0.236	0.005	**0.008**	0.016	0.059	**0.079**	0.157
CN.. 434	0.012	**0.016**	0.024	0.079	**0.118**	0.236	0.006	**0.010**	0.018	0.079	**0.118**	0.177
CN.. 542												
CN.. 543	0.012	**0.014**	0.022	0.079	**0.118**	0.315						
CN.. 544												
CN.. 546												
CN.. 642												
CN.. 643												
CN.. 644												
CN.. 646												
CN.. 866												
DN.. 330.5												
DN.. 331												
DN.. 332												
DN.. 333												
DN.. 431							0.003	**0.005**	0.007	0.031	**0.047**	0.098
DN.. 432							0.004	**0.006**	0.012	0.039	**0.071**	0.138
DN.. 433							0.005	**0.008**	0.015	0.059	**0.079**	0.157
DN.. 434												
DN.. 441												
DN.. 442	0.010	**0.012**	0.018	0.059	**0.098**	0.236	0.004	**0.006**	0.012	0.039	**0.071**	0.138
DN.. 443	0.012	**0.016**	0.022	0.059	**0.098**	0.236	0.005	**0.008**	0.015	0.059	**0.079**	0.157
DN.. 444												
SN.. 332												
SN.. 431												
SN.. 432	0.012	**0.014**	0.020	0.059	**0.079**	0.236	0.006	**0.010**	0.016	0.039	**0.079**	0.157
SN.. 433	0.012	**0.016**	0.022	0.079	**0.098**	0.236	0.006	**0.010**	0.018	0.059	**0.098**	0.177
SN.. 434	0.012	**0.016**	0.024	0.079	**0.098**	0.236						
SN.. 442												
SN.. 443												
SN.. 444												
SN.. 543												
SN.. 544												
SN.. 546												
SN.. 856												
SN.. 866												
TN.. 221												
TN.. 222												
TN.. 331												
TN.. 332	0.010	**0.010**	0.018	0.059	**0.098**	0.197	0.004	**0.006**	0.014	0.039	**0.079**	0.157
TN.. 333	0.012	**0.012**	0.022	0.079	**0.098**	0.217						
TN.. 431							0.004	**0.006**	0.014	0.039	**0.079**	0.157
TN.. 432							0.005	**0.008**	0.016	0.059	**0.098**	0.157
TN.. 433												
TN.. 434							0.006	**0.010**	0.018	0.079	**0.098**	0.177
VN.. 331							0.003	**0.004**	0.007	0.031	**0.047**	0.079
VN.. 332							0.004	**0.006**	0.008	0.039	**0.059**	0.098
VN.. 333							0.005	**0.007**	0.010	0.059	**0.071**	0.118
WN.. 331												
WN.. 332	0.010	**0.012**	0.018	0.059	**0.079**	0.157						
WN.. 333	0.012	**0.014**	0.020	0.079	**0.098**	0.177						
WN.. 431												
WN.. 432	0.010	**0.012**	0.020	0.059	**0.079**	0.197	0.004	**0.006**	0.014	0.039	**0.079**	0.157
WN.. 433	0.012	**0.014**	0.022	0.079	**0.098**	0.217	0.005	**0.008**	0.016	0.059	**0.079**	0.157
WN.. 434												

Sharp ↔ stable

Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 184–191**.

Cutting data values for positive inserts

		-CF05						-SF					
	Designation	f			a_p			f			a_p		
		min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.	min.	Recommended	max.
		inch/rev.			inch			inch/rev.			inch		
	CC.. 21.5X5							0.001	**0.001**	0.002	0.004	**0.016**	0.059
	CC.. 21.50							0.001	**0.001**	0.002	0.008	**0.016**	0.059
	CC.. 21.5.5	0.001	**0.003**	0.005	0.004	**0.012**	0.051	0.001	**0.004**	0.006	0.008	**0.016**	0.059
	CC.. 21.51	0.002	**0.004**	0.005	0.004	**0.012**	0.051	0.002	**0.004**	0.008	0.008	**0.024**	0.059
	CC.. 21.52							0.002	**0.005**	0.008	0.008	**0.039**	0.059
	CC..32.5X5							0.001	**0.001**	0.002	0.008	**0.030**	0.079
	CC.. 32.50							0.001	**0.001**	0.002	0.008	**0.030**	0.079
	CC.. 32.5.5	0.001	**0.003**	0.005	0.004	**0.012**	0.051	0.002	**0.003**	0.004	0.008	**0.030**	0.079
	CC.. 32.51	0.002	**0.004**	0.009	0.008	**0.016**	0.051	0.002	**0.005**	0.008	0.008	**0.030**	0.079
	CC.. 32.52	0.002	**0.005**	0.010	0.008	**0.016**	0.051	0.002	**0.005**	0.010	0.016	**0.039**	0.079
	CC.. 32.53												
	CC.. 430.5							0.002	**0.003**	0.004	0.008	**0.031**	0.098
	CC.. 431							0.002	**0.005**	0.008	0.008	**0.039**	0.098
	CC.. 432							0.003	**0.006**	0.010	0.016	**0.039**	0.098
	CC.. 433							0.003	**0.006**	0.010	0.016	**0.059**	0.098
	DC.. 21.5X5												
	DC.. 21.50												
	DC.. 21.50.3												
	DC.. 21.5.5	0.001	**0.003**	0.005	0.004	**0.012**	0.051	0.001	**0.004**	0.006	0.004	**0.016**	0.059
	DC.. 21.51	0.002	**0.004**	0.009	0.008	**0.016**	0.051	0.002	**0.005**	0.008	0.008	**0.024**	0.059
	DC.. 21.52												
	DC.. 32.5X5												
	DC.. 32.50												
	DC.. 32.50.3												
	DC.. 32.5.5	0.001	**0.003**	0.005	0.004	**0.012**	0.051						
	DC.. 32.51	0.002	**0.004**	0.009	0.008	**0.016**	0.051	0.002	**0.005**	0.008	0.008	**0.028**	0.079
	DC.. 32.52	0.002	**0.005**	0.010	0.008	**0.016**	0.051	0.003	**0.006**	0.010	0.016	**0.039**	0.079
	DC.. 32.53												
	RC.. 0602M0												
	RC.. 0803M0												
	RC.. 1003M0												
	RC.. 1204M0												
	RC.. 1606M0												
	RC.. 2006M0												
	RC.. 2507M0												
	SC.. 32.51	0.002	**0.004**	0.009	0.008	**0.016**	0.051	0.002	**0.005**	0.008	0.008	**0.028**	0.079
	SC.. 32.52	0.002	**0.005**	0.010	0.008	**0.016**	0.051	0.003	**0.006**	0.010	0.016	**0.039**	0.079
	SC.. 432							0.003	**0.006**	0.010	0.016	**0.039**	0.098
	SC.. 433												
	TC.. 1.81.51												
	TC.. 21.5.5	0.001	**0.003**	0.005	0.004	**0.012**	0.051						
	TC.. 21.51	0.002	**0.004**	0.009	0.008	**0.016**	0.051	0.002	**0.005**	0.008	0.008	**0.028**	0.079
	TC.. 21.52	0.002	**0.005**	0.010	0.008	**0.016**	0.051	0.003	**0.006**	0.010	0.016	**0.039**	0.079
	TC.. 32.5.5												
	TC.. 32.51	0.002	**0.004**	0.009	0.008	**0.016**	0.051	0.002	**0.005**	0.008	0.008	**0.031**	0.098
	TC.. 32.52							0.003	**0.006**	0.010	0.016	**0.039**	0.098
	TC.. 32.53												
	TC.. 432												
	VC.. 220.X12												
	VC.. 220.X25												
	VC.. 220.X37												
	VC.. 220.5	0.001	**0.002**	0.005	0.004	**0.012**	0.051	0.001	**0.003**	0.006	0.004	**0.016**	0.059
	VC.. 221	0.002	**0.003**	0.009	0.008	**0.016**	0.051	0.002	**0.004**	0.008	0.008	**0.024**	0.059
	VC.. 222							0.003	**0.005**	0.009	0.016	**0.039**	0.059
	VC.. 330.5												
	VC.. 331	0.002	**0.003**	0.009	0.008	**0.016**	0.051	0.002	**0.004**	0.008	0.008	**0.028**	0.079
	VC.. 332	0.002	**0.004**	0.009	0.008	**0.016**	0.051	0.003	**0.005**	0.009	0.016	**0.039**	0.079
	VC.. 333												
	VC.. 220530												
	WC.. 1.21.50							0.001	**0.003**	0.004	0.004	**0.016**	0.039
	WC.. 1.21.51							0.001	**0.004**	0.008	0.004	**0.024**	0.059

Sharp ↔ stable

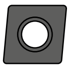
The data shows reference values. An adjustment to the actual conditions may be required.

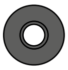
Designa-tion	-CF55						-SMF						-SM					
	f			a_p			f			a_p			f			a_p		
	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.
	inch/rev.			inch			inch/rev.			inch			inch/rev.			inch		
CC.. 21.5X5																		
CC.. 21.50																		
CC.. 21.5.5													0.002	**0.005**	0.008	0.008	**0.024**	0.098
CC.. 21.51	0.002	**0.005**	0.009	0.008	**0.020**	0.051	0.003	**0.006**	0.010	0.012	**0.028**	0.079	0.003	**0.007**	0.012	0.016	**0.031**	0.098
CC.. 21.52							0.004	**0.007**	0.011	0.024	**0.039**	0.079	0.005	**0.008**	0.014	0.031	**0.039**	0.098
CC..32.5X5																		
CC.. 32.50																		
CC.. 32.5.5																		
CC.. 32.51	0.002	**0.005**	0.009	0.008	**0.020**	0.051	0.003	**0.006**	0.010	0.012	**0.031**	0.098	0.003	**0.007**	0.012	0.016	**0.039**	0.118
CC.. 32.52	0.002	**0.006**	0.010	0.008	**0.020**	0.051	0.004	**0.007**	0.011	0.024	**0.039**	0.098	0.005	**0.008**	0.014	0.031	**0.047**	0.118
CC.. 32.53													0.006	**0.009**	0.016	0.047	**0.059**	0.118
CC.. 430.5																		
CC.. 431	0.002	**0.005**	0.009	0.008	**0.020**	0.051	0.003	**0.006**	0.010	0.012	**0.039**	0.118	0.003	**0.007**	0.012	0.016	**0.047**	0.138
CC.. 432							0.004	**0.007**	0.011	0.024	**0.047**	0.118	0.005	**0.008**	0.014	0.031	**0.059**	0.138
CC.. 433													0.006	**0.009**	0.016	0.047	**0.079**	0.138
DC.. 21.5X5																		
DC.. 21.50																		
DC.. 21.50.3																		
DC.. 21.5.5	0.001	**0.004**	0.005	0.004	**0.016**	0.051							0.002	**0.005**	0.008	0.008	**0.024**	0.098
DC.. 21.51	0.002	**0.005**	0.009	0.008	**0.020**	0.051	0.003	**0.006**	0.010	0.012	**0.028**	0.079	0.003	**0.007**	0.012	0.016	**0.031**	0.098
DC.. 21.52							0.004	**0.007**	0.011	0.024	**0.039**	0.079	0.005	**0.008**	0.012	0.031	**0.039**	0.098
DC.. 32.5X5																		
DC.. 32.50																		
DC.. 32.50.3																		
DC.. 32.5.5																		
DC.. 32.51	0.002	**0.005**	0.009	0.008	**0.020**	0.051	0.003	**0.006**	0.010	0.012	**0.031**	0.098	0.031	**0.007**	0.012	0.016	**0.039**	0.118
DC.. 32.52	0.002	**0.006**	0.010	0.008	**0.020**	0.051	0.004	**0.007**	0.011	0.024	**0.047**	0.098	0.005	**0.008**	0.014	0.031	**0.047**	0.118
DC.. 32.53													0.006	**0.009**	0.016	0.047	**0.067**	0.118
RC.. 0602M0													0.008	**0.012**	0.020	0.008	**0.020**	0.059
RC.. 0803M0													0.008	**0.012**	0.024	0.008	**0.024**	0.079
RC.. 1003M0													0.010	**0.016**	0.028	0.008	**0.028**	0.098
RC.. 1204M0													0.012	**0.020**	0.031	0.008	**0.031**	0.118
RC.. 1606M0							0.006	**0.012**	0.024	0.010	**0.079**	0.138	0.016	**0.024**	0.039	0.012	**0.039**	0.138
RC.. 2006M0													0.020	**0.031**	0.047	0.016	**0.047**	0.157
RC.. 2507M0													0.024	**0.035**	0.055	0.024	**0.079**	0.197
SC.. 32.51	0.002	**0.005**	0.009	0.008	**0.020**	0.051	0.003	**0.006**	0.010	0.012	**0.031**	0.098	0.003	**0.007**	0.012	0.016	**0.039**	0.118
SC.. 32.52	0.002	**0.006**	0.010	0.008	**0.020**	0.051	0.004	**0.007**	0.011	0.024	**0.039**	0.098	0.005	**0.008**	0.014	0.031	**0.047**	0.118
SC.. 432							0.004	**0.007**	0.011	0.024	**0.047**	0.118	0.005	**0.008**	0.014	0.031	**0.059**	0.138
SC.. 433													0.006	**0.009**	0.016	0.047	**0.079**	0.138
TC.. 1.81.51													0.003	**0.005**	0.008	0.016	**0.031**	0.079
TC.. 21.5.5													0.003	**0.004**	0.008	0.016	**0.024**	0.118
TC.. 21.51	0.002	**0.005**	0.009	0.008	**0.020**	0.051							0.005	**0.008**	0.014	0.031	**0.047**	0.118
TC.. 21.52							0.004	**0.007**	0.011	0.024	**0.039**	0.098	0.005	**0.008**	0.014	0.031	**0.047**	0.118
TC.. 32.5.5																		
TC.. 32.51							0.003	**0.006**	0.010	0.012	**0.039**	0.118	0.003	**0.007**	0.012	0.016	**0.047**	0.138
TC.. 32.52	0.002	**0.006**	0.010	0.008	**0.020**	0.051	0.004	**0.007**	0.011	0.024	**0.047**	0.118	0.005	**0.008**	0.014	0.031	**0.059**	0.138
TC.. 32.53													0.006	**0.009**	0.016	0.047	**0.067**	0.138
TC.. 432													0.005	**0.008**	0.014	0.031	**0.098**	0.236
VC.. 220.X12																		
VC.. 220.X25																		
VC.. 220.X37																		
VC.. 220.5							0.002	**0.004**	0.007	0.008	**0.020**	0.079						
VC.. 221	0.002	**0.004**	0.009	0.008	**0.020**	0.051	0.003	**0.006**	0.009	0.012	**0.028**	0.079						
VC.. 222																		
VC.. 330.5																		
VC.. 331	0.002	**0.004**	0.009	0.008	**0.020**	0.051	0.003	**0.006**	0.009	0.012	**0.031**	0.098	0.003	**0.007**	0.010	0.016	**0.039**	0.118
VC.. 332	0.002	**0.005**	0.009	0.008	**0.020**	0.051	0.004	**0.007**	0.011	0.024	**0.039**	0.098	0.005	**0.008**	0.012	0.031	**0.047**	0.118
VC.. 333													0.006	**0.009**	0.013	0.047	**0.059**	0.118
VC.. 220530																		
WC.. 1.21.50																		
WC.. 1.21.51																		

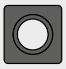
Sharp ↔ stable

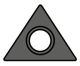
Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 184–191**.

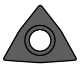
Cutting data values for positive inserts











Designa-tion	-SMQ						-M25					
	f			a_p			f			a_p		
	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.
		inch/rev.			inch			inch/rev.			inch	
CC.. 21.5X5												
CC.. 21.50												
CC.. 21.5.5												
CC.. 21.51							0.002	**0.005**	0.008	0.008	**0.043**	0.079
CC.. 21.52												
CC..32.5X5												
CC.. 32.50												
CC.. 32.5.5												
CC.. 32.51	0.004	**0.010**	0.016	0.016	**0.079**	0.157	0.002	**0.006**	0.009	0.008	**0.047**	0.087
CC.. 32.52	0.006	**0.012**	0.020	0.031	**0.079**	0.157	0.004	**0.008**	0.012	0.016	**0.071**	0.126
CC.. 32.53												
CC.. 430.5												
CC.. 431	0.004	**0.010**	0.016	0.016	**0.079**	0.157						
CC.. 432	0.006	**0.012**	0.020	0.031	**0.079**	0.157						
CC.. 433												
DC.. 21.5X5												
DC.. 21.50												
DC.. 21.50.3												
DC.. 21.5.5							0.002	**0.004**	0.005	0.004	**0.035**	0.063
DC.. 21.51	0.004	**0.007**	0.010	0.016	**0.059**	0.118	0.002	**0.005**	0.007	0.008	**0.043**	0.079
DC.. 21.52												
DC.. 32.5X5												
DC.. 32.50												
DC.. 32.50.3												
DC.. 32.5.5							0.002	**0.004**	0.006	0.004	**0.043**	0.079
DC.. 32.51	0.004	**0.010**	0.016	0.016	**0.079**	0.157	0.002	**0.006**	0.009	0.008	**0.047**	0.087
DC.. 32.52	0.006	**0.012**	0.020	0.031	**0.079**	0.157	0.004	**0.008**	0.012	0.016	**0.071**	0.126
DC.. 32.53												
RC.. 0602M0												
RC.. 0803M0												
RC.. 1003M0												
RC.. 1204M0												
RC.. 1606M0												
RC.. 2006M0												
RC.. 2507M0												
SC.. 32.51												
SC.. 32.52												
SC.. 432												
SC.. 433												
TC.. 1.81.51												
TC.. 21.5.5												
TC.. 21.51							0.002	**0.005**	0.008	0.008	**0.047**	0.087
TC.. 21.52												
TC.. 32.5.5												
TC.. 32.51							0.002	**0.006**	0.009	0.008	**0.063**	0.118
TC.. 32.52							0.004	**0.008**	0.012	0.016	**0.075**	0.134
TC.. 32.53												
TC.. 432												
VC.. 220.X12												
VC.. 220.X25												
VC.. 220.X37												
VC.. 220.5												
VC.. 221												
VC.. 222												
VC.. 330.5												
VC.. 331												
VC.. 332												
VC.. 333							0.002	**0.005**	0.008	0.008	**0.047**	0.087
VC.. 220530							0.004	**0.006**	0.010	0.016	**0.055**	0.118
WC.. 1.21.50												
WC.. 1.21.51												

Sharp ←→ stable

The data shows reference values. An adjustment to the actual conditions may be required.

Designa-tion	-M55						-F05					
	f			a_p			f			a_p		
	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.	min.	Recom-mended	max.
	inch/rev.			inch			inch/rev.			inch		
CC.. 21.5X5												
CC.. 21.50												
CC.. 21.5.5												
CC.. 21.51	0.002	**0.005**	0.008	0.016	**0.059**	0.102						
CC.. 21.52												
CC..32.5X5												
CC.. 32.50												
CC.. 32.5.5												
CC.. 32.51	0.003	**0.006**	0.009	0.016	**0.067**	0.118						
CC.. 32.52	0.005	**0.009**	0.014	0.031	**0.094**	0.157						
CC.. 32.53												
CC.. 430.5												
CC.. 431	0.003	**0.007**	0.011	0.016	**0.087**	0.157						
CC.. 432	0.005	**0.010**	0.016	0.031	**0.110**	0.189						
CC.. 433												
DC.. 21.5X5							0.001	**0.001**	0.002	0.004	**0.039**	0.079
DC.. 21.50							0.001	**0.001**	0.002	0.004	**0.039**	0.079
DC.. 21.50.3							0.001	**0.002**	0.003	0.004	**0.039**	0.079
DC.. 21.5.5							0.001	**0.002**	0.004	0.004	**0.039**	0.079
DC.. 21.51	0.002	**0.006**	0.009	0.016	**0.051**	0.087						
DC.. 21.52	0.003	**0.006**	0.009	0.031	**0.063**	0.094						
DC.. 32.5X5							0.001	**0.001**	0.002	0.004	**0.049**	0.098
DC.. 32.50							0.001	**0.001**	0.002	0.004	**0.049**	0.098
DC.. 32.50.3							0.001	**0.002**	0.003	0.004	**0.049**	0.098
DC.. 32.5.5							0.001	**0.003**	0.004	0.004	**0.049**	0.098
DC.. 32.51	0.003	**0.006**	0.009	0.016	**0.067**	0.118	0.001	**0.004**	0.010	0.004	**0.049**	0.098
DC.. 32.52	0.005	**0.009**	0.014	0.031	**0.094**	0.157						
DC.. 32.53												
RC.. 0602MO												
RC.. 0803MO												
RC.. 1003MO												
RC.. 1204MO												
RC.. 1606MO												
RC.. 2006MO												
RC.. 2507MO												
SC.. 32.51	0.005	**0.009**	0.014	0.031	**0.094**	0.157						
SC.. 32.52	0.005	**0.010**	0.016	0.031	**0.110**	0.189						
SC.. 432												
SC.. 433												
TC.. 1.81.51	0.002	**0.005**	0.007	0.016	**0.051**	0.087						
TC.. 21.5.5												
TC.. 21.51	0.002	**0.006**	0.009	0.016	**0.055**	0.094						
TC.. 21.52												
TC.. 32.5.5												
TC.. 32.51												
TC.. 32.52	0.005	**0.009**	0.014	0.031	**0.102**	0.173						
TC.. 32.53												
TC.. 432												
VC.. 220.X12							0.001	**0.001**	0.002	0.004	**0.049**	0.098
VC.. 220.X25							0.001	**0.001**	0.002	0.004	**0.049**	0.098
VC.. 220.X37							0.001	**0.002**	0.003	0.004	**0.049**	0.098
VC.. 220.5							0.001	**0.003**	0.004	0.004	**0.049**	0.098
VC.. 221							0.001	**0.006**	0.010	0.004	**0.049**	0.098
VC.. 222												
VC.. 330.5												
VC.. 331	0.003	**0.006**	0.008	0.016	**0.067**	0.118						
VC.. 332	0.005	**0.008**	0.012	0.031	**0.083**	0.134						
VC.. 333												
VC.. 220530												
WC.. 1.21.50												
WC.. 1.21.51												

Sharp ← → stable

Information on the cutting data of chip breakers not included in this overview, can be found on → **Page 184–191**.

Application range of CBN grades

Cutting material grade	Cutting material designation	Properties		Application range	Interrupted cut	Material suitability/ ISO hardness			
		PCBN content	Main binder			Cast iron	Sintered steels	Heat-resistant	hardened
						K	P	S	H
High PCBN content	**CTB S05U**	90 %		Chilled iron (NiHard), grey cast iron	Smooth to strongly interrupted cut	05		05	
	CTB S10C	95 %		Grey cast iron (GG252), sintered steels, super alloys	Smooth to medium interrupted cut	10	10	10	
	CTB S10U	95 %		Grey cast iron, sintered steels, super alloys		10	10	10	
	CTB S20C	90 %		Spheroidal graphite cast iron, sintered steels, super alloys		20	20	20	
Low PCBN content	**CTB H15C**	40 %	TiN	Tempered steels from 32 HRC	Smooth cut				15
	CTB H15U	40 %	TiN		Smooth to slightly interrupted cut				15
	CTB H20C	65 %	TiCN	48–62 HRC					20
	CTB H21C	65 %	TiCN	52–65 HRC					20
	CTB H21U	65 %	TiCN	52–65 HRC					20
	CTB H40C	55 %	TiN	48–65 HRC	Interrupted cut				40
	CTB H40U	65 %	TiN	54–65 HRC					40
	CTB H41C	65 %	TiN	48–65 HRC	Strongly interrupted cut				40
	CTB H41U	65 %	TiN	54–65 HRC					40

CBN – The Next Generation

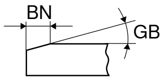
The “sandwich” Technology

The singular system (patent), to apply CBN segments on a tungsten carbide base in a single process reduces the edge price significantly and opens up the possibility for the development of different CBN grades.

Specialized edge preperations! To achieve the highest efficiency for each application, the new CBN sandwich inserts are available with up to 8 edge preperations.

CBN Test Insert

The type CNGA test insert was specifically used, in order to identify the **quickest and most effective** type. The insert is manufactured with four edge preperations for trial. The cutting edge with highest performance gives the correct chamfer style.



Article no.	Designation	Chamfers (BN x GB)			
71 499 ...		**Cutting edge 1**	**Cutting edge 2**	**Cutting edge 3**	**Cutting edge 4**
290	CNGA 120408XN_L2 **CTBS20C**	009B (0.004 inch x 10°)	011C (0.004 inch x 15°)	014D (0.006 inch x 20°)	018F (0.007 inch x 30°)
292	CNGA 120408XN_L2 **CTBH20C**	009D (0.004 inch x 20°)	011E (0.004 inch x 25°)	014F 0.006 inch x 30°)	018F (0.007 inch x 30°)
294	CNGA 120408XN_L2 **CTBH40C**	009D (0.004 inch x 20°)	011E (0.004 inch x 25°)	013E (0.005 inch x 25°)	014F (0.006 inch x 30°)

Diamond as a cutting material

Ensures

- ▲ Optimal surface quality
- ▲ burr-free workpieces
- ▲ high service lives
- ▲ lowest cutting forces
- ▲ High Process Security

Complete programme of roughing, finishing and wiper inserts for machining aluminium, non ferrous metals, plastics, ...

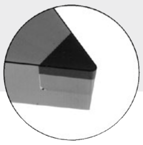
The cutting materials

	CTD CD10 (CVD)	CTD PD20 (PKD)	CTD PU20 (PKD)	CTD PS30 (PKD)
	Fine grain Size (N10)	Fine grain grade (N20)	Coarse grain grade (N20)	Coarse grain Size (N30)
Properties	▲ perfect sharp edges ▲ no cutting pressure ▲ very close tolerances ▲ highest abrasion resistance with highest toughness ▲ very high heat conductivity	▲ high sharpness ▲ lower cutting pressure than PDC-S ▲ close tolerance ▲ lower abrasion resistance with increased toughness	▲ Very sharp cutting edge ▲ Reduced cutting pressure ▲ Tight tolerances ▲ Very high level of wear resistance and toughness	▲ high sharpness ▲ lower cutting pressure ▲ close tolerance ▲ lower abrasion resistance than with the PDC, with increased toughness
Material	suitable for superfinishing and semi-finishing of all non ferrous metals and NE-composite materials with small to high levels of abrasiveness	suitable for fine machining of all NE-materials with low abrasiveness	suitable for finishing to roughing non-ferrous metals and non-ferrous materials with highly abrasive alloying element. High chip removal on fibre-reinforced plastics such as CFRP and GFRP.	suitable for fine machining of all NE-materials and non-ferrous metals with low to very high levels of abrasiveness

Cutting Geometries

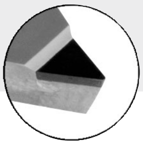
Neutral rake angle:

- ▲ higher cuting force
- ▲ higher temperature
- ▲ improved surface quality
- ▲ for stable workpieces



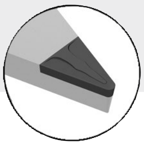
Positive rake angle:

- ▲ Lower cutting force
- ▲ Lower temperature
- ▲ reduction in surface quality
- ▲ for unstable workpieces
- ▲ improved accuracy



CB chip breaker geometries:

- ▲ Reliable chip control
- ▲ Ideal for low-alloy aluminium
- ▲ For F | M | R applications

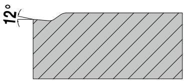
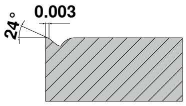
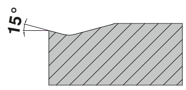
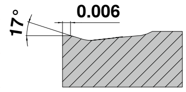
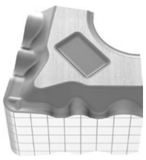
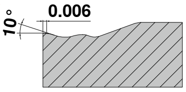
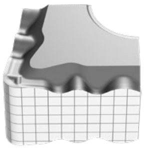
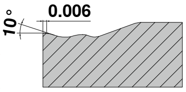


Notes on diamond usage

- ▲ Coolant is not generally needed, however it facilitates chip removal
- ▲ Note the chemical reaction to carbide-forming elements (PCD)
- ▲ Note the thermal interaction and critical temperature:
  PCD: 600 °C, CVD: 700 °C
  Depending on the material, use cooling.

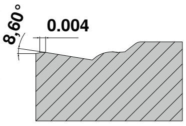
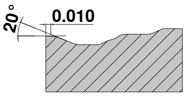
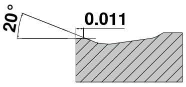
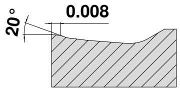
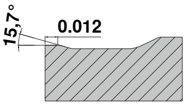
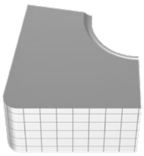
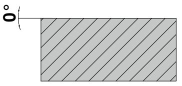
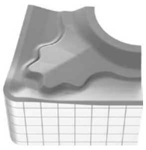
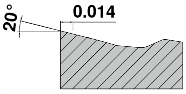
Standard chip breakers / application notes

Main application steel and cast iron, secondary application stainless steels

Negative	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration		Geometry
					a_p inch	f inch	
-CF / -CF20 ▲ Fine finishing ▲ Sharp cutting edge for low cutting forces ▲ Good chip control even at small depths of cut	 **F**	**CTEP110 / TCM10**					CN.. DN.. TN.. WN..
		CTEP110 / TCM10					
		CTEP110 / TCM10					
					0.012–0.059	0.003–0.010	
-F40 ▲ Fine turning chip breaker for machining steels ▲ Good chip control ▲ Ideal for copy turning work	 **F**	**CTCP125**	**CTCP125**				VN..
		CTCP125	CTCP125				
					0.020–0.079	0.004–0.012	
-F50 ▲ Fine turning chip breaker for fine machining ▲ Steel and stainless steels ▲ Excellent chip control ▲ High surface quality	 **F**	**CTCP115 / CTCP125**	**CTCP115 / CTCP125 / CTCP135**	**CTCP135**			CN.. DN.. SN.. TN.. VN.. WN..
			CTCP135	CTCP135			
					0.004–0.102	0.002–0.014	
-TFQ ▲ Wiper geometry ▲ Finishing to medium machining ▲ Very high feedrate ▲ High surface quality	 **F**	**CTEP110 / CTCP115**	**CTCP115 / CTCP125**				CN.. DN.. WN..
		CTEP110					
		CTEP110 / CTCP115	CTCP115 / CTCP125				
					0.020–0.197	0.004–0.024	
-XU ▲ Finishing to light roughing ▲ Universal chip breaker ▲ Copy turning ▲ Excellent chip formation ▲ Low cutting forces	 **M**	**CTCP115 / CTCP125**	CTCP115 / **CTCP125**	CTCP125			CN.. DN.. VN.. WN..
		CTCP115	CTCP115 / CTCP125				
					0.016–0.177	0.005–0.016	
-FMS ▲ Finishing to medium machining ▲ very good chip control ▲ universal chip breaker ▲ low cutting forces	 **F** **M**	**CT-P15 / CT-P25**	CT-P15 / **CT-P25**	CT-P25			CN.. DN.. VN.. WN..
		CT-P15 / CT-P25	CT-P25				
		CT-P15 / CT-P25	CT-P15 / CT-P25				
					0.016–0.018	0.004–0.012	

Standard chip breakers / application notes

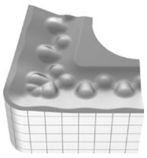
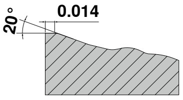
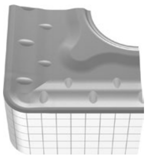
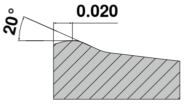
Main application steel and cast iron, secondary application stainless steels

Negative	Model	Smooth cut ○	Irregular cutting depth ○	Interrupted cut ◌	Sectional illustration		Geometry
					a_p inch	f inch	
-M40 ▲ Stable geometry ▲ Medium feed rates ▲ Can be used for any application ▲ Good chip control	 **M**	**CTCP125**	**CTCP125**		 		VN..
		CTCP125	CTCP125				
					0.020-0.118	0.020-0.118	
-M50 ▲ Medium machining ▲ First choice for steel machining ▲ Universal application ▲ Wide range of applications	 **M**	**CTCP115 / CTCP125 / CTCK110 / CTCK120**	CTCP115 / **CTCP125**	CTCP125 / **CTCP135**	 		CN.. DN.. SN.. TN.. VN.. WN..
		CTCP115	CTCP125	CTCP135			
		CTCP115 / CTCP125 / **CTCK110 / CTCK120**	CTCP115 / CTCP125 / **CTCK110 / CTCK120**	CTCP125 / **CTCK120**			
					0.020-0.197	0.005-0.016	
-TMQ ▲ Wiper geometry ▲ Light to medium rough machining ▲ Very high feedrate ▲ High surface quality	 **M**	**CTCP115**	**CTCP125**		 		CN.. DN.. WN..
		CTCP125	CTCP125				
		CTCP125	CTCP125				
					0.031-0.236	0.008-0.033	
-MRS ▲ medium to rough machining ▲ well suited for components with cast crust or forged skin ▲ works well with interrupted cuts	 **M** **R**	**CT-P15 / CT-P25 /** CT-P35	**CT-P15 / CT-P25 / CT-P35**	**CT-P25 / CT-P35**	 		CN.. DN.. WN..
		CT-P15 / CT-P25	CT-P25 / CT-P35	CT-P35			
					0.020-0.177	0.008-0.024	
-M70 ▲ Light to medium rough machining ▲ Cast crust and forging skin ▲ Stable cutting edge ▲ Interrupted cut ▲ Raw materials and forgings	 **M** **R**	**CTCK110 / CTCK120 / CTCP115**	CTCP115 / **CTCP125**	**CTCP125 / CTCP135**	 		CN.. DN.. SN.. TN.. WN..
		CTCP115	CTCP125	CTCP135			
		CTCK110 / CTCK120 / CTCP115 / CTCP125	**CTCK120 /** CTCP125	CTCP125 / **CTCK120**			
					0.059-0.177	0.008-0.031	
.NMA ▲ Rough machining ▲ Stable cutting edge ▲ For short-chipping materials ▲ First choice for grey cast iron	 **R**				 		CN.. DN.. SN.. TN.. WN..
		CTCK110	**CTCK110 / CTCK120**	**CTCK120**			
					0.059-0.177	0.008-0.031	
-R28 ▲ Single sided roughing geometry ▲ Longitudinal, face and copy turning ▲ Varying depths of cut ▲ Steels with low tensile strength (800 N / mm^2) ▲ Good chip control	 **R**	**CTCP115** / CTCP125	**CTCP115 / CTCP135 / CTCP125**	**CTCP135**	 		CN.. DN.. SN..
		CTCP115 / CTCP125	CTCP125 / CTCP135	CTCP135			
		CTCP115	CTCP125	CTCP135			
					0.039-0.472	0.010-0.031	

Standard chip breakers / application notes

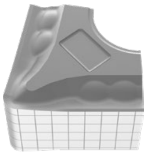
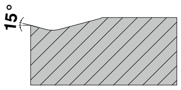
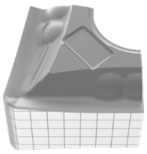
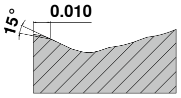
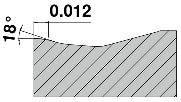
Negative

Main application steel and cast iron, secondary application stainless steels

Negative	Model	Smooth cut ○	Irregular cutting depth ○	Interrupted cut ◌	Sectional illustration		Geometry
					a_p inch	f inch	
-R58		**CTCP115 / CTCP125**	**CTCP115 / CTCP135 / CTCP125**	**CTCP135**			CN.. DN.. SN.. TN..
▲ Single sided roughing geometry ▲ Longitudinal and face turning ▲ Light interrupted cut ▲ Low cutting forces ▲ Unstable machines		CTCP115 / CTCP125	CTCP125 / CTCP135	CTCP135			
		CTCP115	CTCP115 / CTCP125	CTCP125			
	R				0.059-0.472	0.012-0.047	
-R88		**CTCP115 / CTCP125**	**CTCP115 / CTCP125 / CTCP135**	**CTCP135**			SN..
▲ Single sided roughing geometry ▲ Longitudinal and face turning ▲ High feedrate ▲ Large depths of cut ▲ Heavily interrupted cut		CTCP115 / CTCP125	CTCP115 / CTCP125	CTCP135			
		CTCP115	CTCP115 / CTCP125	CTCP125			
	R				0.138-0.630	0.020-0.059	

Negative

Main application stainless steels, secondary application steel and super alloys

-F30		CTCM120 / CTPM125	CTCM120 / CTPM125 / CTCM130	CTCM130			CN.. DN.. SN.. TN.. VN.. WN..
▲ Finishing of stainless steels ▲ Continous cut ▲ High surface quality ▲ Good swarf control		**CTCM120 / CTPM125**	**CTCM120 / CTPM125 / CTCM130**	**CTCM130**			
	F				0.003-0.098	0.004-0.014	
-M30		CTCM120 / CTPM125	CTCM120 / CTPM125 / CTCM130	CTCM130			CN.. DN.. SN.. TN.. VN.. WN..
▲ Option for stainless steel machining ▲ Good swarf control ▲ Little edg build up ▲ Low cutting forces ▲ Little built-up edge ▲ Applicable on unstable machines		**CTCM120 / CTPM125**	**CTCM120 / CTPM125 / CTCM130**	**CTCM130**			
	F						
	M				0.039-0.177	0.006-0.016	
-M60		CTCM120 / CTPM125	CTCM120 / CTPM125 / CTCM130	CTCM130			CN.. DN.. SN.. TN.. WN..
▲ Light to medium roughing ▲ Stable cutting edge ▲ Interrupted cut ▲ Forged skin and cast crust		**CTCM120 / CTPM125**	**CTCM120 / CTPM125 / CTCM130**	**CTCM130**			
	M						
	R				0.059-0.236	0.010-0.020	

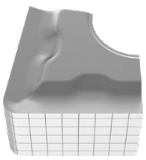
Standard chip breakers / application notes

Negative

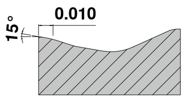
Main application super alloys,
secondary application stainless steels

-M34

- First choice for superalloys
- Light cutting geometry
- Little built-up edge
- Low cutting forces



Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a$_p$ inch	Sectional illustration f inch	Geometry
M	**CTPX710**	**CTPX710**		0.031–0.118	0.004–0.012	CN.. DN.. SN.. VN.. WN..
	CTPX710	**CTPX710**				
	CTPX710	CTPX710				
	CTPX710	**CTPX710**				

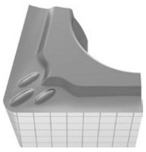


Positive

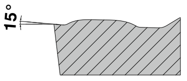
Main application steel and cast iron,
secondary application stainless steels and super alloys

-CF05

- Fine finishing
- For all common steel materials, stainless steels and GGG
- Good swarf control
- High surface quality

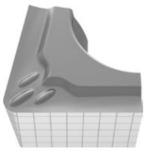


Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a$_p$ inch	Sectional illustration f inch	Geometry
F	**CTEP110 / TCM407**	TCM10 / TCM407		0.008–0.051	0.002–0.010	CC.. DC.. SC.. TC.. VC..
	CTEP110					
	CTEP110	TCM10 / TCM407				

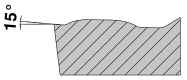


-SF

- Finishing / contour turning
- Good swarf control
- High surface quality
- Low cutting forces

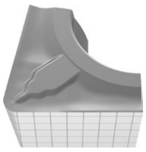


Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a$_p$ inch	Sectional illustration f inch	Geometry
F	**CTCP115**	**CTCP125**	**CTCP125 / CTCP135**	0.002–0.098	0.002–0.010	CC.. DC.. SC.. TC.. VC.. WC..
		CTCP125	CTCP125			

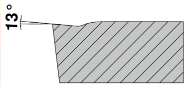


-CF55

- Finishing to medium machining
- Suitable for general and stainless steels
- Low cutting forces
- Good swarf control
- High surface quality

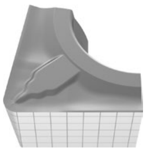
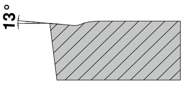
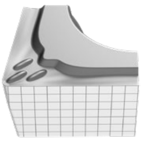
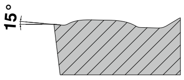
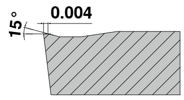
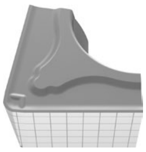
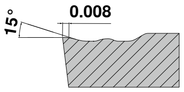
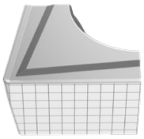
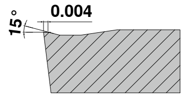


Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration a$_p$ inch	Sectional illustration f inch	Geometry
F M	**CTEP110**	**TCM10 /** CTEP110		0.008–0.051	0.002–0.010	CC.. DC.. SC.. TC.. VC..
	CTEP110	CTEP110				
	CTEP110	CTEP110				

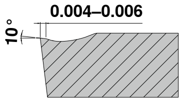
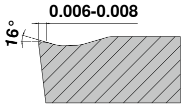


Standard chip breakers / application notes

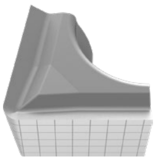
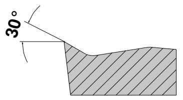
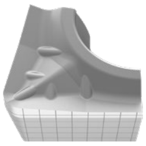
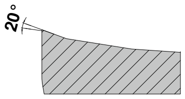
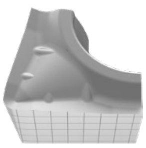
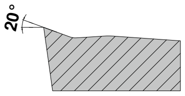
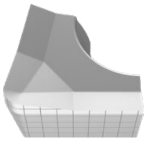
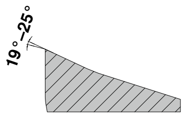
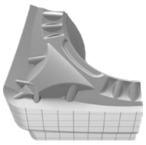
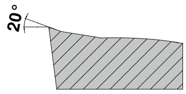
Main application steel and cast iron, secondary application stainless steels and super alloys

Positive	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration		Geometry
					a_p inch	f inch	
-SMF		**CTEP110 / CTCP115**	**TCM10 / CTCP125 / CTCP115**	**CTCP135**			CC.. DC.. SC.. TC.. VC..
▲ Finishing to medium machining ▲ Low cutting forces ▲ Good swarf control ▲ High surface quality		CTEP110	CTCP135	CTCP135			
		CTEP110					
	F				0.008–0.051	0.002–0.010	
	M						
-FMS		**CT-P15 / CT-P25**	**CT-P15 / CT-P25**	CT-P25			CC.. DC.. VC..
▲ Finishing to medium machining ▲ very good chip control ▲ universal chip breaker ▲ low cutting forces		CT-P15 / CT-P25	CT-P15 / CT-P25				
	F				0.004–0.079	0.002–0.008	
	M						
-SM		**CTCP115 / CTCP125**	**CTCP125 / CTCP135 / CTCP115**	**CTCP125 / CTCP135**			CC.. DC.. RC.. SC.. TC.. VC..
▲ Medium machining ▲ Universal application ▲ Stable cutting edge ▲ Varying depths of cut ▲ Wide range of applications			CTCP135	CTCP135			
		CTCP115 / **CTCK110 / CTCK120**	CTCP125 / **CTCK110 / CTCK120**	CTCK120			
					0.002–0.197	0.006–0.018	
	M						
-SMQ		**CTCP115**	**CTCP125**	**CTCP125**			CC.. DC..
▲ Positive wiper geometry ▲ Finishing to medium machining ▲ Very high feedrate ▲ High surface quality							
		CTCP125 / CTCP115	CTCP125	CTCP125			
					0.039–0.157	0.006–0.018	
	M						
-MRS		**CT-P15 / CT-P25**	**CT-P15 / CT-P25**	**CT-P25**			CC.. DC.. VC..
▲ light to medium roughing ▲ universal chip breaker ▲ stable cutting edge		CT-P15 / CT-P25	CT-P15 / CT-P25				
	M				0.006–0.138	0.006–0.014	
	R						

Positive

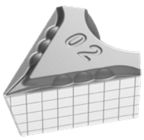
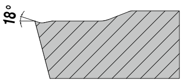
-M25		CTCM120 / CTPM125	CTCM120 / CTPM125 / CTCM130	CTCM130			CC.. DC.. TC.. VC..
▲ First choice for medium machining of stainless steels ▲ High surface quality ▲ Little built-up edge		**CTCM120 / CTPM125**	**CTCM120 / CTPM125 / CTCM130**	**CTCM130**			
	F				0.016–0.126	0.004–0.012	
	M						
-M55		CTCM120 / CTPM125	CTCM120 / CTPM125 / CTCM130	CTCM130			CC.. DC.. SC.. TC.. VC..
▲ First choice for medium machining to roughing of stainless steels ▲ Smooth to lightly interrupted cut ▲ Good swarf control ▲ Stable cutting edge		**CTCM120 / CTPM125**	**CTCM120 / CTPM125 / CTCM130**	**CTCM130**			
					0.016–0.189	0.002–0.014	
	M						

Standard chip breakers / application notes

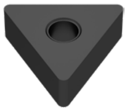
	Positive	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration		Geometry
						a_p inch	f inch	
Main application non-ferrous metals, secondary application stainless steels, steels, super alloys, cast iron	-23P ▲ Low adhesion ▲ Good chip control with soft aluminium alloys	 **F**						CC.. DC..
			H216T	H216T				
			H216T	**H216T**	**H216T**			
			H216T	H216T	H216T	0.008–0.157	0.002–0.012	
	-25P ▲ Sharp cutting edge ▲ Good swarf control on soft aluminium alloys ▲ Low adhesion	 **F** **M**	**CTPX710**	CTPX710				CC.. DC.. SC.. VC..
			CTPX710	CTPX710				
			CTPX710 / H216T	**CTPX710 / H216T**	**CTPX710 / H216T**			
			CTPX710	CTPX710				
			CTPX710	CTPX710		0.020–0.177	0.002–0.024	
	-25Q ▲ Wiper geometry ▲ High feed rates ▲ High surface quality ▲ Good swarf control on soft aluminium alloys ▲ Low adhesion	 **M**	**CTPX710**	CTPX710				CC.. DC.. VC..
			CTPX710	CTPX710				
			H210T	H210T				
			H210T / CTPX710	**H210T / CTPX710**	**H210T / CTPX710**			
			H210T / **CTPX710**	H210T / CTPX710				
			H210T	H210T	H210T	0.002–0.256	0.002–0.024	
	-27 ▲ The universal Alu geometry ▲ Sharp cutting edge ▲ Extremely positive rake angle ▲ Low adhesion ▲ High feed rates	 **M** **R**	**CTPX715**	CTPX715				CC.. DC.. RC.. SC.. TC.. VC..
			CTPX715	CTPX715				
			CTPX715 / H216T	CTPX715 / H216T				
			CTPX715 / H216T	**CTPX715 / H216T**	**CTPX715 / H216T**			
			CTPX715	CTPX715				
			CTPX715 / H216T	CTPX715 / H216T	CTPX715 / H216T	0.039–0.394	0.004–0.030	
	-29 ▲ Direct sintered aluminium geometry ▲ Positive rake angle ▲ Good chip control ▲ For medium to rough machining	 **F** **R**						CC.. DC.. VC..
					H216T			
			H216	**H216**	**H216T**			
						0.039–0.236	0.010–0.024	

Standard chip breakers / application notes

Main application super alloys and stainless steels,
secondary application steels and non-ferrous metals

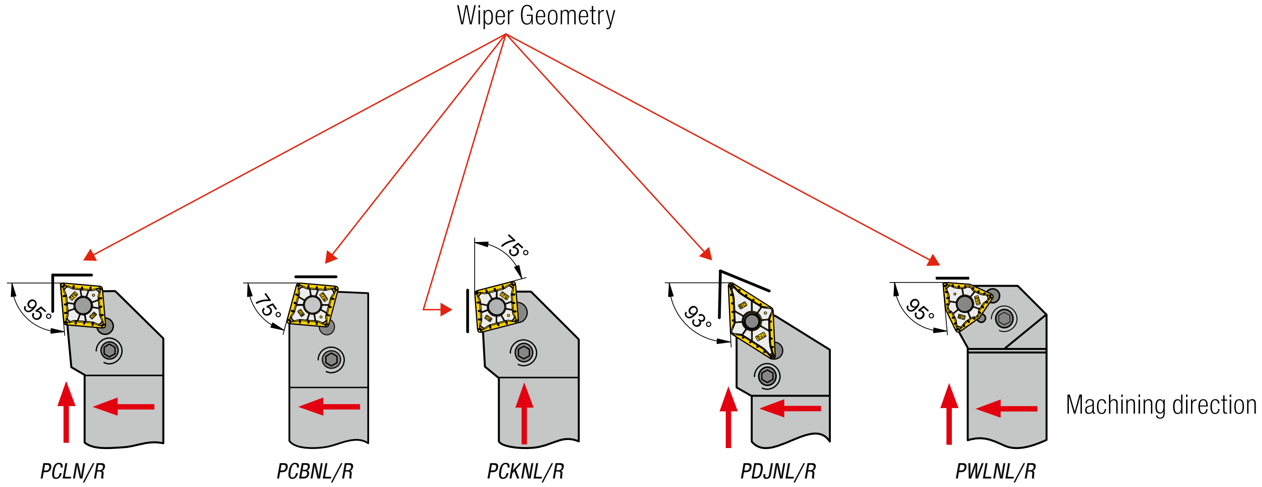
Positive	Model	Smooth cut	Irregular cutting depth	Interrupted cut	Sectional illustration		Geometry
		○	○	◌	a_p inch	f inch	
-F05 ▲ Maximum tolerance class ▲ Outstanding chip control, even with the smallest cutting depths ▲ Very low cutting forces	 **F**	**CTPX710**	CTPX710				DC.. VC..
		CTPX710	CTPX710				
		CTPX710	CTPX710				
		CTPX710	**CTPX710**				
		CTPX710	**CTPX710**				
					0.004–0.098	0.001–0.010	
		CTPX710	CTPX710				

Supplementary chip breakers / application notes

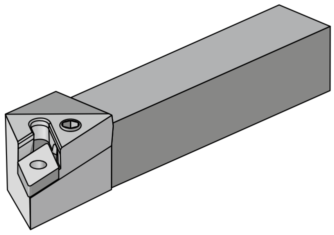
	Model	Smooth cut ○	Irregular cutting depth ○	Interrupted cut ◌
-EN ▲ Universal chip breaker for general steels	 **M**	**CTCP115**	**CTCP125**	**CTCP135**
		CTCP125	CTCP135	CTCP135
		CTCK110	**CTCK120**	CTCP125
-ER | EL ▲ A problem solver for unstable conditions ▲ Can be used on less powerful machines ▲ Can be used for general steels and on stainless materials as a secondary application	 **M**		**CTCP125**	**CTCP135**

Masterfinish – wiper geometry – notes

Through the use of indexable inserts with wiper edge (-TFQ; -TMQ; -SMQ; -25Q) high quality surfaces can be produced economically.

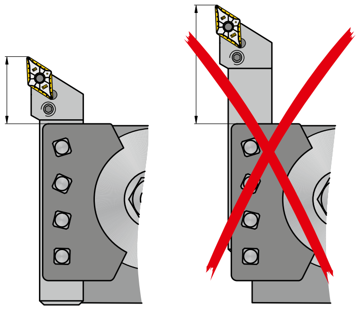


All turning inserts with wiper cutting edge are clamped in standard ISO tool holders.

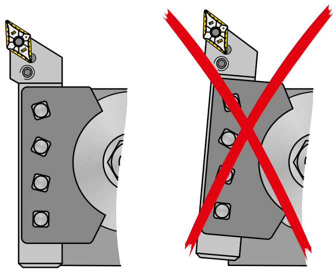


Check toolholder:

- ▲ Insert seat
- ▲ Shim
- ▲ Clamping Lever



Short tool overhang



Ensure correct tool alignment

Feed rate guide values for surface finish quality

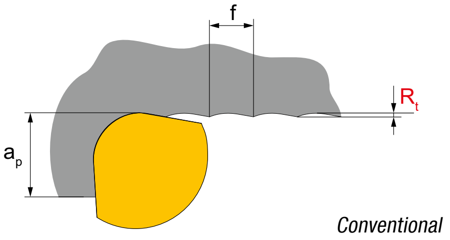
Roughness range R_Z in µm	$R_{t\,max.}$	Corresponds to R_a	Roughness index	ISO 1302	Corner radius r_ε in inch and feed rate f in inch/rev.			
					r_ε = 0.016	r_ε = 0.032	r_ε = 0.048	r_ε = 0.064
63–100	√R_t100	12.5–25	N11	$\overset{25}{\nabla}$		0.020	0.027	0.035
40–63	√R_t63	6.3–25	N10	$\overset{12,5}{\nabla}$	0.011	0.017	0.022	0.027
31.5–40	√R_t40	4.9–6.3	N9	$\overset{6,3}{\nabla}$	0.010	0.015	0.019	0.022
25–31.5	√R_t31,5	4.0–4.9			0.009	0.013	0.016	0.019
16–25	√R_t25	2.5–4.0	N8	$\overset{3,2}{\nabla}$	0.008	0.011	0.014	0.015
10–16	√R_t16	1.6–2.5			0.006	0.009	0.011	0.012
6.3–10	√R_t10	1.0–1.6	N7	$\overset{1,6}{\nabla}$	0.004	0.005	0.007	0.008

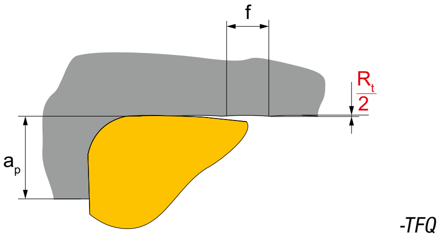
Masterfinish – wiper geometry – functional principle

Relationship of feed rate to surface roughness

Improved Surface Quality

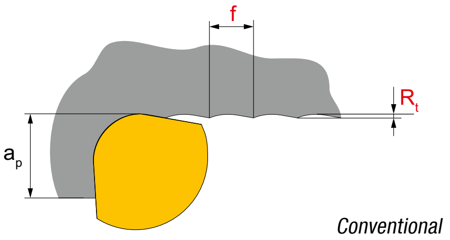
With the same feed rate an insert with wiper cutting edge reaches a roughness value R_t which is many times better than a conventional insert.

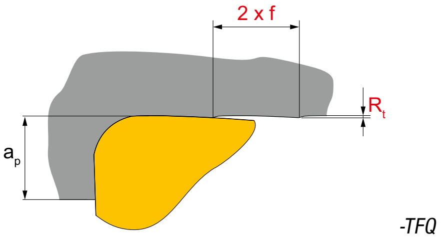




Shorter machining time

To achieve the same R_t-value as with a standard insert, double the feed rate can be applied for the insert with wiper cutting edge **(= shorter production time per component!)**





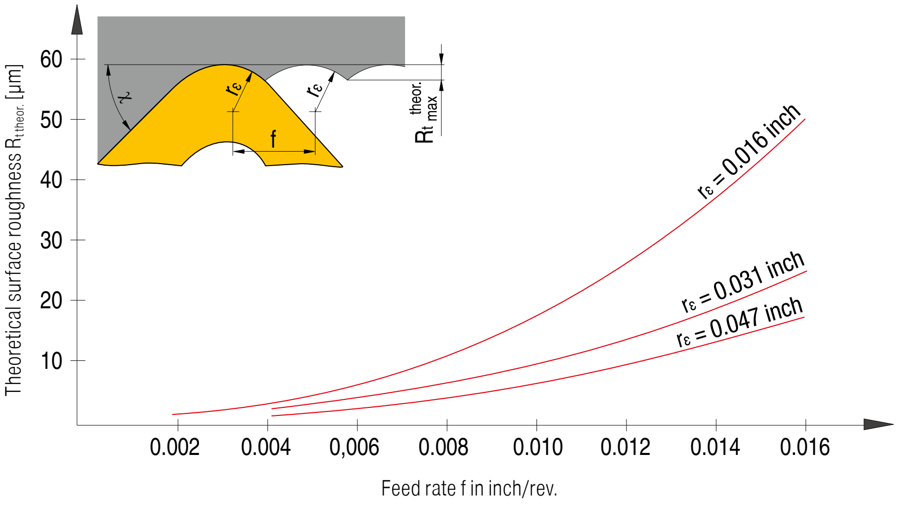
Theoretical Surface Quality

The maximum theoretical surface roughness with turning $Rt_{theor.}$ is the combination of feed rate and corner radius:

$$Rt_{theor.} = \left(r\varepsilon - \sqrt{r\varepsilon^2 - \frac{f^2}{4}}\right) \cdot 1000$$

or approximately:

$$Rt_{theor.} = \frac{125 \cdot f^2}{r\varepsilon} \; [\mu m]$$



ISO designation system for inserts

Indexable inserts – inch

C	N	M	G	4	3	2	E	N	-	M50
1	2	3	4	5	6	7	8	9		13

Indexable inserts – metric

C	N	M	G	12	04	08	E	N	-	M50
1	2	3	4	5	6	7	8	9		13

Indexable inserts, CBN, ceramic – inch

C	N	G	A	4	3	2	S	N	-	020D	_	B	3	-	Q
1	2	3	4	5	6	7	8	9		10		11	12		13

Indexable inserts, CBN, ceramic – metric

C	N	G	A	12	04	08	S	N	-	020D	_	B	3	-	Q
1	2	3	4	5	6	7	8	9		10		11	12		13

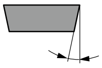
1

Insert shape

V	35°	Included angle	
D	55°		
E	75°		
C	80°		
M	86°	▱	
K	55°	Included angle	
B	82°		
A	85°	▱	
L	90°	▬	Other shapes
P	108°	⬟	
H	120°	⬢	
O	135°	⯃	
R	-	●	
S	90°	■	
T	60°	▲	
W	80°	⏶	

2

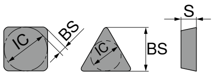
Clearance angle



	α		α
A	3°	**F**	25°
B	5°	**G**	30°
C	7°	**N**	0°
D	15°	**P**	11°
E	20°		
O	Clearance angles not included within the standard for which particular information is necessary.		

3

Tolerances

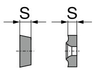


	IC±		BS		S	
	mm	**inch**	**mm**	**inch**	**mm**	**inch**
A	0,025	0.0010	0,005	0.0002	0,025	0.001
F	0,013	0.0005	0,005	0.0002	0,025	0.001
C	0,025	0.0010	0,013	0.0005	0,025	0.001
H	0,013	0.0005	0,013	0.0005	0,025	0.001
E	0,025	0.0010	0,025	0.0010	0,025	0.001
G	0,025	0.0010	0,025	0.0010	0,13	0.005
J	0,05-0,15*	0.002-0.006*	0,005	0.0002	0,025	0.001
K	0,05-0,15*	0.002-0.006*	0,013	0.0005	0,025	0.001
L	0,05-0,15*	0.002-0.006*	0,025	0.0010	0,025	0.001
M	0,05-0,15*	0.002-0.006*	0,05-0,20*	0.003-0.008*	0,13	0.005
N	0,05-0,15*	0.002-0.006*	0,05-0,20*	0.003-0.008*	0,025	0.001
U	0,08-0,25*	0.003-0.010*	0,13-0,38*	0.005-0.015*	0,13	0.005

* Depends on insert size

6

Insert thickness



		Code	
mm	**inch**	**mm**	**inch**
1,59	1/16	01	1
2,38	3/32	02	
3,18	1/8	03	2
3,97	5/32	T3	
4,76	3/16	04	3
5,56	7/32	05	
6,35	1/4	06	4
7,94	5/16	07	5
9,52	3/8	09	6

7

Corner radius

		Code		 RN **00** RC **MO**
mm	**inch**	**mm**	**inch**	
≤ 0,05	0.0015	00	X0	
0,1	0.004	01	0	
0,2	0.008	02	.5	
0,4	$^1/_{64}$	04	1	
0,8	$^1/_{32}$	08	2	
1,2	$^3/_{64}$	12	3	
1,6	$^1/_{16}$	16	4	
2,0	$^5/_{64}$	20	5	
2,4	$^3/_{32}$	24	6	
2,8	$^7/_{64}$	28	7	
3,2	$^1/_8$	32	8	

8

Cutting edge

F 
Sharp

E 
rounded

T 
chamfered

S 
Chamfered and honed

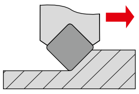
K 
Double-chamfered

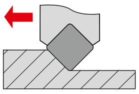
P 
Double-chamfered and honed

R 
Round chamfer

9

Direction of cut

R


L


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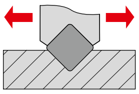
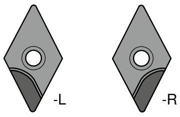
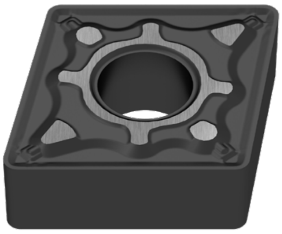


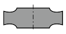
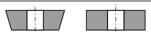
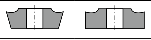
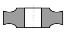
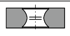
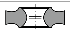
CBN and PCD segment orientation





4

Characteristics

N	
R	
F	
A	
M, P	
G, P	
W	
T	
Q	
U	
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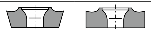
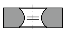
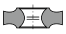
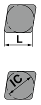
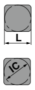
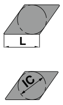
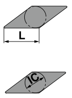
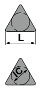
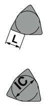
H	
C	
J	
X	Special version

inch
Change at inscribed circle
IK < 1/4"

IK > 1/4“	IK < 1/4“
N / R / F	E
A / M / G	D
X	X

5

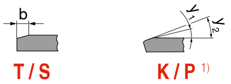
Cutting length

Type	ISO	ANSI	L mm	L inch	d mm	d inch
C 	06	2	6,4	0.250	6,35	0.250
	09	3	9,7	0.382	9,525	0.375
	12	4	12,9	0.508	12,70	0.500
	16	5	16,1	0.634	15,875	0.625
	19	6	19,3	0.760	19,05	0.750
	25	8	25,8	1.016	25,4	1.000
	32	12	35,24	1.269	31,75	1.250
S 	06	2	6,35	0.250	6,35	0.250
	09	3	9,525	0.375	9,525	0.375
	12	4	12,7	0.500	12,7	0.500
	15	5	15,875	0.625	15,875	0.625
	19	6	19,05	0.750	19,05	0.750
	25	8	25,4	1.000	25,4	1.000
	31	10	31,75	1.250	31,75	1.250
D 	07	2	7,7	0.303	6,35	0.250
	11	3	11,6	0.457	9,525	0.375
	15	4	15,5	0.610	12,70	0.500
V 	11	2	11,1	0.437	6,35	0.250
	16	3	16,6	0.653	9,525	0.375
	22	4	22,10	0.870	12,70	0.500
T 	06	1.2	6,9	0.272	3,97	0.156
	09	1.8	9,6	0.378	5,56	0.219
	11	2	11,0	0.433	6,35	0.250
	16	3	16,5	0.650	9,525	0.375
	22	4	22,	0.079	12,70	0.039
	27	5	27,5	1.083	15,875	0.625
	33	6	33,0	1.299	19,05	0.750
W 	06	3	6,5	0.256	9,525	0.375
	08	4	8,7	0.331	12,70	0.039
	10	5	10,9	0.429	15,875	0.625
R 	06	2	6,35	0.250	6,35	0.250
	08	-	8,0	0.315	8,0	0.315
	09	3	9,52	0.375	9,52	0.375
	10	-	10,0	0.394	10,0	0.394
	12*	-	12,0	0.472	12,0	0.472
	12	4	12,7	0.488	12,70	0.488
	15	5	15,875	0.625	15,875	0.625
	16	-	16,0	0.630	16,0	0.630
	19	6	19,05	0.750	19,05	0.750
	25	8	25,0	0.984	25,0	0.984
	25*	-	25,4	1.000	25,4	1.000
	31	10	31,75	1.250	31,75	1.250
	32	-	32,0	1.260	32,0	1.260

* inch version

10

Chamfer type



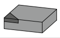
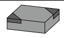
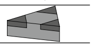
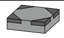
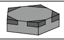
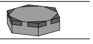
	mm	inch		
015	0,15	0.006	A	05°
020	0,20	0.008	B	10°
025	0,25	0.010	C	15°
050	0,50	0.020	D	20°
075	0,75	0.030	E	25°
100	1,00	0.040	F	30°
			G	35°

1) Two letters are assigned for double-chamfered cutting edges
e.g. BE =
chamfer angle 1 (y_1) = 10°
chamfer angle 2 (y_2) = 25°

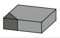
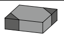
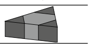
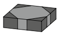
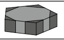
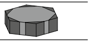
11

Number of cutting edges

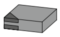
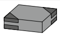
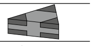
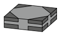
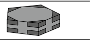
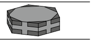
Single sided

A	
B	
C	
D	
G	
H	

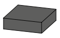
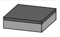
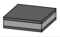
Complete insert thickness

T	
U	
V	
W	
X	
Y	

Double sided

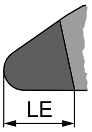
K	
L	
M	
N	
P	
Q	

Entire clamping flat

S	
F	
E	

12

Segment length



Approx. specification in mm

13

Grade description

ISO designation system for tool holders

	M	C	L	N	R	20	20	K	12	-	T
	1	2	3	4	5	6	7	8	9		10
HSK-T63 -	D	C	L	N	R				-12		
0	1	2	3	4	5	6	7	8	9		10

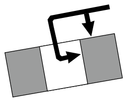
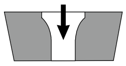
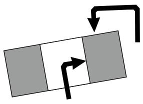
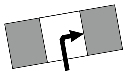
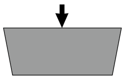
0

System/size

HSK-T
according to ISO 12164
HSK-T63 = 63 mm
HSK-T100 = 100 mm

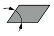
1

Tool holder

D  Retained from above and via bore	**S**  Retained via centre screw
M  Retained from above and via bore	**P**  Retained via the bore
C  Retained from above	**X** Special version

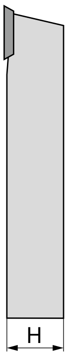
2

Insert shape

V	35°	Included angle 	
D	55°		
E	75°		
C	80°		
M	86°		
K	55°	Included angle 	
B	82°		
A	85°		
L	90°	▭	Other shapes
P	108°	⬠	
H	120°	⬡	
O	135°	⯃	
R	-	○	
S	90°	□	
T	60°	△	
W	80°	⏢	

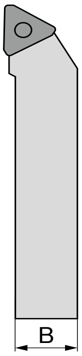
6

Shank height



7

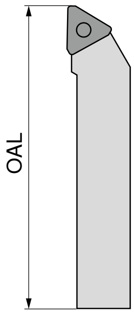
Shank width



8

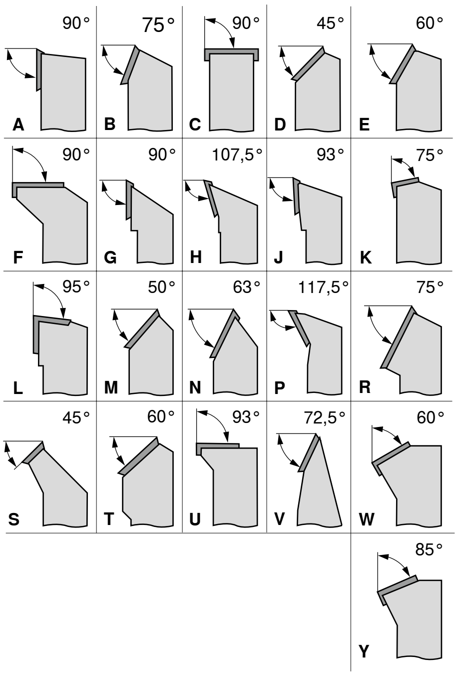
Tool length

OAL			OAL		
mm	inch		mm	inch	
32	4.000	**A**	160	4.500	**N**
40	4.500	**B**	170	5.500	**P**
50	5.000	**C**	180	–	**Q**
60	6.000	**D**	200	6.000	**R**
70	7.000	**E**	250	7.000	**S**
80	8.000	**F**	300	8.000	**T**
90	5.500	**G**	350	5.500	**U**
100	5.625	**H**	400	3.500	**V**
110	5.300	**J**	450	3.500	**W**
125	14.000	**K**	500	3.750	**Y**
140	6.800	**L**	Special version		**X**
150	4.400	**M**			



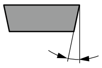
3

Style



4

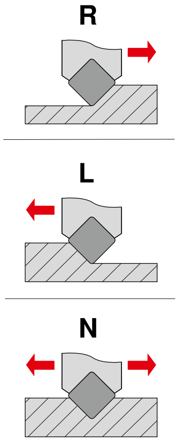
Clearance angle



	α		α
A	3°	**F**	25°
B	5°	**G**	30°
C	7°	**N**	0°
D	15°	**P**	11°
E	20°		
O	Clearance angles not included within the standard for which particular information is necessary.		

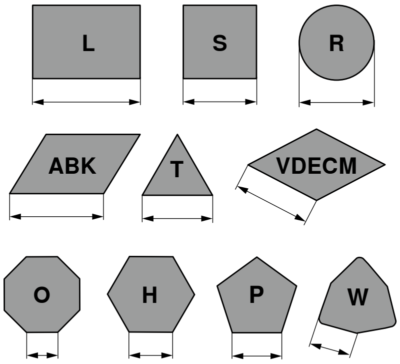
5

Direction of cut



9

Cutting length



10

Manufacturer specification

T = Toggle
Special length (mm)
Insert thickness (deviating from standard)
Special version (X..)
Machine manufacturer (specific)

ISO designation system for boring bars

A	25	R	P	C	L	N	R	12	
1	2	3	4	5	6	7	8	9	10

HSK-T63 -	50	Q -	D	C	L	N	R -	12	
0	1	2	3	4	5	6	7	8	9	10

0

System/size

HSK-T
according to ISO 12164
HSK-T63 = 63 mm
HSK-T100 = 100 mm

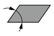
1

Shank type

S	Steel shank	**E**	As C with coolant hole
A	Steel shank with coolant hole	**F**	As C with antivibration system
B	Steel shank with antivibration system	**G**	As C with coolant hole and antivibration system
D	Steel shank with coolant hole and antivibration system	**H**	Heavy metal
C	Carbide shank with steel head	**J**	Heavy metal with coolant hole

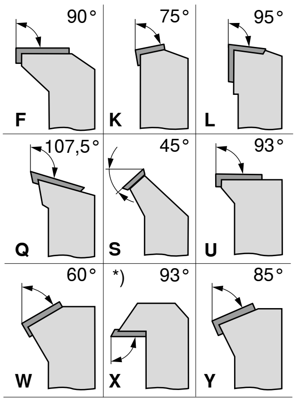
5

Insert shape

V	35°	Included angle 	
D	55°		
E	75°		
C	80°		
M	86°		
K	55°	Included angle 	
B	82°		
A	85°		
L	90°	▬	Other shapes
P	108°	⬟	
H	120°	⬢	
O	135°	⯃	
R	-	●	
S	90°	■	
T	60°	▲	
W	80°	⬣	

6

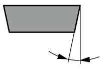
Style



*) CERATIZIT factory standard

7

Clearance angle

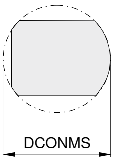


	α		α
A	3°	**F**	25°
B	5°	**G**	30°
C	7°	**N**	0°
D	15°	**P**	11°
E	20°		
O	Clearance angles not included within the standard for which particular information is necessary.		

2

Shank type & size

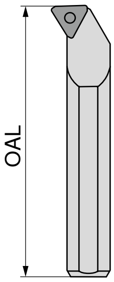
DCONMS mm	DCONMS inch
08	A two-digit figure indicating the boring bar diameter in 1/16 of an inch.
10	
12	
16	
20	
25	
32	
40	
50	
60	



3

Tool length

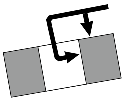
OAL		
mm	**inch**	
80	3	**F**
100	3.5	**H**
110	4	**J**
125	4.5	**K**
140	5	**L**
150	5.5	**M**
160	6	**N**
170	6.5	**P**
180	6.75	**Q**
200	7	**R**
250	8	**S**
300	10	**T**
350	12	**U**
400	14	**V**
450	16	**W**
500	18	**Y**
	20	
Special version		**X**



4

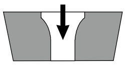
Clamping method

D



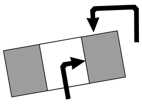
Retained from above and via bore

S



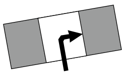
Retained via centre screw

M



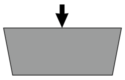
Retained from above and via bore

P



Retained via the bore

C



Retained from above

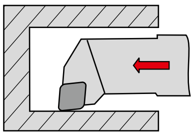
X

Special version

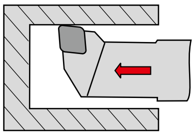
8

Direction of cut

R

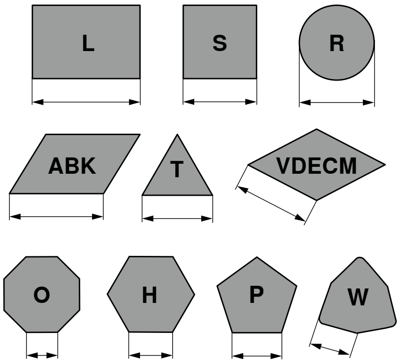


L



9

Cutting length



10

Manufacturer specification

T = Toggle
Special length (mm)
Insert thickness (deviating from standard)
Special version (X..)
Machine manufacturer (specific)

Types of wear

Wear on clearance face

Abrasion on flank: normal wear after a certain machining time

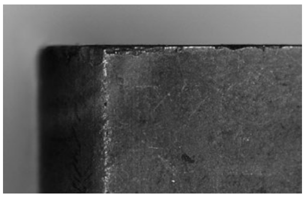
Cause

- Too high cutting speed
- Carbide grade with too low wear resistance
- Feed rate not adapted

Remedy

- Reduce cutting speed
- Use grade with higher wear resistance
- Adapt feed rate to cutting speed and cutting depth

Edge chipping



Through excessive mechanical stress at the cutting edge fracture and chipping can occur.

Cause

- Grade with too high wear resistance
- Vibration
- Too high cutting speed and / or feed rate
- Interrupted cut
- Swarf damage

Remedy

- Use tougher grade
- Use negative cutting edge geometry with chip groove
- Improve stability (tool, work piece)

Cratering

The hot chip which is being evacuated causes cratering at the rake face of the cutting edge.

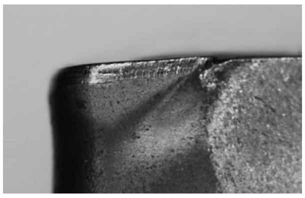
Cause

- Too high cutting speed and / or feed rate
- Rake angle too shallow
- Grade with insufficient wear resistance
- Insufficient coolant supply

Remedy

- Reduce cutting speed and / or feed rate
- Use grade with higher wear resistance
- Increase coolant quantity and / or pressure, optimise coolant supply
- Use grade which is more resistant to cratering

Plastic deformation



High machining temperature and simultaneous mechanical stress can lead to plastic deformation.

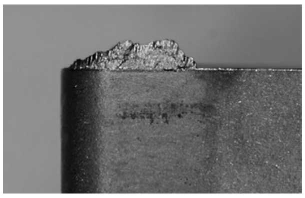
Cause

- Too high machining temperature resulting in softening of substrate
- Damage of coating
- Grade with insufficient wear resistance
- Insufficient coolant supply

Remedy

- Reduce cutting speed
- Use grade with higher wear resistance
- Provide cooling

Built-up edge



Built-up material / edges occur when the chip is not evacuated properly due to insufficient cutting temperature.

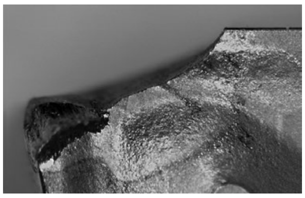
Cause

- Insufficient cutting speed
- Rake angle too shallow
- Wrong cutting material
- Lack of cooling / lubrication

Remedy

- Increase cutting speed
- Increase rake angle
- Apply TiN coating
- Use emulsion with higher concentration

Insert breakage



Excessive stress of the insert causes breakage.

Cause

- Excessive stress of cutting material
- Lack of stability
- Clearance angle too small

Remedy

- Use tougher grade
- Use protective edge chamfer
- Increase edge hone
- Use geometry with higher stability

Recommendation for Optimum Results

Type of problem															
Type of wear						Work piece problems				Swarf control		Remedy measures			
Wear on clearance face	Cratering	Edge chipping	Plastic deformation	Insert breakage	Built-up edge	Vibration	Formation of pips and burrs	Chattered surface	Surface quality	Chip too long (snarl chip)	Chip too short (fragmented chip)				
▼	▼		▼		▼	↓			↑	↓		Cutting speed			Cutting data
~		▼	↓	▼		↑		▼	▼	▲	▼	Feed rate			
↓	▼	▼	↓				▼	↓	↓			Feed rate at centre			
		▲	~		▼	~	▼	▼	↓	▼	▲	Chip groove	↑	↓	Insert selection
▲		▲	▲	↑		↓	▼	↓	↑			Corner radius	↑ larger	smaller ↓	
▲	▲	▼	▲	▼								Tool Material	↑ Wear resistance	toughness ↓	
		~		~		~		~	~			Tool clamping			General criteria
		~		~		~		~	~			Work piece clamping			
		~		~		~			↓			Overhang			
~		~				~	~		~			Tip height			
●	~		●		●		●		●	●		Cooling lubricant			

▲ raise, increase
large influence

↑ raise, increase
small influence

▼ avoid, reduce
large influence

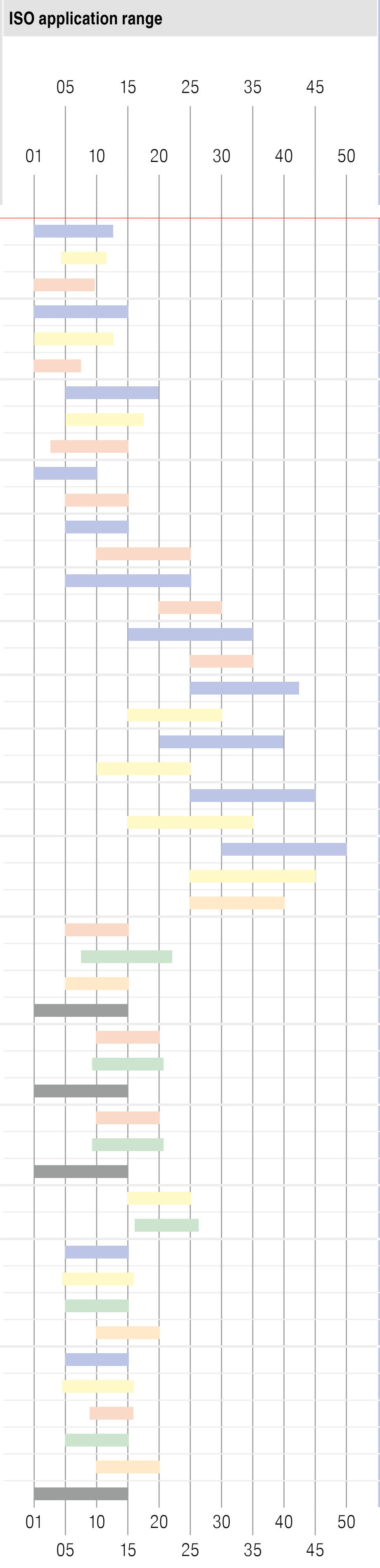
↓ avoid, reduce
small influence

~ check, optimise

● use

Grades Overview

ISO application range



Main application	Grade designation		P Steel	M Stainless steel	K Cast iron	N Non-ferrous metals	S Heat-resistant	H Tempered steel	O Non-metal materials
Main application: **Steel and cast iron**	CTEP110	DRAGONSKIN	●	○	○				
	TCM407		●	○	○				
	TCM10		●	○	○				
	CTCK110	DRAGONSKIN	○		●				
	CTCK120	DRAGONSKIN	○		●				
	CTCP115	DRAGONSKIN	●		○				
	CTCP125	DRAGONSKIN	●		○				
	CTCP135	DRAGONSKIN	●	○					
Main application: **Stainless**	CTCM120	DRAGONSKIN	○	●					
	CTPM125	DRAGONSKIN	○	●					
	CTCM130	DRAGONSKIN	○	●			○		
Main application: **Non-ferrous metals**	H210T				○	●	●		○
	H216T				○	●			○
	H10T				○	●			○
	CWN15			○		●			
Main application: **Heat-resistant**	CTPX710	DRAGONSKIN	●	●		●	●		
	CTPX715	DRAGONSKIN	●	●	○	●	●		○

● **Main Application**
○ Extended application

wear-resistant v_c+ ○ ⟷ v_c– tough

Grade description

TCM407	▲ Cermet, uncoated ▲ ISO | **P10** | M05 | K05 ▲ The uncoated cermet grade for super-fine finishing steel materials
CTEP110	▲ Cermet, TiCN-Al_2O_3-coated ▲ ISO | **P10** | M10 | K05 ▲ The cermet grade with reserves of toughness for finish machining at high cutting speeds
TCM10	▲ Cermet, uncoated ▲ ISO | **P15** | M10 | K10 ▲ The uncoated cermet grade for finish machining stainless and hardened steel ▲ Particularly wear resistant thanks to high heat resistance
CTCP115	▲ Carbide, TiCN-Al_2O_3-coated ▲ ISO | **P15** | K25 ▲ The wear-resistant high-performance grade for stable conditions and a continuous cut
CTCP125	▲ Carbide, TiCN-Al_2O_3-coated ▲ ISO | **P25** | K30 ▲ The first choice for universal machining of steels
CTCP135	▲ Carbide, TiCN-Al_2O_3-coated ▲ ISO | **P35** | M25 ▲ The tough alternative for heavily interrupted cut and unstable conditions
CT-P15	▲ Carbide, coated ▲ ISO | **P15** | M10 ▲ Wear-resistant standard steel grade for smooth cut
CT-P25	▲ Carbide, coated ▲ ISO | **P25** | M20 ▲ Standard steel grade for universal steel machining
CT-P35	▲ Carbide, coated ▲ ISO | **P35** | M25 ▲ Tough standard steel grade for interrupted cutting
CTCM120	▲ Carbide, TiCN-Al_2O_3-coated ▲ ISO | P15 | **M20** ▲ Wear-resistant turning grade for austenitic stainless steel; top performance for smooth cuts
CTCM130	▲ Carbide, TiCN-Al_2O_3-coated ▲ ISO | P25 | **M30** ▲ Robust turning grade for austenitic stainless steel with interrupted cuts
CTPM125	▲ ISO | P35 | **M25** ▲ The universal carbide grade with maximum toughness, without affecting the necessary hot hardness and wear resistance for stainless machining
CTCK110	▲ Carbide, TiCN-Al_2O_3-coated ▲ ISO | P05 | **K10** ▲ The wear-resistant grade for machining cast iron materials at high cutting speeds in a continuous cut
CTCK120	▲ Carbide, TiCN-Al_2O_3-coated ▲ ISO | P10 | **K20** ▲ The grade for cast iron machining, with high toughness reserves for difficult conditions and interrupted cuts
H10T	▲ Carbide, uncoated ▲ ISO | K15 | **N15** | O10 ▲ The uncoated carbide grade for machining aluminium and other non-ferrous metals
H210T	▲ Carbide, uncoated ▲ ISO | **N10** | **S10** | K10 | O10 ▲ The wear-resistant carbide grade for machining aluminium and other non-ferrous metals
H216T	▲ Carbide, uncoated ▲ ISO | K15 | **N15** | O10 ▲ The uncoated carbide grade for machining aluminium and other non-ferrous metals ▲ Also highly suitable for HSC machining
CWN15	▲ Carbide, TiN-coated ▲ ISO | M15 | **K15** ▲ Special carbide grade for abrasive aluminium alloys
CTPX710	▲ Carbide, AlTiN-coated ▲ ISO | **P10** | **M10** | K10 | **N10** | **S15** ▲ Universal multi-material grade from the X7 line for highest machining requirements
CTPX715	▲ Carbide, AlTiN-coated ▲ ISO | **P10** | **M10** | K10 | **N10** | **S15** | O10 ▲ Universal multi-material grade from the X7 line for highest machining requirements

4

Grade description

C T C **P** **1** **2 5** (Example)

Degree of hardness

05	ISO 05
10	ISO 10
15	ISO 15
	...

Application

1	Turning
2	Milling
3	Grooving
4	Drilling
5	Thread turning
6	Others
7	Several processes

Main application – material

1|P	Steel
2|M	Stainless steel
3|K	Cast iron
4|N	Light and non ferrous metals
5|S	Super alloys, titanium
6|H	Hard materials
7|X	Universal application


82 236 400

Table of contents

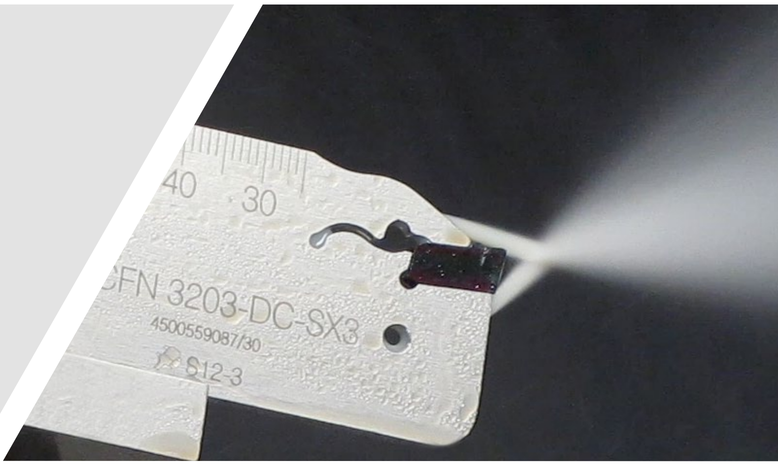
CERATIZIT \ Performance

Premium quality tools for high performance.

The premium quality tools from the **CERATIZIT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

Advantages of the DirectCooling blade

- The best machining results, even with reduced pump output
  Highest flow volume of all thru coolant blades on the market
- User friendly
  Reinforced blades without sealing screw
- Process-secure spare part for easy handling and a long service life
  Single-piece sealing screw made from steel (for standard blades)



Symbol explanation

Grooving
Turning
Face turning
Axial grooving
Main Application
Extended application
Repeatability

F	M	R
	●	

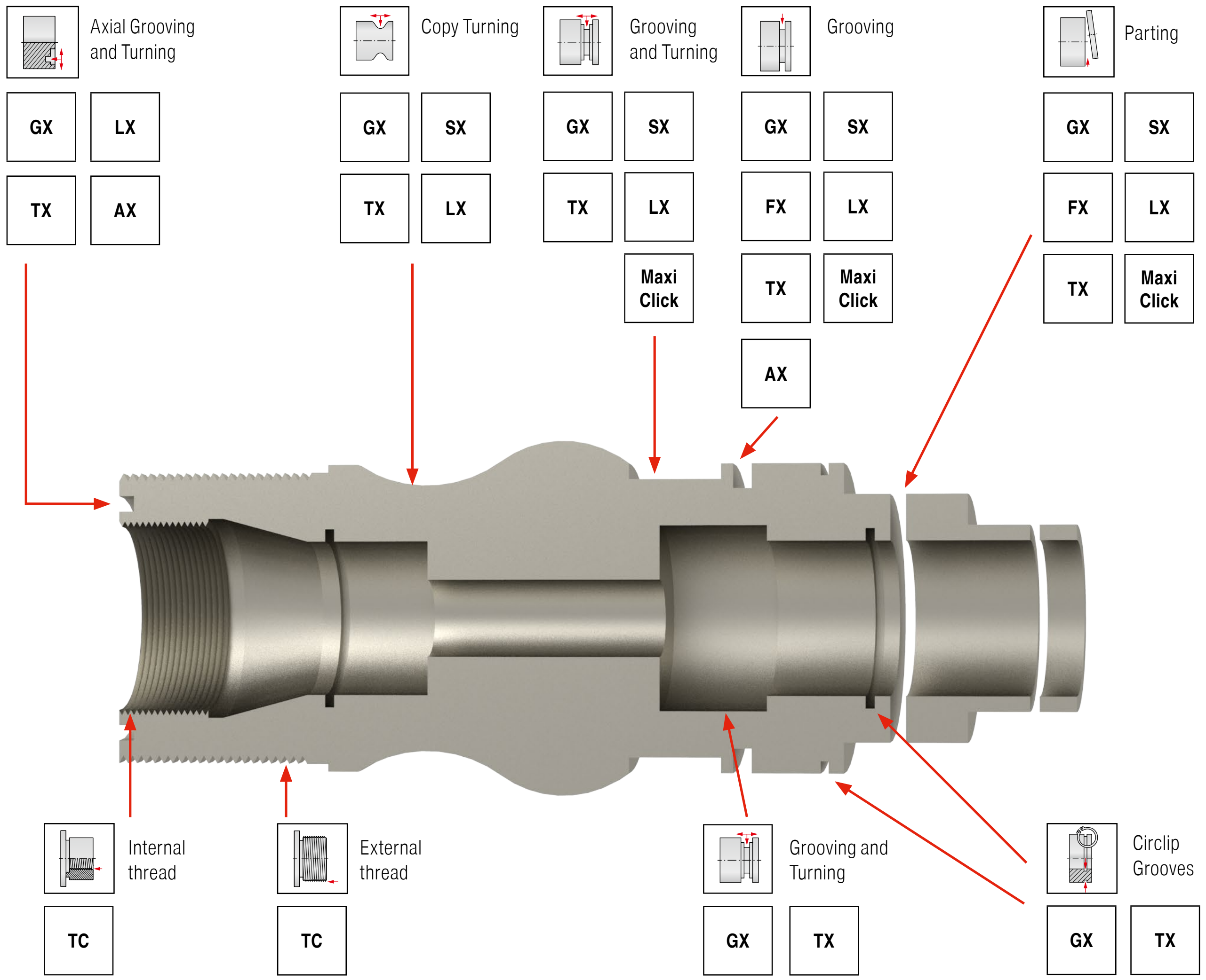
F: Fine Machining
M: Medium Machining
R: Rough Machining

○ Smooth cut
◯ Irregular cutting depth
◌ Interrupted cut

CTCP325 Carbide Grade

metric Additional metric items are available in our Online-Shop at cuttingtools.ceratizit.com and in the metric main catalog

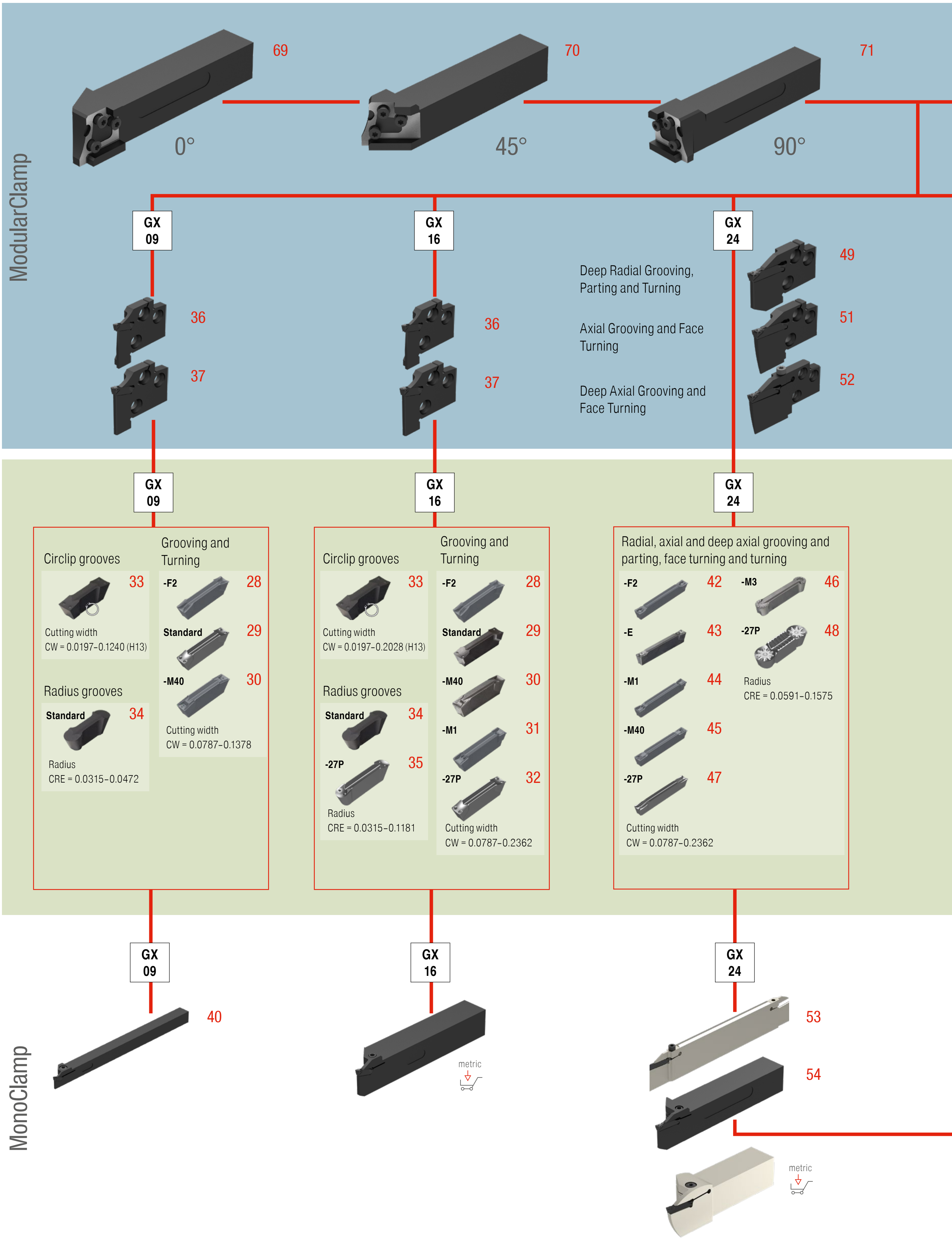
Toolfinder – System Overview



System Description

		Page No.
SX	The single edged SX grooving system is even more versatile with the -M3 chip breaker. Besides grooving / parting with the -F2, -M2, or -27P chip breakers, the SX -M3 type also allows copying turning operations with the highest chip control. With this additional option, the SX grooving system can cover all areas of grooving making it a universal grooving tool. Available as a Modular or Mono system.	8
SX-DC	Our tried-and-tested single-edged SX grooving system is now available with targeted DirectCooling (DC) thru coolant supply. The coolant is guided through two coolant holes – one above and one below the grooving insert – straight to the point where it will be most effective: the cutting edge itself.	metric
FX	A single-edged grooving system with a variety of specialized chip geometries. From fine machining in unstable parts through to high-performance machining under stable conditions. Available as a Modular or Mono system.	20–27
GX	Double edged grooving system for grooving, parting off, turning and for producing circlip grooves. Available in sizes GX09, GX16 and GX24. Available as a Modular or Mono system.	28
TX	Three-edged system for parting, grooving, axial grooving, radial grooving, and fine turning. Positive ground cutting geometries, with a very soft cut with minimum cutting forces. Universally applicable for almost all materials. Available as a Monosystem.	metric
LX	Single edged system for extreme applications starting from a cutting width of 0.315 inch. The LX system is for use in stable conditions. Available as a Modular or Mono system	55–58
AX	Double-edged Axial grooving system for grooving and groove turning with high precision. Due to the three different depths (0.1969 inch, 0.3937 inch and 0.5906 inch) stable tools are available for each application.	59
TC	Double-edged thread turning system for the production of external and internal threads. Advantage is the use without pitch angle correction and in narrow or difficult areas of application. Available as a Modular or Mono system.	61
Maxi Click	Five-edged grooving system for grooving and parting	metric

Toolfinder – External Machining



ModularClamp

0° 69

45° 70

90° 71

GX 09
- 36
- 37

GX 16
- 36
- 37

GX 24
- Deep Radial Grooving, Parting and Turning 49
- Axial Grooving and Face Turning 51
- Deep Axial Grooving and Face Turning 52

GX 09

Circlip grooves
- 33
- Cutting width CW = 0.0197–0.1240 (H13)

Radius grooves
- Standard 34
- Radius CRE = 0.0315–0.0472

Grooving and Turning
- -F2 28
- Standard 29
- -M40 30
- Cutting width CW = 0.0787–0.1378

GX 16

Circlip grooves
- 33
- Cutting width CW = 0.0197–0.2028 (H13)

Radius grooves
- Standard 34
- -27P 35
- Radius CRE = 0.0315–0.1181

Grooving and Turning
- -F2 28
- Standard 29
- -M40 30
- -M1 31
- -27P 32
- Cutting width CW = 0.0787–0.2362

GX 24

Radial, axial and deep axial grooving and parting, face turning and turning
- -F2 42
- -E 43
- -M1 44
- -M40 45
- -27P 47
- Cutting width CW = 0.0787–0.2362
- -M3 46
- -27P 48
- Radius CRE = 0.0591–0.1575

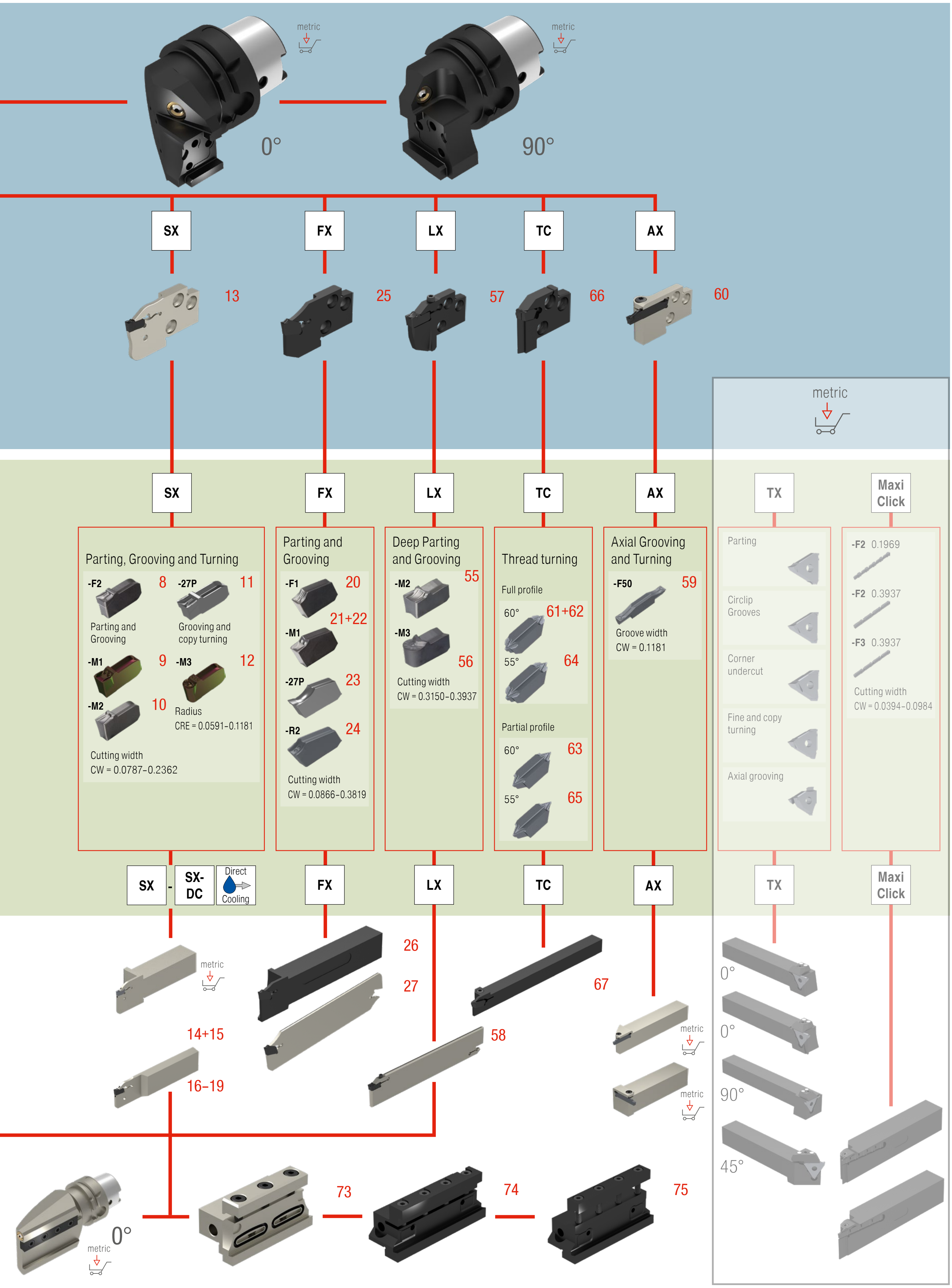
MonoClamp

GX 09
- 40

GX 16
- metric

GX 24
- 53
- 54
- metric

metric Additional metric items are available in our Online-Shop at cuttingtools.ceratizit.com and in the metric main catalog



Parting, Grooving and Turning

-F2 8
Parting and Grooving

-27P 11
Grooving and copy turning

-M1 9

-M3 12
Radius
CRE = 0.0591–0.1181

-M2 10

Cutting width
CW = 0.0787–0.2362

Parting and Grooving

-F1 20

-M1 21+22

-27P 23

-R2 24

Cutting width
CW = 0.0866–0.3819

Deep Parting and Grooving

-M2 55

-M3 56

Cutting width
CW = 0.3150–0.3937

Thread turning

Full profile
60° 61+62
55° 64

Partial profile
60° 63
55° 65

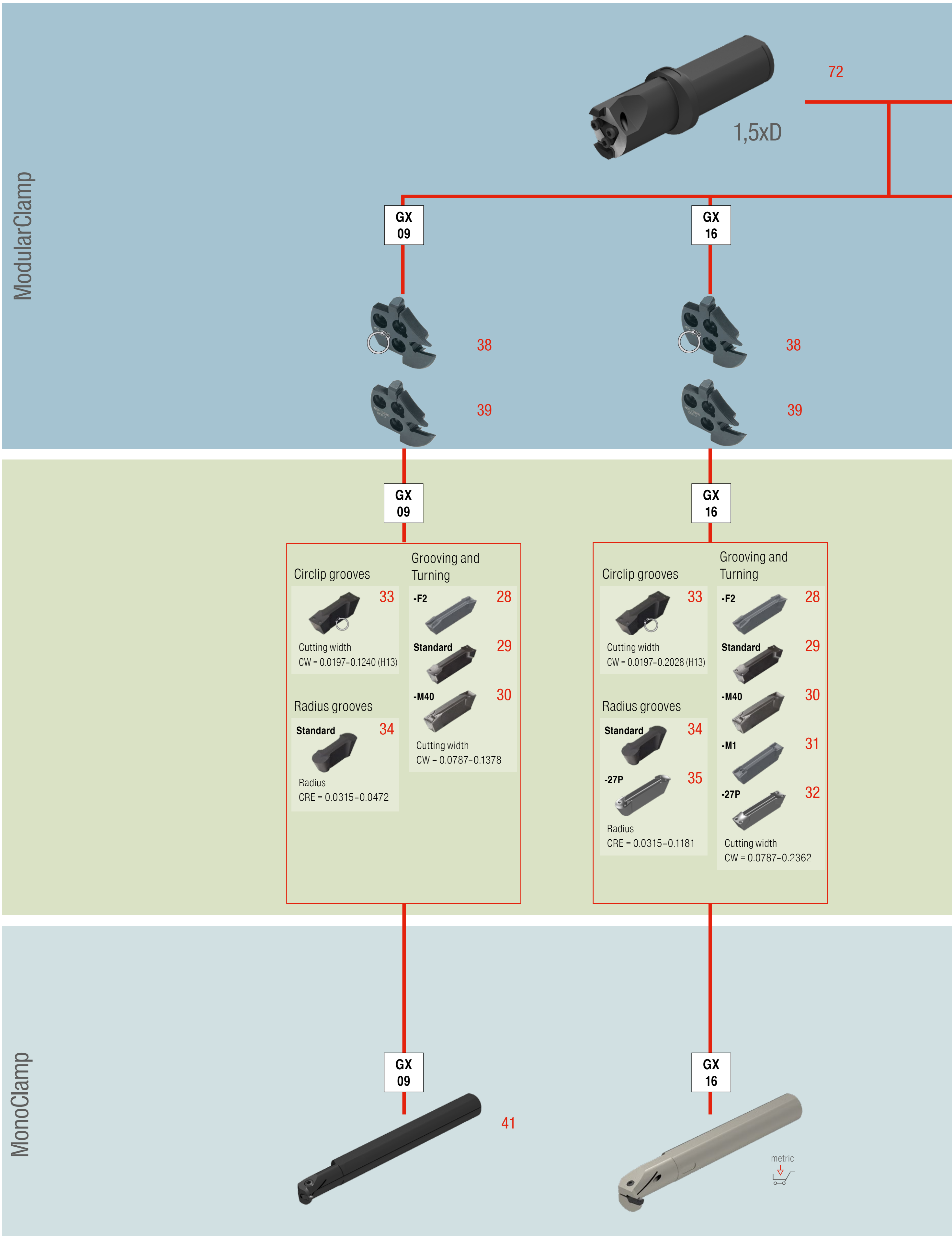
Axial Grooving and Turning

-F50 59
Groove width
CW = 0.1181

Parting
Circlip Grooves
Corner undercut
Fine and copy turning
Axial grooving

-F2 0.1969
-F2 0.3937
-F3 0.3937
Cutting width
CW = 0.0394–0.0984

Toolfinder – Internal Machining



GX 09

Circlip grooves
33
Cutting width
CW = 0.0197–0.1240 (H13)

Radius grooves
Standard 34
Radius
CRE = 0.0315–0.0472

Grooving and Turning
-F2 28
Standard 29
-M40 30
Cutting width
CW = 0.0787–0.1378

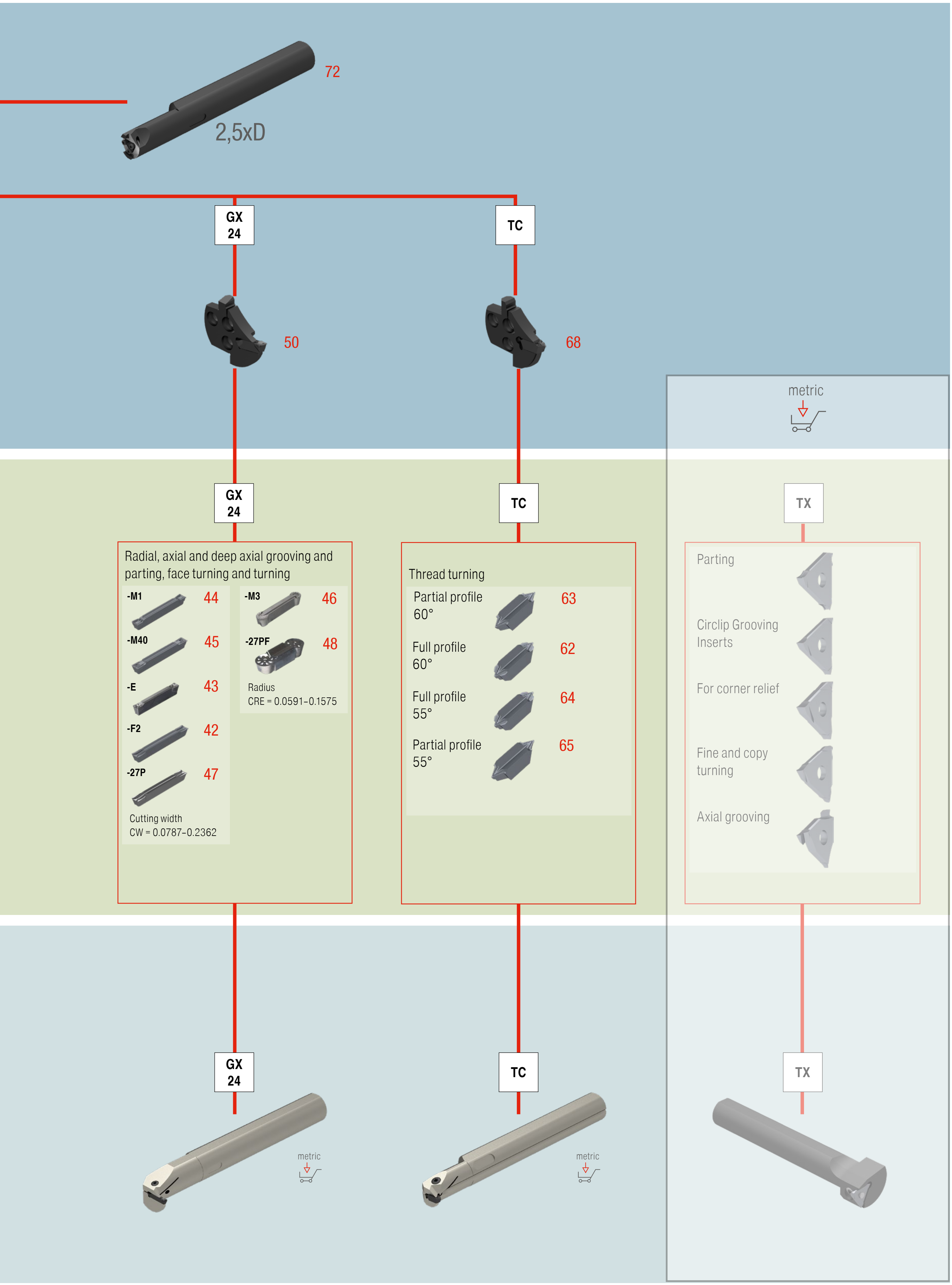
GX 16

Circlip grooves
33
Cutting width
CW = 0.0197–0.2028 (H13)

Radius grooves
Standard 34
-27P 35
Radius
CRE = 0.0315–0.1181

Grooving and Turning
-F2 28
Standard 29
-M40 30
-M1 31
-27P 32
Cutting width
CW = 0.0787–0.2362

metric Additional metric items are available in our Online-Shop at cuttingtools.ceratizit.com and in the metric main catalog



Radial, axial and deep axial grooving and parting, face turning and turning

-M1	44
-M40	45
-E	43
-F2	42
-27P	47

Cutting width
CW = 0.0787–0.2362

-M3	46
-27PF	48

Radius
CRE = 0.0591–0.1575

Thread turning

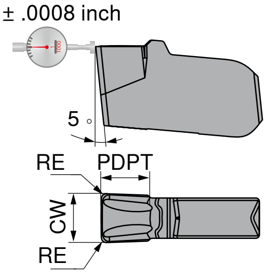
Partial profile 60°	63
Full profile 60°	62
Full profile 55°	64
Partial profile 55°	65

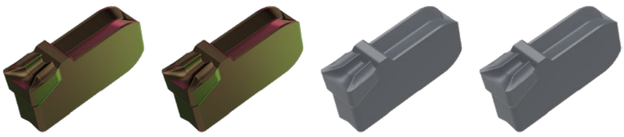
- Parting
- Circlip Grooving Inserts
- For corner relief
- Fine and copy turning
- Axial grooving

Insert SX

▲ High precision ground geometry

F	M	R





Designation	CW $_{+/-0,02}$ inch	RE $_{+/-0,05}$ inch	PDPT inch	for tool holder	-F2 CTCP325 DRAGONSKIN 70 346 ...	-F2 CTCP335 DRAGONSKIN 70 346 ...	-F2 CTPP345 DRAGONSKIN 70 346 ...	-F2 CTP1340 DRAGONSKIN 70 346 ...
SX E2.00 N 0.20	0.079	0.008	0.059	-SX2			822	622
SX E3.00 N 0.30	0.118	0.012	0.079	-SX3	923	523	823	623
SX E4.00 N 0.40	0.157	0.016	0.098	-SX4			824	624

	CTCP325	CTCP335	CTPP345	CTP1340
P	●	●	●	●
M	○	○	●	●
K	●	●		●
N				○
S	○		○	●
H				
O				○

→ v_c Page 77

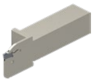
→ Application recommendation on page 81

Internal machining

External machining

→ 13

→ 14–19

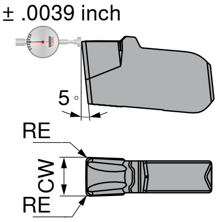


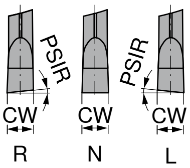
metric

Insert SX

- ▲ Specially developed geometry with negative edge-chamfers available in right, left and neutral types

F	M	R








Designation	IH inch	CW +/-0,05 inch	RE +/-0,05 inch	PSIR	for tool holder	-M1 CTCP325 DRAGONSKIN 70 342 ...	-M1 CTCP335 DRAGONSKIN 70 342 ...	-M1 CTPP345 DRAGONSKIN 70 342 ...	-M1 CTP1340 DRAGONSKIN 70 342 ...
SX E2.00 L 6	L	0.079	0.008	6°	-SX2				612
SX E3.00 L 6	L	0.118	0.008	6°	-SX3	913			613
SX E4.00 L 6	L	0.157	0.012	6°	-SX4				614
SX E2.00 N 0.20	N	0.079	0.008		-SX2	922		822	622
SX E3.00 N 0.20	N	0.118	0.008		-SX3	923	523	823	623
SX E4.00 N 0.30	N	0.157	0.012		-SX4	924	524	824	624
SX E5.00 N 0.30	N	0.197	0.012		-SX5	925		825	625
SX E6.00 N 0.40	N	0.236	0.016		-SX6	926		826	626
SX E2.00 R 6	R	0.079	0.008	6°	-SX2				602
SX E3.00 R 6	R	0.118	0.008	6°	-SX3	903			603
SX E4.00 R 6	R	0.157	0.012	6°	-SX4				604
P						●	●	●	●
M						○	○	●	●
K						●	●		●
N									○
S						○		○	●
H									
O									○

5

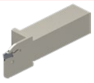
→ v_c Page 77
→ Application recommendation on page 82

Note: reduce feed rate by 20–50 % with R/L version!

Internal machining *External machining*

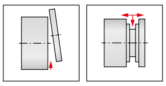

→ 13


→ 14–19

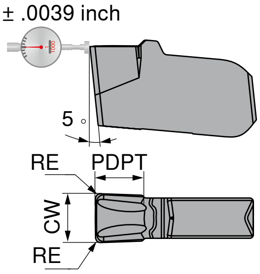

metric

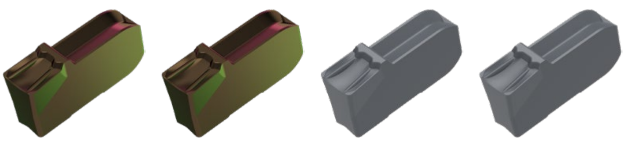
Insert SX

▲ All purpose geometry for parting, grooving & turning.



F	M	R





Designation	CW +/-0,05 inch	RE +/-0,05 inch	PDPT inch	for tool holder	-M2 CTCP325 DRAGONSKIN 70 343 ...	-M2 CTCP335 DRAGONSKIN 70 343 ...	-M2 CTPP345 DRAGONSKIN 70 343 ...	-M2 CTP1340 DRAGONSKIN 70 343 ...
SX E2.00 N 0.20	0.079	0.008	0.059	-SX2	**922**	**522**	**822**	**622**
SX E3.00 N 0.30	0.118	0.012	0.079	-SX3	**923**	**523**	**823**	**623**
SX E4.00 N 0.40	0.157	0.016	0.098	-SX4	**924**	**524**	**824**	**624**
SX E5.00 N 0.40	0.197	0.016	0.106	-SX5	**925**	**525**	**825**	**625**
SX E6.00 N 0.50	0.236	0.020	0.118	-SX6	**926**	**526**	**826**	**626**
P					●	●	●	●
M					○	○	●	●
K					●	●		●
N								○
S					○		○	●
H								
O								○

→ v_c Page 77
→ Application recommendation on page 81

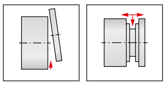
Internal machining	*External machining*

→ 13
→ 14–19

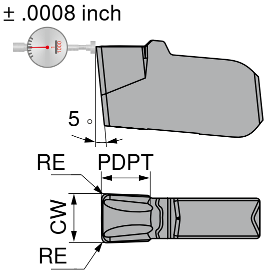
metric

Insert SX

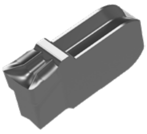
- ▲ Insert with highly positive cutting edge geometry and sharp cutting edge, polished chip breaker
- ▲ Specialist for aluminum and other soft long-chipping non-ferrous metals



F	M	R
		



-27P
H216T



Designation	CW $_{+/-0,02}$ inch	RE $_{+/-0,05}$ inch	PDPT inch	for tool holder	70 349 ...
SX E2.00 N 0.20	0.079	0.008	0.079	-SX2	**122**
SX E3.00 N 0.30	0.118	0.012	0.098	-SX3	**123**
SX E4.00 N 0.40	0.157	0.016	0.118	-SX4	**124**

P	
M	
K	●
N	●
S	○
H	
O	○

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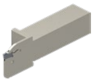
→ Application recommendation on page 81

5

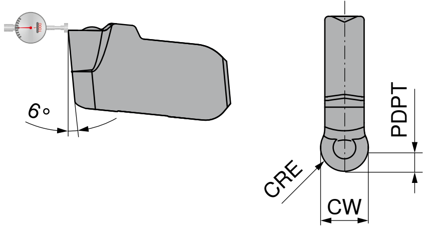
Internal machining		*External machining*						
								
		→ 13	→ 14–19	metric				

Radius Grooving Insert SX

- ▲ for grooving and copy turning
- ▲ very good chip control

F	M	R
	●	

-M3 CTCP335 DRAGONSKIN	-M3 CTP1340 DRAGONSKIN
○ ◯ ◌	○ ◯ ◌



Designation	CW +/-0,05 inch	CRE inch	PDPT inch	for tool holder	70 344 ...	70 344 ...
SX R3.00 N 1.50	0.118	0.059	0.059	-SX3	**531**	**631**
SX R4.00 N 2.00	0.157	0.079	0.079	-SX4	**532**	**632**
SX R5.00 N 2.50	0.197	0.098	0.098	-SX5	**533**	**633**
SX R6.00 N 3.00	0.236	0.118	0.118	-SX6		**634**

P	●	●
M	○	●
K	●	●
N		○
S		●
H		
O		○

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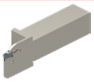
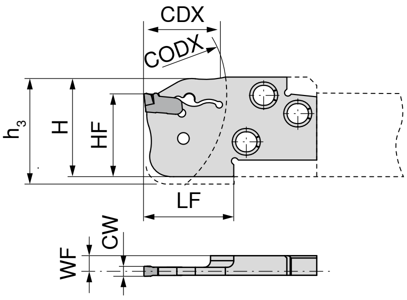
→ Application recommendation on page 82

Internal machining		*External machining*						
								
		→ 13	→ 14-19	metric				

ModularClamp MSS – Radial grooving module SX

▲ for parting, grooving and finish turning

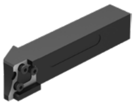


Illustrations show right-hand versions

Designation	HF inch	CW inch	WF inch	LF inch	H inch	h_3 inch	CODX inch	CDX inch	for grooving inserts	Left-hand 70 897 ...	Right-hand 70 896 ...
E20 R/L 20-SX2	0.787	0.079	0.141	0.866	0.945	1.063	2.362	0.787	SX .2..	**020**	**020**
E20 R/L 20-SX3	0.787	0.118	0.126	0.866	0.945	1.063	2.362	0.787	SX .3..	**120**	**120**
E25 R/L 20-SX2	0.984	0.079	0.200	0.866	1.181		2.953	0.787	SX .2..	**025**	**025**
E25 R/L 25-SX3	0.984	0.118	0.185	1.063	1.181		2.953	0.984	SX .3..	**125**	**125**
E25 R/L 35-SX3	0.984	0.118	0.185	1.457	1.181		2.953	1.378	SX .3..	**225**	**225**
E25 R/L 25-SX4	0.984	0.157	0.169	1.063	1.181		2.953	0.984	SX .4..	**325**	**325**
E25 R/L 35-SX4	0.984	0.157	0.169	1.457	1.181		2.953	1.378	SX .4..	**425**	**425**
E32 R/L 35-SX3	1.260	0.118	0.185	1.457	1.496		3.780	1.378	SX .3..	**032**	**032**
E32 R/L 35-SX4	1.260	0.157	0.169	1.457	1.496		3.780	1.378	SX .4..	**132**	**132**

Spare parts **for grooving inserts**		Insert mounting key SX **70 950 ...**
SX .2..	SX 2-3	**836**
SX .3..	SX 2-3	**836**
SX .4..	SX 4-6	**837**

→ 8–12

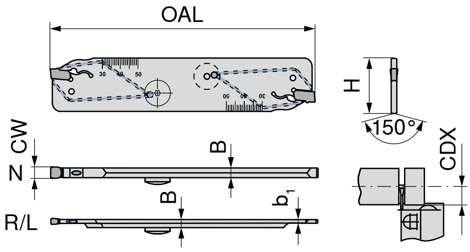


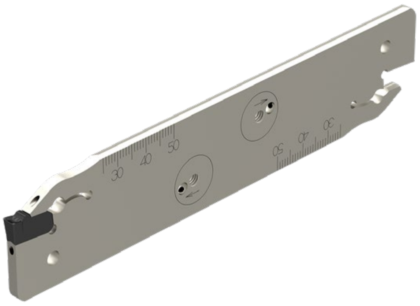
→ 69–71

metric

Please order insert mounting key SX separately if required.

MonoClamp – Radial Blade SX-DC Standard





Designation	CW inch	H inch	B inch	b_1 inch	OAL inch	CDX inch	for grooving inserts	R/L/N	70 884 ...
XLCF L 2602-DC-SX2	0.079	1.024	0.094	0.063	4.331	0.984	SX .2..	L	**712**
XLCF L 3202-DC-SX2	0.079	1.260	0.094	0.063	5.906	1.024	SX .2..	L	**702**
XLCF R 2602-DC-SX2	0.079	1.024	0.094	0.063	4.331	0.984	SX .2..	R	**512**
XLCF R 3202-DC-SX2	0.079	1.260	0.094	0.063	5.906	1.024	SX .2..	R	**502**
XLCF N 2603-DC-SX3	0.118	1.024	0.098		4.331	1.378	SX .3..	N	**613**
XLCF N 3203-DC-SX3	0.118	1.260	0.098		5.906	1.969	SX .3..	N	**603**
XLCF N 2604-DC-SX4	0.157	1.024	0.130		4.331	1.575	SX .4..	N	**614**
XLCF N 3204-DC-SX4	0.157	1.260	0.130		5.906	1.969	SX .4..	N	**604**
XLCF N 3205-DC-SX5	0.197	1.260	0.169		5.906	2.165	SX .5..	N	**605**
XLCF N 3206-DC-SX6	0.236	1.260	0.205		5.906	2.362	SX .6..	N	**606**


Screwdriver


Insert mounting key SX


Sealing screw

Spare parts **for grooving inserts**		80 950 ...		70 950 ...		70 950 ...
SX .2..	T15 - IP	**128**	SX 2-3	**836**	M4 x 3	**450**
SX .3..	T15 - IP	**128**	SX 2-3	**836**	M4 x 3	**450**
SX .4..	T15 - IP	**128**	SX 4-6	**837**	M4 x 3	**450**
SX .5..	T15 - IP	**128**	SX 4-6	**837**	M4 x 3	**450**
SX .6..	T15 - IP	**128**	SX 4-6	**837**	M4 x 3	**450**


→ 8–12

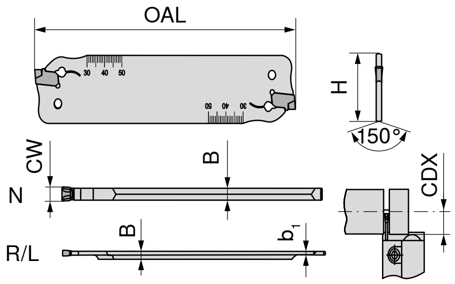

→ 73

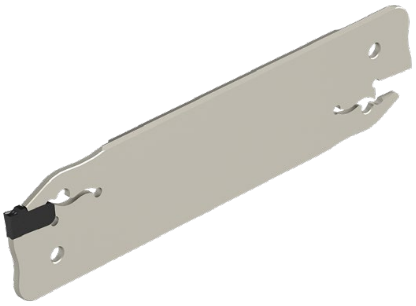

metric


metric

Please order insert mounting key SX separately if required.

MonoClamp – Radial Blade SX Standard





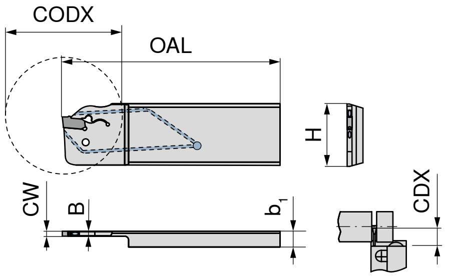
Designation	CW inch	H inch	B inch	b_1 inch	OAL inch	CDX inch	for grooving inserts	R/L/N	70 884 ...
XLCF L 2602-SX2	0.079	1.024	0.094	0.059	4.331	0.984	SX .2..	L	**212**
XLCF L 3202-SX2	0.079	1.260	0.094	0.059	5.906	0.984	SX .2..	L	**202**
XLCF R 2602-SX2	0.079	1.024	0.094	0.059	4.331	0.984	SX .2..	R	**012**
XLCF R 3202-SX2	0.079	1.260	0.094	0.059	5.906	0.984	SX .2..	R	**002**
XLCF N 2603-SX3	0.118	1.024	0.094		4.331	1.378	SX .3..	N	**113**
XLCF N 3203-SX3	0.118	1.260	0.094		5.906	1.969	SX .3..	N	**103**
XCLF N 2604-SX4	0.157	1.024	0.126		4.331	1.575	SX .4..	N	**114**
XLCF N 3204-SX4	0.157	1.260	0.126		5.906	1.969	SX .4..	N	**104**
XLCF N 3205-SX5	0.197	1.260	0.165		5.906	2.165	SX .5..	N	**105**
XLCF N 3206-SX6	0.236	1.260	0.205		5.906	2.362	SX .6..	N	**106**

Spare parts **for grooving inserts**	 Insert mounting key SX	**70 950 ...**
SX .2..	SX 2-3	**836**
SX .3..	SX 2-3	**836**
SX .4..	SX 4-6	**837**
SX .5..	SX 4-6	**837**
SX .6..	SX 4-6	**837**

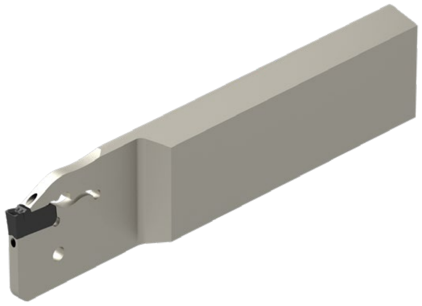
			
→ 8–12	→ 74+75	metric	metric

Please order insert mounting key SX separately if required.

MonoClamp – Radial Blade SX-DC reinforced



Illustrations show right-hand versions



Designation	CW inch	H inch	B inch	b_1 inch	OAL inch	CODX inch	CDX inch	for grooving inserts	R/L/N	70 879 ...
XLCF L 2608-DC-SX3	0.118	1.024	0.098	0.315	4.331	2.598	1.299	SX .3..	L	**713**
XLCF L 3208-DC-SX3	0.118	1.260	0.098	0.315	4.331	2.598	1.299	SX .3..	L	**703**
XLCF R 2608-DC-SX3	0.118	1.024	0.098	0.315	4.331	2.598	1.299	SX .3..	R	**513**
XLCF R 3208-DC-SX3	0.118	1.260	0.098	0.315	4.331	2.598	1.299	SX .3..	R	**503**

Insert mounting key SX

Spare parts **for grooving inserts**		**70 950 ...**
SX .2..	SX 2-3	**836**
SX .3..	SX 2-3	**836**
SX .4..	SX 4-6	**837**

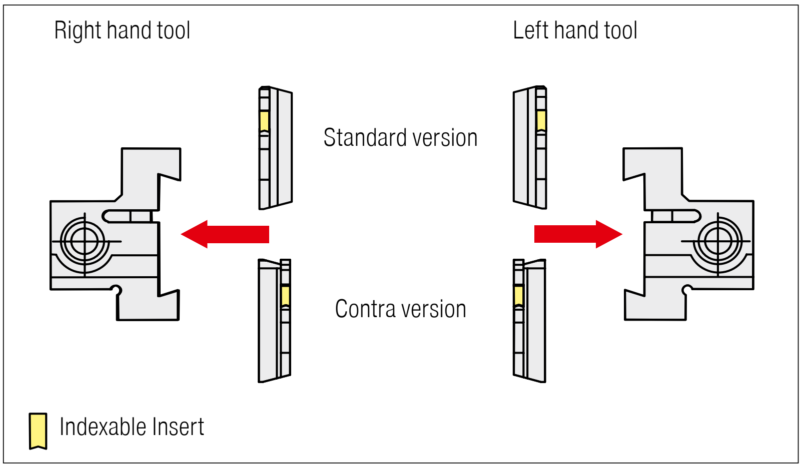
→ 8–12

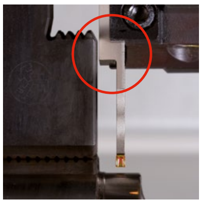
→ 73

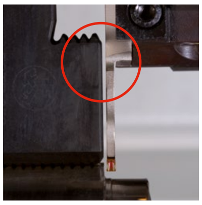
metric

metric

Correct Tool Selection

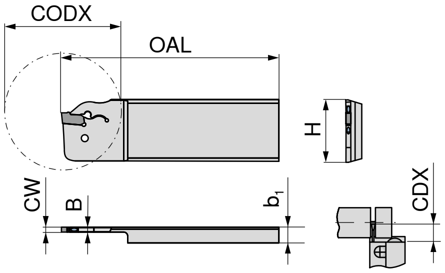




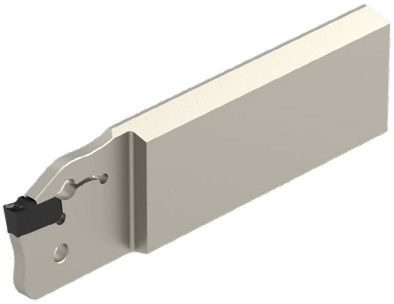


Please order insert mounting key SX separately if required.

MonoClamp – Radial Blade SX reinforced



Illustrations show right-hand versions



Designation	CW inch	H inch	B inch	b_1 inch	OAL inch	CODX inch	CDX inch	for grooving inserts	R/L/N	70 879 ...
XLCF L 2608-SX2	0.079	1.024	0.059	0.315	4.331	1.732	0.866	SX .2..	L	**212** 1)
XLCF L 2608-SX3	0.118	1.024	0.098	0.315	4.331	1.732	0.866	SX .3..	L	**213** 1)
XLCF L 3208-SX3	0.118	1.260	0.098	0.315	4.331	2.598	1.299	SX .3..	L	**203**
XLCF L 3208-SX4	0.157	1.260	0.134	0.315	4.331	2.598	1.299	SX .4..	L	**204**
XLCF R 2608-SX2	0.079	1.024	0.059	0.315	4.331	1.732	0.866	SX .2..	R	**012** 1)
XLCF R 2608-SX3	0.118	1.024	0.098	0.315	4.331	1.732	0.866	SX .3..	R	**013** 1)
XLCF R 3208-SX3	0.118	1.260	0.098	0.315	4.331	2.598	1.299	SX .3..	R	**003**
XLCF R 3208-SX4	0.157	1.260	0.134	0.315	4.331	2.598	1.299	SX .4..	R	**004**

1) can be used in both directions

Insert mounting key SX

Spare parts for grooving inserts		**70 950 ...**
SX .2..	SX 2-3	**836**
SX .3..	SX 2-3	**836**
SX .4..	SX 4-6	**837**

5

→ 8–12

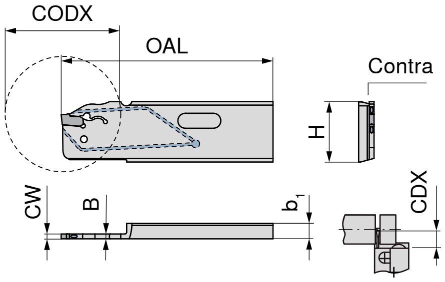
→ 74+75

metric

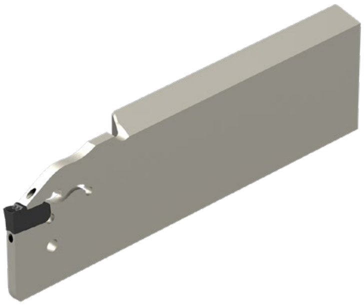
metric

Please order insert mounting key SX separately if required.

MonoClamp – SX-DC reinforced Contra radial blade



Illustrations show right-hand versions



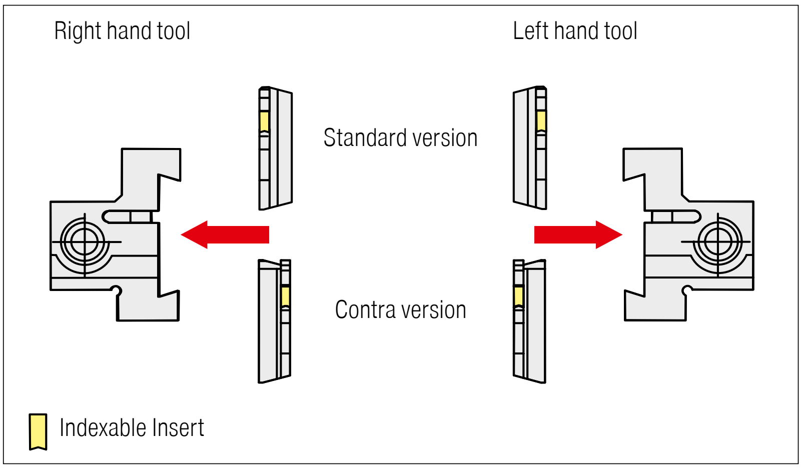
Designation	CW inch	H inch	B inch	b_1 inch	OAL inch	CODX inch	CDX inch	for grooving inserts	R/L/N	70 877 ...
XLCF L 3208C-DC-SX3	0.118	1.260	0.098	0.315	4.331	2.598	1.299	SX .3..	L	**703**
XLCF R 3208C-DC-SX3	0.118	1.260	0.098	0.315	4.331	2.598	1.299	SX .3..	R	**503**

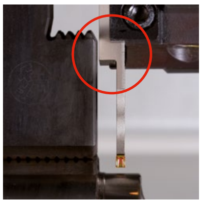
Insert mounting key SX

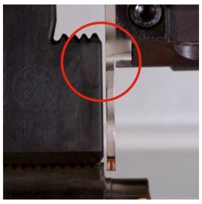
Spare parts **for grooving inserts**		**70 950 ...**
SX .3..	SX 2-3	**836**

			
→ 8–12	→ 73	metric	metric

Correct Tool Selection

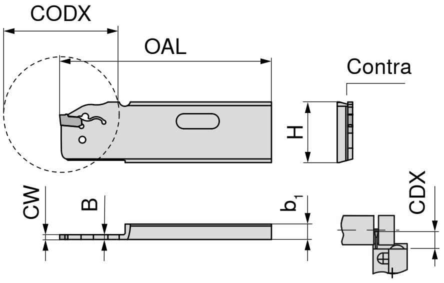




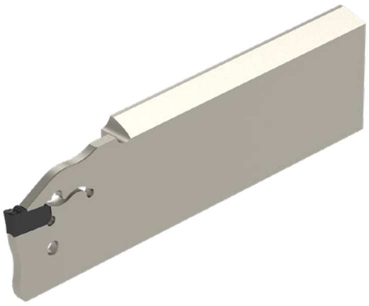


Please order insert mounting key SX separately if required.

MonoClamp – SX reinforced Contra radial blade



Illustrations show right-hand versions



Designation	CW inch	H inch	B inch	b_1 inch	OAL inch	CODX inch	CDX inch	for grooving inserts	R/L/N	70 877 ...
XLCF L 3208C-SX3	0.118	1.260	0.098	0.315	4.331	2.598	1.299	SX .3..	L	**203**
XLCF R 3208C-SX3	0.118	1.260	0.098	0.315	4.331	2.598	1.299	SX .3..	R	**003**

Insert mounting key SX

Spare parts **for grooving inserts**		**70 950 ...**
SX .3..	SX 2-3	**836**

5



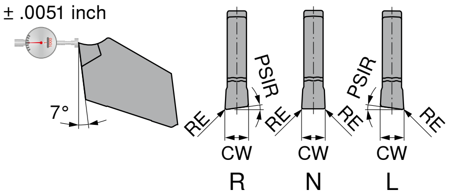

→ 8–12	→ 74+75	metric	metric					

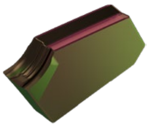
Please order insert mounting key SX separately if required.

Insert FX

- ▲ Excellent cutting geometry with low cutting forces
- ▲ Very good chip control also with low feed rates
- ▲ Reduced built-up edge

F	M	R





Designation	IH inch	CW $_{-0.1}$ inch	RE $_{+/-0,05}$ inch	PSIR	for tool holder	-F1 CTCP325 DRAGONSKIN 70 331 ...	-F1 CTPP345 DRAGONSKIN 70 331 ...	-F1 CTP1340 DRAGONSKIN 70 331 ...
FX 2.2 L 5-F1	L	0.087	0.006	5°	-FX 2.2		**847**	**647**
FX 3.1 L 5-F1	L	0.122	0.008	5°	-FX 3.1		**851**	**651**
FX 3.1 L 8-F1	L	0.122	0.008	8°	-FX 3.1		**855**	
FX 2.2 N 0.15-F1	N	0.087	0.006		-FX 2.2	**998**	**848**	**648**
FX 3.1 N 0.40-F1	N	0.122	0.016		-FX 3.1	**906**	**856**	**656**
FX 3.1 N 0.20-F1	N	0.122	0.008		-FX 3.1	**902**	**852**	**652**
FX 4.1 N 0.20-F1	N	0.161	0.008		-FX 4.1		**860**	**660**
FX 4.1 N 0.50-F1	N	0.161	0.020		-FX 4.1		**864**	
FX 2.2 R 5-F1	R	0.087	0.006	5°	-FX 2.2		**849**	**649**
FX 3.1 R 5-F1	R	0.122	0.008	5°	-FX 3.1		**853**	**653**
FX 3.1 R 8-F1	R	0.122	0.008	8°	-FX 3.1		**857**	
P						●	●	●
M						○	●	●
K						●		●
N								○
S						○	○	●
H								
O								○

→ v_c Page 77

→ Application recommendation on page 83

Note: reduce feed rate by 20–50 % with R/L version!

Internal machining

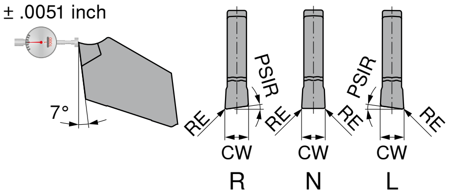
External machining

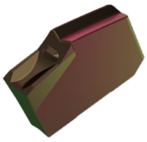
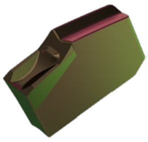
→ 25 → 27 → 26

Insert FX

▲ narrow version

F	M	R



Designation	IH inch	CW $_{-0.1}$ inch	RE $_{+/-0,05}$ inch	PSIR	for tool holder	-M1 CTCP325 DRAGONSKIN 70 330 ...	-M1 CTCP335 DRAGONSKIN 70 330 ...	-M1 CTPP345 DRAGONSKIN 70 330 ...	-M1 CTP1340 DRAGONSKIN 70 330 ...
FX 2.2 L 4-M1	L	0.087	0.004	4°	-FX 2.2		**550**	**800**	**600**
FX 2.2 N 0.10-M1	N	0.087	0.004		-FX 2.2	**902**	**552**	**802**	**602**
FX 2.2 R 4-M1	R	0.087	0.004	4°	-FX 2.2		**554**	**804**	**604**
P						●	●	●	●
M						○	○	●	●
K						●	●		●
N									○
S						○		○	●
H									
O									○

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Note: reduce feed rate by 20–50 % with R/L version!

Internal machining		*External machining*							
									
		→ 25	→ 27	→ 26					

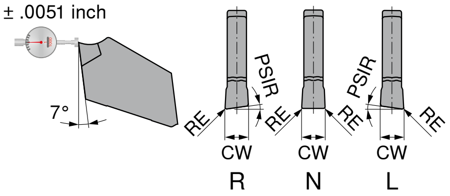
5

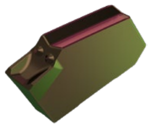
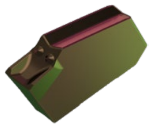
Insert FX

▲ wide version

F	M	R

-M1 CTCP325	-M1 CTCP335	-M1 CTPP345	-M1 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	IH inch	CW +/-0,05 inch	RE +/-0,05 inch	PSIR	for tool holder	70 332 ...	70 332 ...	70 332 ...	70 332 ...
FX 3.1 L 6-M1	L	0.122	0.006	6°	-FX 3.1	**900**	**550**	**800**	**600**
FX 4.1 L 6-M1	L	0.161	0.008	6°	-FX 4.1	**906**	**556**	**806**	**606**
FX 3.1 N 0.15-M1	N	0.122	0.006		-FX 3.1	**902**	**552**	**802**	**602**
FX 4.1 N 0.20-M1	N	0.161	0.008		-FX 4.1	**908**	**558**	**808**	**608**
FX 5.1 N 0.25-M1	N	0.201	0.010		-FX 5.1	**914**	**564**	**814**	**614**
FX 6.5 N 0.30-M1	N	0.256	0.012		-FX 6.5	**920**	**570**		**620**
FX 8.2 N 0.40-M1	N	0.323	0.016		XLCEN 4608	**924**	**574**		**624**
FX 9.7 N 0.40-M1	N	0.382	0.016		XLCEN 4609	**926**	**576**		**626**
FX 3.1 R 6-M1	R	0.122	0.006	6°	-FX 3.1	**904**	**554**	**804**	**604**
FX 4.1 R 6-M1	R	0.161	0.008	6°	-FX 4.1		**560**	**810**	**610**
FX 5.1 R 6-M1	R	0.201	0.010	6°	-FX 5.1			**816**	
P						●	●	●	●
M						○	○	●	●
K						●	●		●
N									○
S						○		○	●
H									
O									○

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→ Application recommendation on page 83

Note: reduce feed rate by 20–50 % with R/L version!

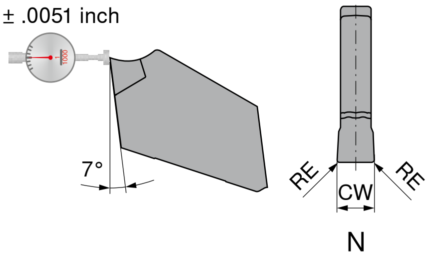
Internal machining		*External machining*							
									
		→ 25	→ 27	→ 26					

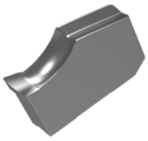
Insert FX

- ▲ Insert with highly positive cutting edge geometry and sharp cutting edge, polished chip breaker
- ▲ Reduced built-up edge

F	M	R

-27P
H216T





Designation	IH inch	CW -0,1 inch	RE +/-0,05 inch	for tool holder	70 334 ...
FX 2.2 N 0.10	N	0.087	0.004	-FX 2.2	**650**
FX 3.1 N 0.15	N	0.122	0.006	-FX 3.1	**652**
FX 4.1 N 0.15	N	0.161	0.006	-FX 4.1	**654**

P	
M	
K	●
N	●
S	○
H	
O	○

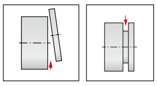
→ v_c Page 77
→ Application recommendation on page 83

Internal machining *External machining*

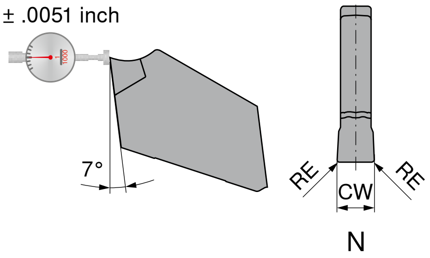
								
		→ 25	→ 27	→ 26				

Insert FX

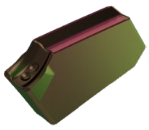
- ▲ Insert with excellent chip control for a wide range of feed rates
- ▲ Very stable cutting edge



F	M	R



-R2 CTCP325	-R2 CTPP345	-R2 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	IH inch	CW $_{-0.1}$ inch	RE $_{+/-0,05}$ inch	for tool holder	70 335 ...	70 335 ...	70 335 ...
FX 3.1 N 0.40-R2	N	0.122	0.016	-FX 3.1	**902**	**852**	**652**
FX 4.1 N 0.50-R2	N	0.161	0.020	-FX 4.1	**908**	**858**	**658**

	CTCP325	CTPP345	CTP1340
P	●	●	●
M	○	●	●
K	●		●
N			○
S	○	○	●
H			
O			○

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Internal machining

External machining

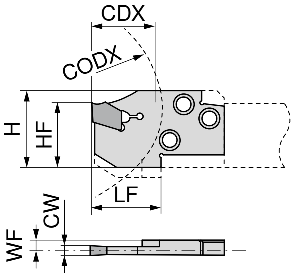

→ 25


→ 27

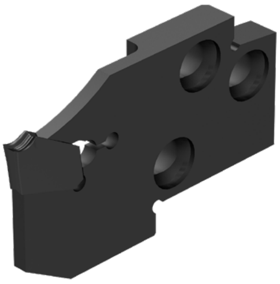

→ 26

ModularClamp MSS – Radial grooving module FX short/long

▲ For parting and grooving



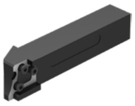
Illustrations show right-hand versions



Designation	HF inch	CW inch	WF inch	LF inch	H inch	CODX inch	CDX inch	for grooving inserts	Left-hand 70 876 ...	Right-hand 70 875 ...
E20 R/L 20-FX 2.2	0.906	0.087	0.141	0.866	1.063	2.362	0.787	FX 2.2 ..	**020**	**020**
E20 R/L 20-FX 3.1	0.906	0.122	0.126	0.866	1.063	2.362	0.787	FX 3.1 ..	**120**	**120**
E20 R/L 20-FX 4.1	0.906	0.161	0.110	0.866	1.063	2.362	0.787	FX 4.1 ..	**220**	**220**
E25 R/L 20-FX 2.2	0.984	0.087	0.200	0.866	1.181	2.953	0.787	FX 2.2 ..	**025**	**025**
E25 R/L 25-FX 3.1	0.984	0.122	0.185	1.063	1.181	2.953	0.984	FX 3.1 ..	**125**	**125**
E25 R/L 25-FX 4.1	0.984	0.161	0.169	1.063	1.181	2.953	0.984	FX 4.1 ..	**225**	**225**
E25 R/L 25-FX 5.1	0.984	0.201	0.154	1.063	1.181	2.953	0.984	FX 5.1 ..	**325**	**325**
E25 R/L 25-FX 6.5	0.984	0.256	0.130	1.063	1.181	2.953	0.984	FX 6.5 ..	**425**	**425**
E25 R/L 35-FX 3.1	0.984	0.122	0.185	1.457	1.181	2.953	1.378	FX 3.1 ..	**525**	**525**
E25 R/L 35-FX 4.1	0.984	0.161	0.169	1.457	1.181	2.953	1.378	FX 4.1 ..	**625**	**625**
E25 R/L 35-FX 5.1	0.984	0.201	0.154	1.457	1.181	2.953	1.378	FX 5.1 ..	**725**	**725**
E25 R/L 35-FX 6.5	0.984	0.256	0.130	1.457	1.181	2.953	1.378	FX 6.5 ..	**825**	**825**
E32 R/L 32-FX 3.1	1.260	0.122	0.185	1.339	1.496	3.780	1.260	FX 3.1 ..	**032**	**032**
E32 R/L 32-FX 4.1	1.260	0.161	0.169	1.339	1.496	3.780	1.260	FX 4.1 ..	**132**	**132**
E32 R/L 32-FX 5.1	1.260	0.201	0.154	1.339	1.496	3.780	1.260	FX 5.1 ..	**232**	**232**
E32 R/L 32-FX 6.5	1.260	0.256	0.130	1.339	1.496	3.780	1.260	FX 6.5 ..	**332**	**332**
E32 R/L 45-FX 3.1	1.260	0.122	0.185	1.850	1.496	3.780	1.772	FX 3.1 ..	**432**	**432**
E32 R/L 45-FX 4.1	1.260	0.161	0.169	1.850	1.496	3.780	1.772	FX 4.1 ..	**532**	**532**
E32 R/L 45-FX 5.1	1.260	0.201	0.154	1.850	1.496	3.780	1.772	FX 5.1 ..	**632**	**632**
E32 R/L 45-FX 6.5	1.260	0.256	0.130	1.850	1.496	3.780	1.772	FX 6.5 ..	**732**	**732**

Spare parts for grooving inserts	Insert mounting key 70 950 ...
FX 2.2 ..	**375**
FX 3.1 ..	**376**
FX 4.1 ..	**376**
FX 5.1 ..	**376**
FX 6.5 ..	**376**

→ 20–24



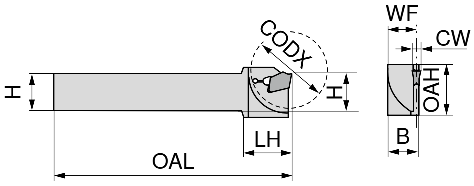
→ 69–71

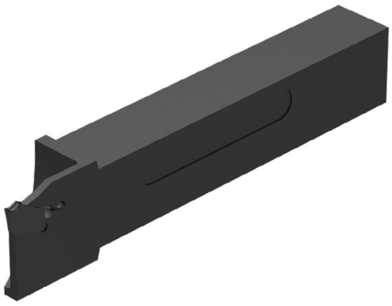
metric

MonoClamp – Radial Monoholder FX

Scope of supply:

Blade and insert mounting key





Illustrations show right-hand versions

Designation	H inch	B inch	OAL inch	LH inch	OAH inch	CW inch	WF inch	CODX inch	for grooving inserts	Left-hand 78 837 ...	Right-hand 78 836 ...
XLCE R/L 06 M22 FX-E	0.375	0.375	6.000	0.709	0.498	0.087	0.343	1.181	FX 2.2 ..	**37500**	**37500**
XLCE R/L 08 F22 FX-E	0.500	0.500	3.000	0.709	0.623	0.087	0.497	1.181	FX 2.2 ..	**50000**	**50000**
XLCE R/L 08 M22 FX-E	0.500	0.500	6.000	0.709	0.623	0.087	0.497	1.181	FX 2.2 ..	**50100**	**50100**
XLCE R/L 09 M22 FX-E	0.563	0.563	6.000	0.709	0.686	0.087	0.530	1.181	FX 2.2 ..	**56300**	**56300**
XLCE R/L 10 H22 FX-E	0.625	0.625	4.000	0.709	0.748	0.087	0.593	1.181	FX 2.2 ..	**62500**	**62500**
XLCF R/L 10 H31 FX-E	0.625	0.625	4.000	0.827	0.748	0.122	0.578	1.378	FX 3.1 ..	**62600**	**62600**
XLCF R/L 12 K31 FX-E	0.750	0.750	5.000	0.984	0.906	0.122	0.703	1.575	FX 3.1 ..	**75100**	**75100**
XLCF R/L 64 M31 FX-E	1.000	0.750	6.000	1.220	1.118	0.122	0.703	1.969	FX 3.1 ..	**00100**	**00100**
XLCF R/L 12 K41 FX-E	0.750	0.750	5.000	0.984	0.906	0.161	0.687	1.575	FX 4.1 ..	**75000**	**75000**
XLCF R/L 64 M41 FX-E	1.000	0.750	6.000	1.220	1.118	0.161	0.687	1.969	FX 4.1 ..	**00000**	**00000**

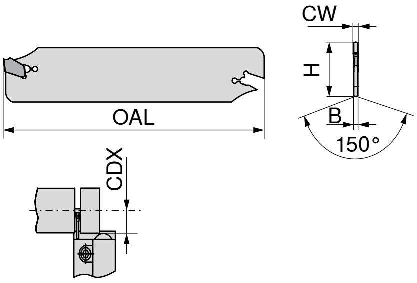
Spare parts **for grooving inserts**	Insert mounting key **70 950 ...**
FX 2.2 ..	**375**
FX 3.1 ..	**376**
FX 4.1 ..	**376**

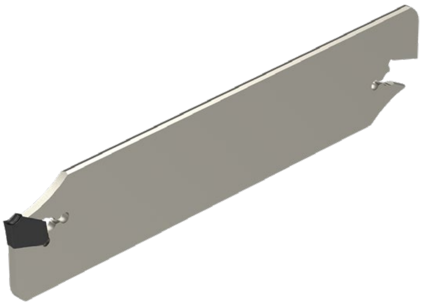
→ 20–24

MonoClamp – Radial Blade FX

Scope of supply:

Blade and insert mounting key





Designation	H inch	B inch	OAL inch	CW inch	CDX inch	for grooving inserts	**70 832 ...**
XLCEN 2602 J 22 FX	1.024	0.065	4.331	0.087	0.984	FX 2.2 ..	**101**
XLCFN 2603 J 31 FX	1.024	0.094	4.331	0.122	1.378	FX 3.1 ..	**102**
XLCFN 2604 J 41 FX	1.024	0.126	4.331	0.161	1.575	FX 4.1 ..	**103**
XLCEN 3202 M 22 FX	1.260	0.065	5.906	0.087	1.181	FX 2.2 ..	**004**
XLCFN 3203 M 31 FX	1.260	0.094	5.906	0.122	1.969	FX 3.1 ..	**104**
XLCFN 3204 M 41 FX	1.260	0.126	5.906	0.161	1.969	FX 4.1 ..	**105**
XLCFN 3205 M 51 FX	1.260	0.157	5.906	0.201	2.165	FX 5.1 ..	**106**
XLCFN 3206 M 65 FX	1.260	0.205	5.906	0.256	2.165	FX 6.5 ..	**107**
XLCEN 4608 S 82 FX	1.811	0.268	9.843	0.323	3.150	FX 8.2 ..	**108**
XLCEN 4609 S 97 FX	1.811	0.315	9.843	0.382	3.150	FX 9.7 ..	**109**

5

Spare parts **for grooving inserts**	 Insert mounting key **70 950 ...**
FX 2.2 ..	**375**
FX 3.1 ..	**376**
FX 4.1 ..	**376**
FX 5.1 ..	**376**
FX 6.5 ..	**376**
FX 8.2 ..	**377**
FX 9.7 ..	**377**

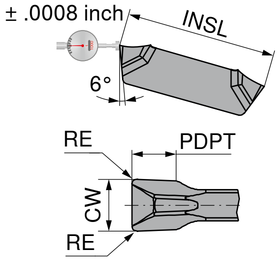
→ 20–24 → 74+75

Insert GX 09/16

- ▲ Insert with ground periphery
- ▲ Suitable also for parting off tubes and thin-walled workpieces

F	M	R
		

-F2
CTP1340
DRAGONSKIN



Designation	INSL inch	CW +/-0,02 inch	RE +/-0,05 inch	PDPT inch	for tool holder	70 360 ...
GX 09-1 E2.00 N 0.20	0.354	0.079	0.008	0.059	GX 09-1	**600**
GX 09-1 E2.50 N 0.20	0.354	0.098	0.008	0.059	GX 09-1	**602**
GX 09-2 E3.00 N 0.30	0.354	0.118	0.012	0.079	GX 09-2	**604**
GX 16-1 E2.00 N 0.20	0.630	0.079	0.008	0.098	GX 16-1	**650**
GX 16-2 E3.00 N 0.30	0.630	0.118	0.012	0.118	GX 16-2	**652**
GX 16-3 E4.00 N 0.40	0.630	0.157	0.016	0.138	GX 16-3	**654**
GX 16-3 E5.00 N 0.40	0.630	0.197	0.016	0.138	GX 16-3	**656**

P	●
M	●
K	●
N	○
S	●
H	
O	○

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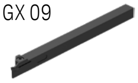
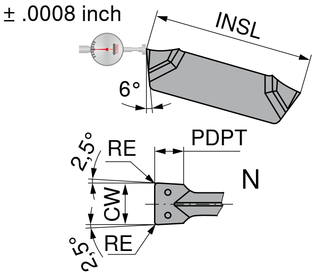
Internal machining *External machining*

	GX 09	GX 16		GX 09	GX 16			
								
→ 38+39	→ 41	metric	→ 36+37	→ 40	metric			

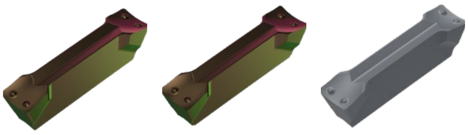
Insert GX 09/16 – Standard

▲ Suitable for parting thin-walled workpieces

F	M	R



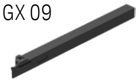
CTCP325	CTCP335	CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	INSL inch	CW +/-0,02 inch	RE +/-0,05 inch	PDPT inch	for tool holder	70 350 ...	70 350 ...	70 350 ...
GX 09-1 E2.00 N 0.20	0.354	0.079	0.008	0.059	GX 09-1	984		634
GX 09-1 E2.50 N 0.20	0.354	0.098	0.008	0.059	GX 09-1	988		638
GX 09-2 E3.00 N 0.30	0.354	0.118	0.012	0.079	GX 09-2	992		642
GX 16-1 E2.00 N 0.20	0.630	0.079	0.008	0.098	GX 16-1	900	500	600
GX 16-1 E2.50 N 0.20	0.630	0.098	0.008	0.098	GX 16-1	904	504	604
GX 16-2 E3.00 N 0.30	0.630	0.118	0.012	0.118	GX 16-2	908	508	608
GX 16-2 E3.00 N 0.50	0.630	0.118	0.020	0.118	GX 16-2	910		
GX 16-2 E3.50 N 0.30	0.630	0.138	0.012	0.118	GX 16-2	912	512	612
GX 16-3 E4.00 N 0.60	0.630	0.157	0.024	0.138	GX 16-3	918		
GX 16-3 E4.00 N 0.40	0.630	0.157	0.016	0.138	GX 16-3	916	516	616
GX 16-3 E5.00 N 0.40	0.630	0.197	0.016	0.138	GX 16-3	924	524	624
GX 16-4 E6.00 N 0.50	0.630	0.236	0.020	0.157	GX 16-4	928		628
GX 16-4 E6.00 N 0.80	0.630	0.236	0.031	0.157	GX 16-4	930		

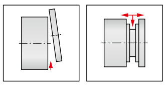
P	●	●	●
M	○	○	●
K	●	●	●
N			○
S	○		●
H			
O			○

→ v_c Page 77
→ Application recommendation on page 78

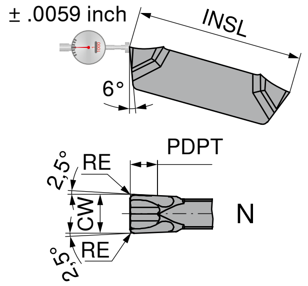
Internal machining			*External machining*		
	GX 09 	GX 16 		GX 09 	GX 16 
→ 38+39	→ 41	metric	→ 36+37	→ 40	metric

Insert GX 09/16

▲ Very good chip control



F	M	R
		



-M40 CTCP325	-M40 CTPP345	-M40 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		

Designation	INSL inch	CW +/-0,05 inch	RE +/-0,05 inch	PDPT inch	for tool holder	70 351 ...	70 351 ...	70 351 ...
GX 09-1 E2.00 N 0.20	0.354	0.079	0.008	0.059	GX 09-1	**986**	**886**	**686**
GX 09-2 E3.00 N 0.30	0.354	0.118	0.012	0.079	GX 09-2	**994**	**894**	**694**
GX 16-1 E2.00 N 0.20	0.630	0.079	0.008	0.098	GX 16-1	**902**	**802**	**602**
GX 16-2 E3.00 N 0.30	0.630	0.118	0.012	0.118	GX 16-2	**910**	**810**	**610**
GX 16-3 E4.00 N 0.40	0.630	0.157	0.016	0.138	GX 16-3	**918**	**818**	**618**
GX 16-3 E5.00 N 0.40	0.630	0.197	0.016	0.138	GX 16-3	**926**	**826**	**626**
GX 16-4 E6.00 N 0.50	0.630	0.236	0.020	0.157	GX 16-4	**930**	**830**	**630**

P	●	●	●
M	○	●	●
K	●		●
N			○
S	○	○	●
H			
O			○

→ v_c Page 77
→ Application recommendation on page 78

Internal machining

GX 09

GX 16

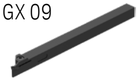
→ 38+39

→ 41

metric

External machining

GX 09



GX 16

→ 36+37

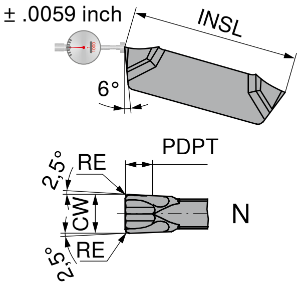
→ 40

metric

Insert GX 16

▲ Very good chip control

F	M	R



-M1 CTCP325	-M1 CTPP345	-M1 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



Designation	INSL inch	CW +/-0,05 inch	RE +/-0,05 inch	PDPT inch	for tool holder	70 362 ...	70 362 ...	70 362 ...
GX 16-1 E2.00 N 0.20	0.630	0.079	0.008	0.079	GX 16-1		**800**	**600**
GX 16-2 E3.00 N 0.20	0.630	0.118	0.008	0.098	GX 16-2	**902**	**802**	**602**
GX 16-3 E4.00 N 0.30	0.630	0.157	0.012	0.118	GX 16-3	**904**		**604**

P	●	●	●
M	○	●	●
K	●		●
N			○
S	○	○	●
H			
O			○

→ v_c Page 77
→ Application recommendation on page 79

Internal machining


→ 38+39

metric

External machining


→ 36+37

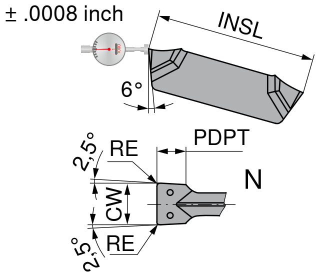
metric

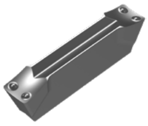
Insert GX 16

- ▲ Insert with highly positive cutting edge geometry and sharp cutting edge, polished chip breaker
- ▲ ground periphery

F	M	R
✓	✓	

-27P
H216T





Designation	INSL inch	CW $_{+/-0,02}$ inch	RE $_{+/-0,05}$ inch	PDPT inch	for tool holder	70 350 ...
GX 16-1 E2.00 N 0.20	0.630	0.079	0.008	0.098	GX 16-1	**650**
GX 16-2 E3.00 N 0.30	0.630	0.118	0.012	0.118	GX 16-2	**658**
GX 16-3 E4.00 N 0.40	0.630	0.157	0.016	0.138	GX 16-3	**670**
GX 16-4 E6.00 N 0.50	0.630	0.236	0.020	0.157	GX 16-4	**678**

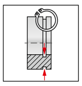
P	
M	
K	●
N	●
S	○
H	
O	○

→ v_c Page 77
→ Application recommendation on page 78

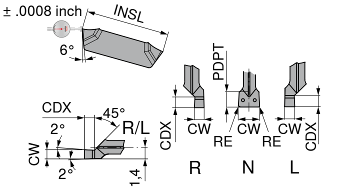
Internal machining *External machining*

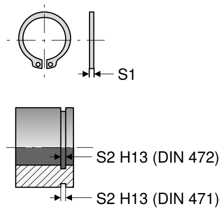
→ 38+39
metric
→ 36+37
metric

Circlip groove insert GX 09/16 – Standard

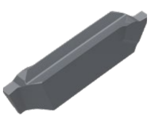


F	M	R
●		





CTP1340 DRAGONSKIN CTP1340 DRAGONSKIN

Designation	IH inch	INSL inch	s_1 inch	s_2 inch	CW +/-0,02 inch	RE +/-0,05 inch	CDX inch	PDPT inch	for tool holder	70 352 ...	70 352 ...
GX 09-1 S0.60 L	L	0.354	0.016	0.020	0.024		0.030		R/L 02-GX 09-1		**679**
GX 09-1 S0.80 L	L	0.354	0.024	0.028	0.031		0.037		R/L 02-GX 09-1		**681**
GX 09-1 S0.90 L	L	0.354	0.028	0.031	0.035		0.041		R/L 02-GX 09-1		**683**
GX 09-1 S1.00 L	L	0.354	0.031	0.035	0.039		0.045		R/L 02-GX 09-1		**684**
GX 09-1 S1.20 L	L	0.354	0.039	0.043	0.047		0.053		R/L 02-GX 09-1		**686**
GX 09-1 S1.40 L	L	0.354	0.047	0.051	0.055		0.060		R/L 02-GX 09-1		**688**
GX 09-1 S1.70 L	L	0.354	0.059	0.063	0.067		0.072		R/L 02-GX 09-1		**690**
GX 16-2 S0.60 L	L	0.630	0.016	0.020	0.024		0.030		R/L 03-GX 16-2		**607**
GX 16-2 S0.80 L	L	0.630	0.024	0.028	0.031		0.037		R/L 03-GX 16-2		**609**
GX 16-2 S0.90 L	L	0.630	0.028	0.031	0.035		0.041		R/L 03-GX 16-2		**611**
GX 16-2 S1.00 L	L	0.630	0.031	0.035	0.039		0.045		R/L 03-GX 16-2		**612**
GX 16-2 S1.20 L	L	0.630	0.039	0.043	0.047		0.053		R/L 03-GX 16-2		**614**
GX 16-2 S1.40 L	L	0.630	0.047	0.051	0.055		0.060		R/L 03-GX 16-2		**616**
GX 16-2 S1.70 L	L	0.630	0.059	0.063	0.067		0.072		R/L 03-GX 16-2		**618**
GX 16-2 S1.95 L	L	0.630	0.069	0.073	0.077		0.081		R/L 03-GX 16-2		**620**
GX 16-2 S2.25 L	L	0.630	0.079	0.085	0.089		0.093		R/L 03-GX 16-2		**622**
GX 09-1 S1.95 N	N	0.354	0.069	0.073	0.077	0.004		0.079	GX 09-1	**692**	
GX 09-1 S2.25 N	N	0.354	0.079	0.085	0.089	0.004		0.079	GX 09-1	**694**	
GX 09-2 S2.75 N	N	0.354	0.098	0.104	0.108	0.004		0.079	GX 09-2	**696**	
GX 09-2 S3.25 N	N	0.354	0.118	0.124	0.128	0.004		0.079	GX 09-2	**698**	
GX 16-2 S2.75 N	N	0.630	0.098	0.104	0.108	0.004		0.118	GX 16-2	**624**	
GX 16-2 S3.25 N	N	0.630	0.118	0.124	0.128	0.004		0.118	GX 16-2	**626**	
GX 16-3 S4.25 N	N	0.630	0.157	0.163	0.167	0.008		0.138	GX 16-3	**628**	
GX 16-4 S5.25 N	N	0.630	0.197	0.203	0.207	0.008		0.157	GX 16-4	**630**	
GX 09-1 S0.60 R	R	0.354	0.016	0.020	0.024		0.030		R/L 02-GX 09-1		**670**
GX 09-1 S0.80 R	R	0.354	0.024	0.028	0.031		0.037		R/L 02-GX 09-1		**672**
GX 09-1 S0.90 R	R	0.354	0.028	0.031	0.035		0.041		R/L 02-GX 09-1		**674**
GX 09-1 S1.00 R	R	0.354	0.031	0.035	0.039		0.045		R/L 02-GX 09-1		**676**
GX 09-1 S1.20 R	R	0.354	0.039	0.043	0.047		0.053		R/L 02-GX 09-1		**678**
GX 09-1 S1.40 R	R	0.354	0.047	0.051	0.055		0.060		R/L 02-GX 09-1		**680**
GX 09-1 S1.70 R	R	0.354	0.059	0.063	0.067		0.072		R/L 02-GX 09-1		**682**
GX 16-2 S0.60 R	R	0.630	0.016	0.020	0.024		0.030		R/L 03-GX 16-2		**695**
GX 16-2 S0.80 R	R	0.630	0.024	0.028	0.031		0.037		R/L 03-GX 16-2		**697**
GX 16-2 S0.90 R	R	0.630	0.028	0.031	0.035		0.041		R/L 03-GX 16-2		**699**
GX 16-2 S1.00 R	R	0.630	0.031	0.035	0.039		0.045		R/L 03-GX 16-2		**600**
GX 16-2 S1.20 R	R	0.630	0.039	0.043	0.047		0.053		R/L 03-GX 16-2		**602**
GX 16-2 S1.40 R	R	0.630	0.047	0.051	0.055		0.060		R/L 03-GX 16-2		**604**
GX 16-2 S1.70 R	R	0.630	0.059	0.063	0.067		0.072		R/L 03-GX 16-2		**606**
GX 16-2 S1.95 R	R	0.630	0.069	0.073	0.077		0.081		R/L 03-GX 16-2		**608**
GX 16-2 S2.25 R	R	0.630	0.079	0.085	0.089		0.093		R/L 03-GX 16-2		**610**

P	●	●
M	●	●
K	●	●
N	○	○
S	●	●
H		
O	○	○

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→ Application recommendation on page 79

Attention – applies only to internal machining:
Right-hand insert → left-hand module or monobloc boring bar
Left-hand insert → right-hand module or monobloc boring bar

Internal machining

→ 38+39

GX 09

→ 41

GX 16

metric

External machining

→ 36+37

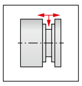
GX 09

→ 40

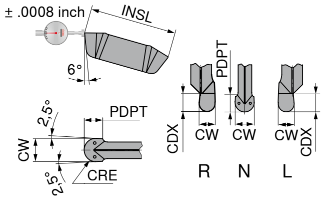
GX 16

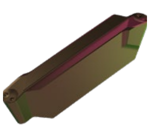
metric

Radius groove insert GX 09/16



F	M	R





Designation	IH inch	INSL inch	CW +/-0,02 inch	CRE inch	PDPT inch	CDX inch	for tool holder	CTCP325 DRAGONSKIN 70 354 ...	CTCP325 DRAGONSKIN 70 354 ...	CTP1340 DRAGONSKIN 70 354 ...
GX 09-1 R0.80 L	L	0.354	0.063	0.031		0.070	R/L 02-GX 09-1	**988**		
GX 16-2 R0.80 L	L	0.630	0.063	0.031		0.070	R/L 03-GX 16-2	**912**		
GX 16-2 R1.00 L	L	0.630	0.079	0.039		0.086	R/L 03-GX 16-2	**916**		
GX 16-2 R1.20 L	L	0.630	0.094	0.047		0.102	R/L 03-GX 16-2	**920**		
GX 09-1 R1.00 N	N	0.354	0.079	0.039	0.039		GX 09-1		**992**	
GX 09-1 R1.20 N	N	0.354	0.094	0.047	0.047		GX 09-1		**996**	
GX 16-2 R1.50 N	N	0.630	0.118	0.059	0.059		GX 16-2		**924**	**624**
GX 16-3 R2.00 N	N	0.630	0.157	0.079	0.079		GX 16-3		**928**	**628**
GX 16-3 R2.50 N	N	0.630	0.197	0.098	0.098		GX 16-3		**932**	**632**
GX 16-4 R3.00 N	N	0.630	0.236	0.118	0.118		GX 16-4		**936**	**636**
GX 09-1 R0.80 R	R	0.354	0.063	0.031		0.070	R/L 02-GX 09-1	**984**		
GX 16-2 R0.80 R	R	0.630	0.063	0.031		0.070	R/L 03-GX 16-2	**900**		
GX 16-2 R1.00 R	R	0.630	0.079	0.039		0.086	R/L 03-GX 16-2	**904**		
GX 16-2 R1.20 R	R	0.630	0.094	0.047		0.102	R/L 03-GX 16-2	**908**		

P	●	●	●
M	○	○	●
K	●	●	●
N			○
S	○	○	●
H			
O			○

→ v_c Page 77

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Attention – applies only to internal machining:
Right-hand insert → left-hand module or monobloc boring bar
Left-hand insert → right-hand module or monobloc boring bar

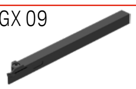
Internal machining

GX 09

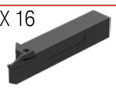
GX 16

External machining

GX 09



GX 16

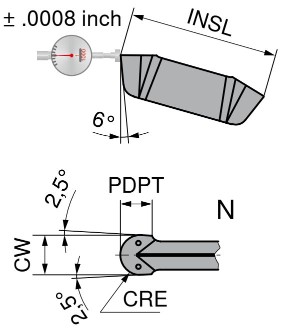


→ 38+39 | → 41 | metric | → 36+37 | → 40 | metric

Radius groove insert GX 16

- Insert with highly positive cutting edge geometry and sharp cutting edge, polished chip breaker
- ground periphery

F	M	R
●	●	



-27P
H216T

Designation	INSL inch	CW +/-0,02 inch	CRE inch	PDPT inch	for tool holder	70 354 ...
GX 16-2 R1.50 N	0.630	0.118	0.059	0.059	GX 16-2	**674**
GX 16-3 R2.00 N	0.630	0.157	0.079	0.079	GX 16-3	**678**
GX 16-3 R2.50 N	0.630	0.197	0.098	0.098	GX 16-3	**682**

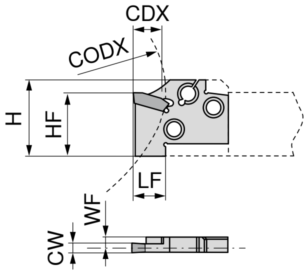
P	
M	
K	●
N	●
S	○
H	
O	○

→ v_c Page 77
→ Application recommendation on page 79

Internal machining		*External machining*	
			
→ 38+39	metric	→ 36+37	metric

ModularClamp MSS – Radial grooving module GX 09/16

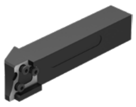
- For circlip grooves ≤ 0.1083 inch
- For radius grooves up to ≤ 0.0472 inch
- For external recessing



Illustrations show right-hand versions

Designation	CW inch	WF inch	LF inch	HF inch	H inch	CODX inch	CDX inch	for grooving inserts	Left-hand 70 871 ...	Right-hand 70 870 ...
E12 R/L 02-GX 09-1	<0.077	0.124	0.315	0.472	0.571	1.417	0.079	GX 09-1 ..R/L	**112**	**112**
E16 R/L 02-GX 09-1	<0.077	0.124	0.315	0.630	0.768	1.890	0.079	GX 09-1 ..R/L	**116**	**116**
E20 R/L 03-GX 16-2	<0.108	0.134	0.512	0.787	0.945	2.362	0.118	GX 16-2 ..R/L	**120**	**120**
E25 R/L 03-GX 16-2	<0.108	0.193	0.512	0.984	1.181	2.953	0.118	GX 16-2 ..R/L	**125**	**125**
E32 R/L 03-GX 16-2	<0.108	0.193	0.512	1.260	1.496	3.780	0.118	GX 16-2 ..R/L	**132**	**132**

→ 28–35

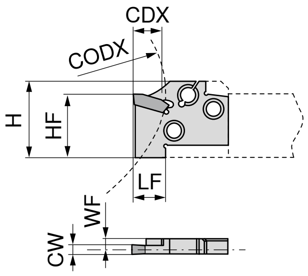


→ 69–71

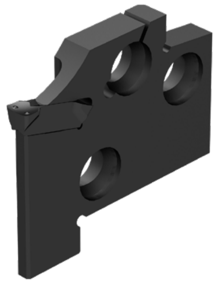
metric

ModularClamp MSS – Radial grooving module GX 09/16

- For grooving and turning
- For circlip grooves ≤ 0.2067 inch
- For radius grooves up to ≤ 0.0984 inch
- For external recessing

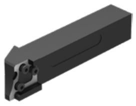


Illustrations show right-hand versions



Designation	CW inch	WF inch	LF inch	HF inch	H inch	CODX inch	CDX inch	for grooving inserts	Left-hand 70 866 ...	Right-hand 70 865 ...
E12 R/L 07-GX 09-1	0.079 - 0.108	0.124	0.315	0.472	0.571	1.417	0.276	GX 09-1 ..N	**012**	**012**
E12 R/L 07-GX 09-2	0.109 - 0.148	0.124	0.315	0.472	0.571	1.417	0.276	GX 09-2 ..N	**112**	**112**
E16 R/L 07-GX 09-1	0.079 - 0.108	0.124	0.315	0.630	0.768	1.890	0.276	GX 09-1 ..N	**016**	**016**
E16 R/L 07-GX 09-2	0.109 - 0.148	0.124	0.315	0.630	0.768	1.890	0.276	GX 09-2 ..N	**116**	**116**
E20 R/L 12-GX 16-1	0.079 - 0.108	0.148	0.512	0.787	0.945	2.362	0.472	GX 16-1 ..N	**020**	**020**
E20 R/L 12-GX 16-2	0.109 - 0.148	0.134	0.512	0.787	0.945	2.362	0.472	GX 16-2 ..N	**120**	**120**
E20 R/L 12-GX 16-3	0.148 - 0.197	0.115	0.512	0.787	0.945	2.362	0.472	GX 16-3 ..N	**220**	**220**
E25 R/L 12-GX 16-1	0.079 - 0.108	0.207	0.512	0.984	1.181	2.953	0.472	GX 16-1 ..N	**025**	**025**
E25 R/L 12-GX 16-2	0.109 - 0.148	0.193	0.512	0.984	1.181	2.953	0.472	GX 16-2 ..N	**125**	**125**
E25 R/L 12-GX 16-3	0.148 - 0.197	0.174	0.512	0.984	1.181	2.953	0.472	GX 16-3 ..N	**225**	**225**
E25 R/L 12-GX 16-4	0.197 - 0.256	0.150	0.512	0.984	1.181	2.953	0.472	GX 16-4 ..N	**325**	**325**
E32 R/L 12-GX 16-2	0.109 - 0.148	0.193	0.512	1.260	1.496	3.780	0.472	GX 16-2 ..N	**132**	**132**
E32 R/L 12-GX 16-3	0.148 - 0.197	0.174	0.512	1.260	1.496	3.780	0.472	GX 16-3 ..N	**232**	**232**
E32 R/L 12-GX 16-4	0.197 - 0.256	0.150	0.512	1.260	1.496	3.780	0.472	GX 16-4 ..N	**332**	**332**

→ 28–35

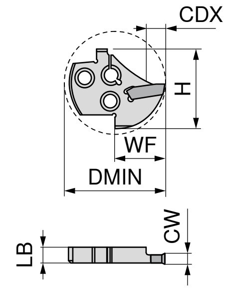


→ 69–71

metric

ModularClamp MSS – Radial Grooving module GX 09/16 for Internal machining

- For circlip grooves ≤ 0.1083 inch
- For radius grooves up to ≤ 0.0472 inch



Illustrations show right-hand versions

Designation	CW inch	LB inch	WF inch	H inch	CDX inch	DMIN inch	for grooving inserts	Left-hand 70 886 ...	Right-hand 70 885 ...
I16 R/L 02-GX 09-1	<0.077	0.150	0.394	0.646	0.079	0.787	GX 09-1 ..R/L	**016**	**016**
I20 R/L 02-GX 09-1	<0.077	0.150	0.472	0.799	0.079	0.984	GX 09-1 ..R/L	**020**	**020**
I25 R/L 02-GX 09-1	<0.077	0.150	0.610	0.980	0.079	1.260	GX 09-1 ..R/L	**025**	**025**
I32 R/L 03-GX 16-2	<0.108	0.232	0.787	1.268	0.118	1.575	GX 16-2 ..R/L	**032**	**032**
I40 R/L 03-GX 16-2	<0.108	0.232	0.965	1.559	0.118	1.969	GX 16-2 ..R/L	**040**	**040**

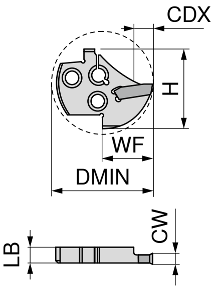
Right hand module → left hand insert only
Left hand module → right hand insert only

→ 28–35

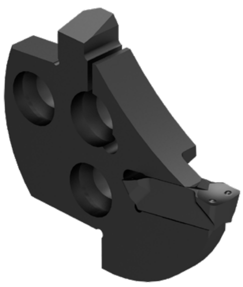
→ 72

ModularClamp MSS – Radial Grooving module 09/16 for Internal machining

- ▲ For circlip grooves ≤ 0.2067 inch
- ▲ For radius grooves up to ≤ 0.0984 inch



Illustrations show right-hand versions

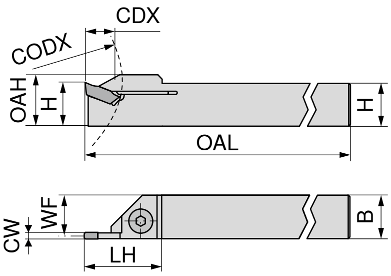


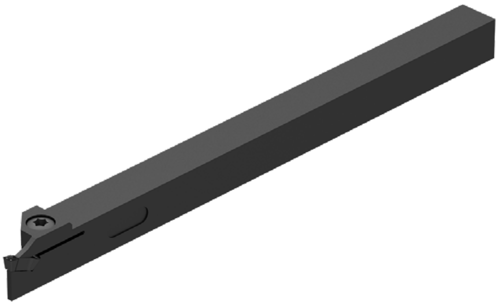
Designation	CW inch	LB inch	WF inch	H inch	CDX inch	DMIN inch	for grooving inserts	Left-hand 70 881 ...	Right-hand 70 880 ...
I16 R/L 04-GX 09-1	0.079 - 0.108	0.150	0.394	0.646	0.157	0.787	GX 09-1 ..N	**017**	**017**
I16 R/L 04-GX 09-2	0.109 - 0.148	0.150	0.394	0.646	0.157	0.787	GX 09-2 ..N	**117**	**117**
I20 R/L 05-GX 09-1	0.079 - 0.108	0.150	0.472	0.799	0.197	0.984	GX 09-1 ..N	**021**	**021**
I20 R/L 05-GX 09-2	0.109 - 0.148	0.150	0.472	0.799	0.197	0.984	GX 09-2 ..N	**121**	**121**
I25 R/L 06-GX 09-1	0.079 - 0.108	0.150	0.610	0.980	0.236	1.260	GX 09-1 ..N	**026**	**026**
I25 R/L 06-GX 09-2	0.109 - 0.148	0.150	0.610	0.980	0.236	1.260	GX 09-2 ..N	**126**	**126**
I32 R/L 09-GX 16-1	0.079 - 0.108	0.232	0.787	1.268	0.354	1.575	GX 16-1 ..N	**033**	**033**
I32 R/L 09-GX 16-2	0.109 - 0.148	0.232	0.787	1.268	0.354	1.575	GX 16-2 ..N	**133**	**133**
I32 R/L 09-GX 16-3	0.148 - 0.197	0.232	0.787	1.268	0.354	1.575	GX 16-3 ..N	**233**	**233**
I32 R/L 09-GX 16-4	0.197 - 0.256	0.232	0.787	1.268	0.354	1.575	GX 16-4 ..N	**333**	**333**
I40 R/L 10-GX 16-1	0.079 - 0.108	0.232	0.965	1.559	0.394	1.969	GX 16-1 ..N	**041**	**041**
I40 R/L 10-GX 16-2	0.109 - 0.148	0.232	0.965	1.559	0.394	1.969	GX 16-2 ..N	**141**	**141**
I40 R/L 10-GX 16-3	0.148 - 0.197	0.232	0.965	1.559	0.394	1.969	GX 16-3 ..N	**241**	**241**
I40 R/L 10-GX 16-4	0.197 - 0.256	0.232	0.965	1.559	0.394	1.969	GX 16-4 ..N	**341**	**341**

→ 28-35

→ 72

MonoClamp – Radial Monoholder GX 09

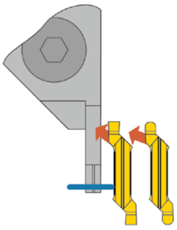




Illustrations show right-hand versions

Designation	H inch	B inch	CW inch	WF inch	OAH inch	OAL inch	LH inch	CODX inch	CDX inch	for grooving inserts	Left-hand **78 863 ...**	Right-hand **78 862 ...**
E10 R/L 00-06-GX09-E	0.375	0.375	0.079 - 0.138	0.349	0.472	6.000	0.709	1.181	0.270	GX 09 ..	**03800**	**03800**

When using "R" or "L" tools the tool must be modified at the end face to ensure cutting clerance.



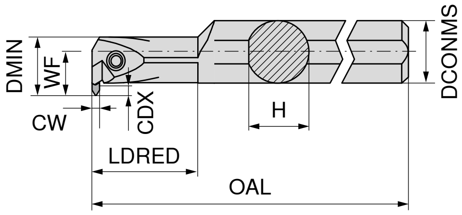
Screwdriver

Clamping screw

Spare parts for grooving inserts		Screwdriver **80 950 ...**		Clamping screw **70 950 ...**
GX 09 ..	T15	**113**	M4x11	**442**

→ 28-34

MonoClamp – Radial Mono-boring bars GX 09

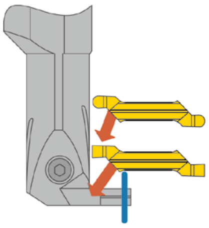


Illustrations show right-hand versions

Designation	H inch	DCONMS inch	DMIN inch	CW inch	CDX inch	WF inch	OAL inch	LDRED inch	for grooving inserts	Left-hand 78 859 ...	Right-hand 78 858 ...
I12 R/L 90-2.5D-GX09-E	0.600	0.625	0.630	0.079 - 0.148	0.118	0.433	6.000	1.181	GX 09 ..	**06300**	**06300**

Right hand boring bar→ left hand insert only
Left hand boring bar→ right hand insert only

When using "R" or "L" tools the insert support seat requires modification to prevent the insert fouling.



Screwdriver

Clamping screw

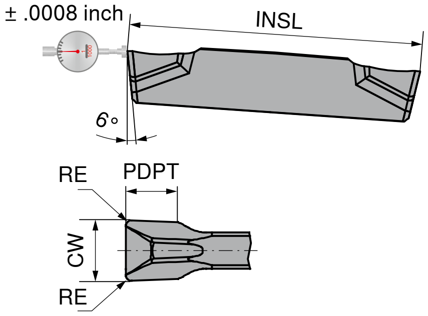
Spare parts **for grooving inserts**		**80 950 ...**		**70 950 ...**
GX 09 ..	T15	**113**	M3,5x12,5	**441**

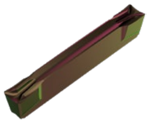
→ 28–34

Insert GX 24

- ▲ Insert with ground periphery
- ▲ Suitable also for parting off tubes and thin-walled workpieces

F	M	R
●		



-F2 CTCP325	-F2 CTPP345	-F2 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		

Designation	INSL inch	CW +/-0,02 inch	RE +/-0,05 inch	PDPT inch	for tool holder	70 350 ...	70 350 ...	70 350 ...
GX 24-2 E3.00 N 0.30	0.945	0.118	0.012	0.098	GX 24-2	**962**	**862**	**662**
GX 24-2 E3.50 N 0.30	0.945	0.138	0.012	0.098	GX 24-2		**864**	
GX 24-3 E4.00 N 0.40	0.945	0.157	0.016	0.118	GX 24-3	**966**	**866**	**666**
GX 24-3 E5.00 N 0.40	0.945	0.197	0.016	0.138	GX 24-3	**970**	**870**	**671**
GX 24-4 E6.00 N 0.50	0.945	0.236	0.020	0.157	GX 24-4		**872**	**672**

	CTCP325	CTPP345	CTP1340
P	●	●	●
M	○	●	●
K	●		●
N			○
S	○	○	●
H			
O			○

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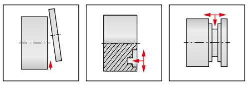
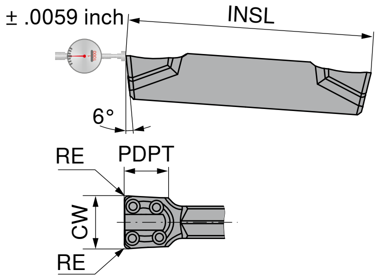
→ Application recommendation on page 78

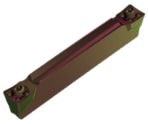
Internal machining		*External machining*			
					
→ 50	metric	→ 49-52	→ 53	→ 54	metric

Insert GX 24



F	M	R
		





Designation	INSL	CW $_{+/-0,05}$	RE $_{+/-0,05}$	PDPT	for tool holder	-E CTCP325 DRAGONSKIN 70 350 ...	-E CTCP335 DRAGONSKIN 70 350 ...	-E CTPP345 DRAGONSKIN 70 350 ...	-E CTP1340 DRAGONSKIN 70 350 ...
	inch	inch	inch	inch					
GX 24-2 E3.00 N 0.30	0.945	0.118	0.012	0.098	GX 24-2	**932**	**532**	**832**	**632**
GX 24-3 E4.00 N 0.40	0.945	0.157	0.016	0.118	GX 24-3	**936**	**536**	**836**	**636**
GX 24-3 E5.00 N 0.40	0.945	0.197	0.016	0.118	GX 24-3	**940**	**540**	**840**	**640**
GX 24-4 E6.00 N 0.50	0.945	0.236	0.020	0.138	GX 24-4	**944**	**544**	**844**	**644**

P	●	●	●	●
M	○	○	●	●
K	●	●		●
N				○
S	○		○	●
H				
O				○

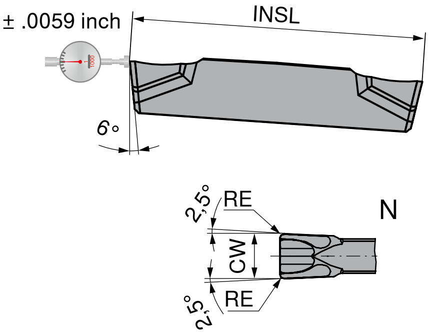
→ v_c Page 77
→ Application recommendation on page 78

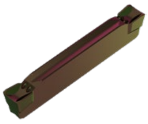
Internal machining		*External machining*						
								
→ 50	metric	→ 49–52	→ 53	→ 54	metric			

Insert GX 24

▲ Very good chip control

F	M	R
		



-M1 CTCP325	-M1 CTPP345	-M1 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		

Designation	INSL inch	CW +/-0,05 inch	RE +/-0,05 inch	for tool holder	70 363 ...	70 363 ...	70 363 ...
GX 24-1 E2.00 N 0.20	0.945	0.079	0.008	GX 24-1	**900**	**800**	**600**
GX 24-2 E3.00 N 0.20	0.945	0.118	0.008	GX 24-2	**902**	**802**	**602**
GX 24-3 E4.00 N 0.30	0.945	0.157	0.012	GX 24-3	**904**	**804**	**604**

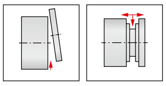
	CTCP325	CTPP345	CTP1340
P	●	●	●
M	○	●	●
K	●		●
N			○
S	○	○	●
H			
O			○

→ v_c Page 77
→ Application recommendation on page 79

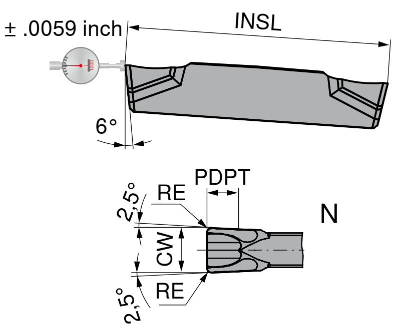
Internal machining		*External machining*			
					
→ 50	metric	→ 49–52	→ 53	→ 54	metric

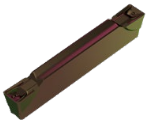
Insert GX 24

▲ Very good chip control



F	M	R
		



-M40 CTCP325	-M40 CTPP345	-M40 CTP1340
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
		

Designation	INSL inch	CW +/-0,05 inch	RE +/-0,05 inch	PDPT inch	for tool holder	70 364 ...	70 364 ...	70 364 ...
GX 24-2 E3.00 N 0.30	0.945	0.118	0.012	0.138	GX 24-2	**900**	**800**	**600**
GX 24-3 E4.00 N 0.40	0.945	0.157	0.016	0.157	GX 24-3	**902**	**802**	**602**
GX 24-3 E5.00 N 0.40	0.945	0.197	0.016	0.157	GX 24-3	**904**	**804**	**604**
GX 24-4 E6.00 N 0.50	0.945	0.236	0.020	0.157	GX 24-4	**906**	**806**	**606**

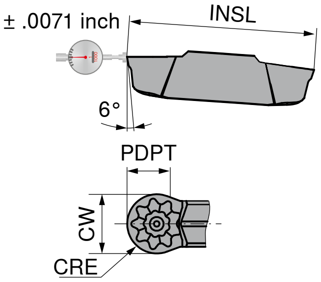
P	●	●	●
M	○	●	●
K	●		●
N			○
S	○	○	●
H			
O			○

→ v_c Page 77
→ Application recommendation on page 78

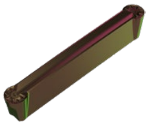
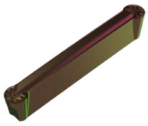
Internal machining		*External machining*			
					
→ 50	metric	→ 49–52	→ 53	→ 54	metric

Radius groove insert GX 24

F	M	R



-M3 CTCP325	-M3 CTCP335
DRAGONSKIN	DRAGONSKIN
○ ○ ○	○ ○ ○

Designation	INSL inch	CW +/-0,05 inch	CRE inch	PDPT inch	for tool holder	70 354 ...	70 354 ...
GX 24-2 R1.50 N	0.961	0.118	0.059	0.059	GX 24-2	**952**	**552**
GX 24-3 R2.00 N	0.961	0.157	0.079	0.098	GX 24-3	**954**	**554**
GX 24-3 R2.50 N	0.961	0.197	0.098	0.118	GX 24-3	**956**	**556**
GX 24-4 R3.00 N	0.961	0.236	0.118	0.157	GX 24-4	**958**	**558**

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→ v_c Page 77
→ Application recommendation on page 79

Internal machining

External machining

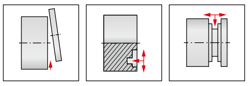





→ 50	metric	→ 49–52	→ 53	→ 54	metric

Insert GX 24

- Insert with highly positive cutting edge geometry and sharp cutting edge, polished chip breaker
- ground periphery



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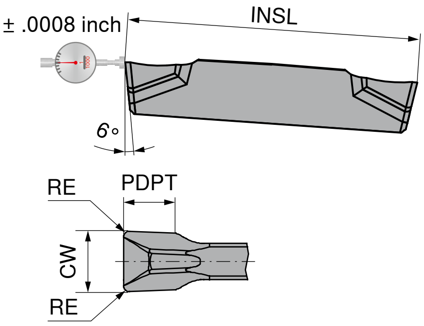

-27P
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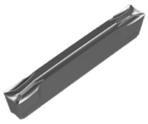

Designation	INSL inch	CW +/-0,02 inch	RE +/-0,05 inch	PDPT inch	for tool holder	70 350 ...
GX 24-2 E3.00 N 0.30	0.945	0.118	0.012	0.098	GX 24-2	**682**
GX 24-3 E4.00 N 0.40	0.945	0.157	0.016	0.118	GX 24-3	**684**
GX 24-3 E5.00 N 0.40	0.945	0.197	0.016	0.138	GX 24-3	**686**
GX 24-4 E6.00 N 0.50	0.945	0.236	0.020	0.157	GX 24-4	**688**

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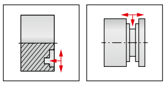
→ v_c Page 77
→ Application recommendation on page 78

Internal machining *External machining*

					
→ 50	metric	→ 49–52	→ 53	→ 54	metric

Radius grooving insert GX 24

- ▲ Insert with highly positive cutting edge geometry and sharp cutting edge, polished chip breaker
- ▲ ground periphery



F	M	R

-27PF
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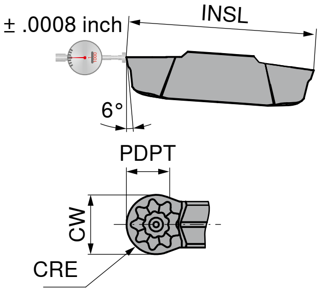

Designation	INSL inch	CW $_{+/-0,02}$ inch	CRE inch	PDPT inch	for tool holder	70 353 ...
GX 24-4 R3.00 N	1.000	0.236	0.118	0.157	GX 24-4	**500**
GX 24-5 R4.00 N	1.000	0.315	0.157	0.197	GX 24-5	**506**

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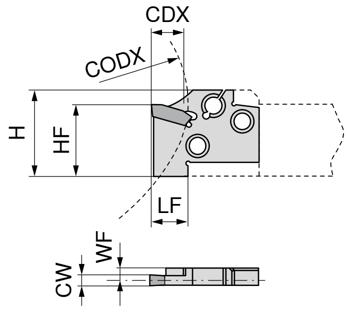
→ v_c Page 77
→ Application recommendation on page 79

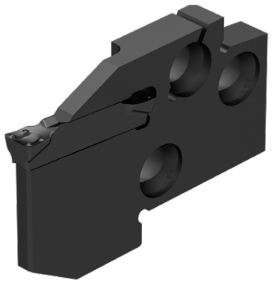
Internal machining		*External machining*						
								
→ 50	metric	→ 49–52	→ 53	→ 54	metric			

ModularClamp MSS – Radial grooving module GX 24

- For deep radial parting and grooving
- For turning

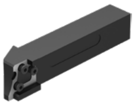


Illustrations show right-hand versions



Designation	CW inch	WF inch	LF inch	HF inch	H inch	CODX inch	CDX inch	for grooving inserts	Left-hand 70 868 ...	Right-hand 70 867 ...
E20 R/L 21-GX 24-1	0.079 - 0.108	0.152	0.866	0.787	0.945	2.362	0.827	GX 24-1	**020**	**020**
E20 R/L 21-GX 24-2	0.118	0.134	0.866	0.787	0.945	2.362	0.827	GX 24-2	**120**	**120**
E20 R/L 21-GX 24-3	0.157/0.197	0.118	0.866	0.787	0.945	1.181	0.827	GX 24-3	**22000**	**22000**
E25 R/L 21-GX 24-1	0.079 - 0.108	0.201	0.866	0.984	1.181	2.953	0.827	GX 24-1	**025**	**025**
E25 R/L 21-GX 24-2	0.118	0.193	0.866	0.984	1.181	2.953	0.827	GX 24-2	**125**	**125**
E25 R/L 21-GX 24-3	0.157/0.197	0.174	0.866	0.984	1.181	2.953	0.827	GX 24-3	**225**	**225**
E25 R/L 21-GX 24-4	0.236	0.150	0.866	0.984	1.181	2.953	0.827	GX 24-4	**325**	**325**
E25 R/L 21-GX 24-5	0.315	0.116	0.866	0.984	1.181	2.953	0.827	GX 24-5	**425**	**425**
E32 R 21-GX 24-2	0.118	0.195	0.866	1.260	1.496	1.890	0.827	GX 24-2		**13200**
E32 R/L 21-GX 24-3	0.157/0.197	0.174	0.866	1.260	1.496	3.780	0.827	GX 24-3	**232**	**232**
E32 R/L 21-GX 24-4	0.236	0.150	0.866	1.260	1.496	3.780	0.827	GX 24-4	**332**	**332**

→ 42–48

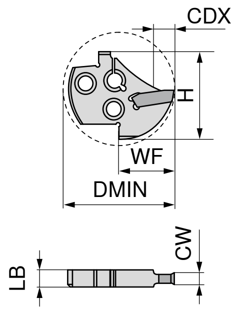


→ 69–71

metric

ModularClamp MSS – Radial Grooving module GX 24 for Internal machining

▲ for grooving and turning



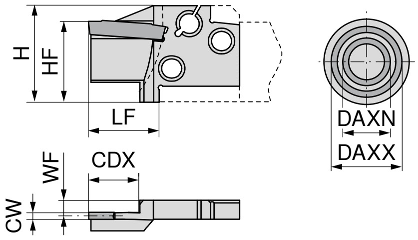
Designation	CW inch	LB inch	WF inch	H inch	CDX inch	DMIN inch	for grooving inserts	Neutral 70 880 ...
I40 N 19-GX 24-2	0.109 - 0.148	0.244	1.319	1.602	0.748	2.362	GX 24-2 ..N	**340**
I40 N 19-GX 24-3	0.148 - 0.197	0.244	1.319	1.602	0.748	2.362	GX 24-3 ..N	**440**
I40 N 19-GX 24-4	0.197 - 0.256	0.244	1.319	1.602	0.748	2.362	GX 24-4 ..N	**540**

→ 42-48

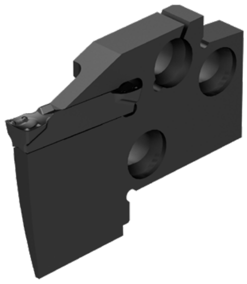
→ 72

ModularClamp MSS – Axial grooving module GX 24 short

- ▲ For axial grooving
- ▲ For face turning

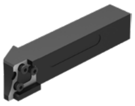


Illustrations show right-hand versions



Designation	DAXN inch	DAXX inch	CW inch	WF inch	LF inch	HF inch	H inch	CDX inch	for grooving inserts	Left-hand **70 891 ...**	Right-hand **70 890 ...**
E20 R/L 14-GX 24-2 A	1.969	2.756	0.118	0.134	0.866	0.787	0.945	0.551	GX 24-2	**100**	**100**
E20 R/L 14-GX 24-2 A	2.756	3.937	0.118	0.134	0.866	0.787	0.945	0.551	GX 24-2	**102**	**102**
E20 R/L 14-GX 24-2 A	3.937	5.906	0.118	0.134	0.866	0.787	0.945	0.551	GX 24-2	**104**	**104**
E25 R/L 15-GX 24-2 A	1.969	2.756	0.118	0.193	0.866	0.984	1.181	0.591	GX 24-2	**200**	**200**
E25 R/L 15-GX 24-2 A	2.756	3.937	0.118	0.193	0.866	0.984	1.181	0.591	GX 24-2	**202**	**202**
E25 R/L 15-GX 24-2 A	3.937	5.906	0.118	0.193	0.866	0.984	1.181	0.591	GX 24-2	**204**	**204**
E25 R/L 15-GX 24-3 A	1.969	2.756	0.157/0.197	0.174	0.866	0.984	1.181	0.591	GX 24-3	**206**	**206**
E25 R/L 15-GX 24-3 A	2.756	3.937	0.157/0.197	0.174	0.866	0.984	1.181	0.591	GX 24-3	**208**	**208**
E25 R/L 15-GX 24-3 A	3.937	5.906	0.157/0.197	0.174	0.866	0.984	1.181	0.591	GX 24-3	**210**	**210**
E25 R/L 15-GX 24-3 A	5.906	11.811	0.157/0.197	0.174	0.866	0.984	1.181	0.591	GX 24-3	**212**	**212**
E25 R/L 15-GX 24-4 A	1.969	2.756	0.236	0.150	0.866	0.984	1.181	0.591	GX 24-4	**214**	**214**
E25 R/L 15-GX 24-4 A	2.756	3.937	0.236	0.150	0.866	0.984	1.181	0.591	GX 24-4	**216**	**216**
E25 R/L 15-GX 24-4 A	3.937	5.906	0.236	0.150	0.866	0.984	1.181	0.591	GX 24-4	**218**	**218**
E25 R/L 15-GX 24-4 A	5.906	11.811	0.236	0.150	0.866	0.984	1.181	0.591	GX 24-4	**220**	**220**
E32 R/L 15-GX 24-3 A	2.756	3.937	0.157/0.197	0.174	0.866	1.260	1.496	0.591	GX 24-3	**300**	**300**
E32 R/L 15-GX 24-3 A	3.937	5.906	0.157/0.197	0.174	0.866	1.260	1.496	0.591	GX 24-3	**302**	**302**
E32 R/L 15-GX 24-3 A	5.906	11.811	0.157/0.197	0.174	0.866	1.260	1.496	0.591	GX 24-3	**304**	**304**
E32 R/L 15-GX 24-4 A	2.756	3.937	0.236	0.150	0.866	1.260	1.496	0.591	GX 24-4	**306**	**306**
E32 R/L 15-GX 24-4 A	3.937	5.906	0.236	0.150	0.866	1.260	1.496	0.591	GX 24-4	**308**	**308**
E32 R/L 15-GX 24-4 A	5.906	11.811	0.236	0.150	0.866	1.260	1.496	0.591	GX 24-4	**310**	**310**
E32 R/L 15-GX 24-4 A	11.811	35.433	0.236	0.150	0.866	1.260	1.496	0.591	GX 24-4	**312**	**312**

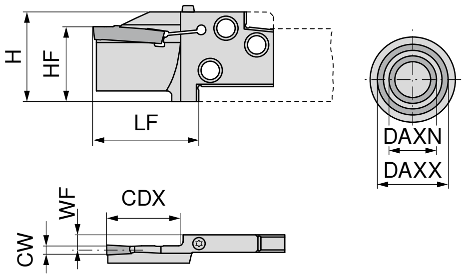

→ 42–48


→ 69–71


metric

ModularClamp MSS – Axial grooving module GX 24 long

- ▲ For axial grooving
- ▲ For face turning



Illustrations show right-hand versions

Designation	DAXN inch	DAXX inch	CW inch	WF inch	LF inch	HF inch	H inch	CDX inch	for grooving inserts	Left-hand 70 895 ...	Right-hand 70 894 ...
E25 R/L 21-GX 24-3 AS	1.969	2.756	0.157/0.197	0.178	1.378	0.984	1.181	0.827	GX 24-3	**200**	**200**
E25 R/L 21-GX 24-3 AS	2.756	3.937	0.157/0.197	0.178	1.378	0.984	1.181	0.827	GX 24-3	**202**	**202**
E25 R/L 21-GX 24-3 AS	3.937	5.906	0.157/0.197	0.178	1.378	0.984	1.181	0.827	GX 24-3	**204**	**204**
E25 R/L 21-GX 24-3 AS	5.906	11.811	0.157/0.197	0.178	1.378	0.984	1.181	0.827	GX 24-3	**206**	**206**
E25 R/L 25-GX 24-4 AS	1.969	2.756	0.236	0.154	1.378	0.984	1.181	0.984	GX 24-4	**210**	**210**
E25 R/L 25-GX 24-4 AS	2.756	3.937	0.236	0.154	1.378	0.984	1.181	0.984	GX 24-4	**212**	**212**
E25 R/L 25-GX 24-4 AS	3.937	5.906	0.236	0.154	1.378	0.984	1.181	0.984	GX 24-4	**214**	**214**
E25 R/L 25-GX 24-4 AS	5.906	11.811	0.236	0.154	1.378	0.984	1.181	0.984	GX 24-4	**216**	**216**

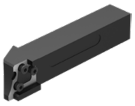
Axial modules version „GX 24 long“ can be clamped on both sides.

Screwdriver

Clamping screw

Spare parts for grooving inserts		Screwdriver 80 950 ...		Clamping screw 70 950 ...
GX 24-3	T15	**113**	M3,5x14	**160**
GX 24-4	T15	**113**	M3,5x14	**160**

→ 42–48



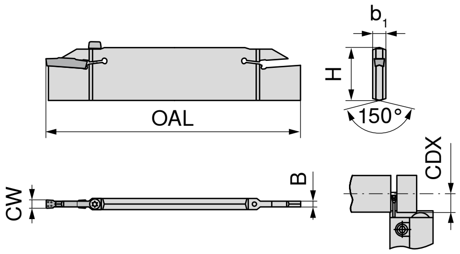
→ 69–71

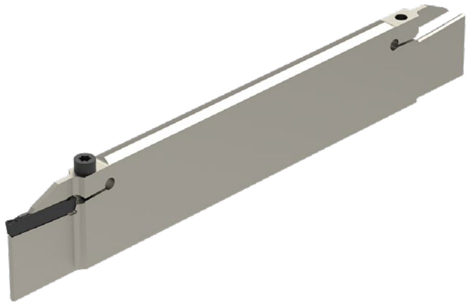
metric

MonoClamp – Radial Blade GX 24

Scope of supply:

Blade incl. clamping screw and tightening wrench



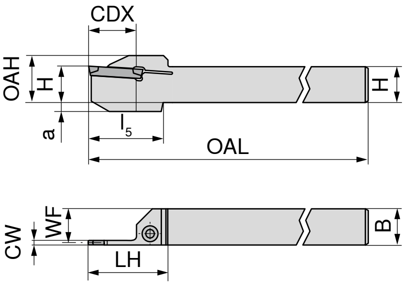


Designation	CW inch	H inch	B inch	b_1 inch	OAL inch	CDX inch	for grooving inserts	70 834 ...
XLCF N 3203-GX24-1S	0.079	1.260	0.041	0.244	7.087	0.827	GX 24-1	**102**
XLCF N 3203-GX24-2S	0.118	1.260	0.083	0.244	7.087	0.827	GX 24-2	**103**
XLCF N 3204-GX24-3S	0.157/0.197	1.260	0.120	0.244	7.087	0.827	GX 24-3	**104**
XLCF N 3206-GX24-4S	0.236	1.260	0.165	0.244	7.087	0.827	GX 24-4	**106**

Spare parts for grooving inserts	 Screwdriver	80 950 ...	 Clamping screw	70 950 ...
GX 24-1	T15	**113**	M3,5x14	**160**
GX 24-2	T15	**113**	M3,5x14	**160**
GX 24-3	T15	**113**	M3,5x14	**160**
GX 24-4	T15	**113**	M3,5x14	**160**

→ 42–48
→ 74+75
metric

MonoClamp – Radial Monoholder GX 24



Illustrations show right-hand versions

Designation	H	B	CW	WF	OAH	OAL	LH	l_5	CDX	a	for grooving inserts	Left-hand 78 863 ...	Right-hand 78 862 ...
	inch	inch	inch	inch	inch	inch	inch	inch	inch	inch			
E 16 R/L 0021-10C-GX24-2-E	0.625	0.625	0.109 - 0.148	0.586	0.822	5.000	1.378	1.260	0.827	0.162	GX 24-2	**26300**	**26300**
E 20 R/L 0021-12C-GX24-2-E	0.750	0.750	0.109 - 0.148	0.711	0.947	5.000	1.378		0.827		GX 24-2	**27500**	**27500**
E 20 R/L 0021-12C-GX24-3-E	0.750	0.750	0.148 - 0.197	0.692	0.947	5.000	1.378		0.827		GX 24-3	**37500**	**37500**
E 25 R/L 0021-16D-GX24-2-E	1.000	1.000	0.109 - 0.148	0.961	1.197	6.000	1.378		0.827		GX 24-2	**20000**	**20000**
E 25 R/L 0021-16D-GX24-3-E	1.000	1.000	0.148 - 0.197	0.942	1.197	6.000	1.378		0.827		GX 24-3	**30000**	**30000**
E 25 R/L 0021-16D-GX24-4-E	1.000	1.000	0.197 - 0.256	0.917	1.197	6.000	1.378		0.827		GX 24-4	**40000**	**40000**
E 32 R/L 0021-85D-GX24-2-E	1.250	1.000	0.109 - 0.148	0.961	1.447	6.000	1.378		0.827		GX 24-2	**22500**	**22500**
E 32 R/L 0021-85D-GX24-3-E	1.250	1.000	0.148 - 0.197	0.942	1.447	6.000	1.378		0.827		GX 24-3	**32500**	**32500**
E 32 R/L 0021-85D-GX24-4-E	1.250	1.000	0.197 - 0.256	0.917	1.447	6.000	1.378		0.827		GX 24-4	**42500**	**42500**

Screwdriver

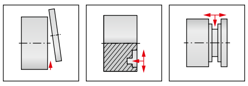
Clamping screw

Spare parts for grooving inserts		**80 950 ...**		**70 950 ...**
GX 24-2	T20	**114**	M4x18	**204**
GX 24-3	T20	**114**	M4x18	**204**
GX 24-4	T20	**114**	M4x18	**204**

→ 42–48

Insert LX

- ▲ Grooving width 0.315 and 0.394 inch
- ▲ Axial grooving from Ø 19.7 inch onwards
- ▲ Internal grooving and turning, from Ø 7.9 inch onwards



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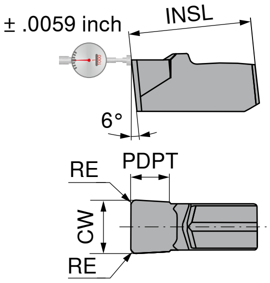

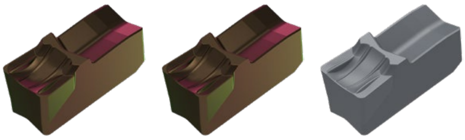

Designation	INSL inch	CW -/+0,08 inch	RE +/-0,1 inch	PDPT inch	for tool holder	**-M2** CTCP325 DRAGONSKIN ● ○ ○ **70 337 ...**	**-M2** CTCP335 DRAGONSKIN ○ ● ○ **70 337 ...**	**-M2** CTP1340 DRAGONSKIN ○ ● ○ **70 337 ...**
LXE 8.00N0.80-M2	0.748	0.315	0.031	0.197	E32 N ..-LX	**928**	**578**	**682**
LXE 10.00N0.80-M2	0.748	0.394	0.031	0.197	E32 N ..-LX	**932**	**582**	**678**

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M	○	○	●
K	●	●	●
N			○
S	○		●
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O			○

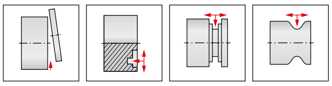
→ v_c Page 77
→ Application recommendation on page 82

5

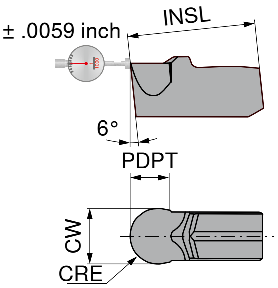
Internal machining		*External machining*						
								
→ 57		→ 57	→ 58					

Radial Grooving Insert LX

- ▲ Grooving width 0.315 inch
- ▲ Axial grooving from Ø 19.7 inch
- ▲ Internal grooving and turning, from Ø 7.9 inch



F	M	R



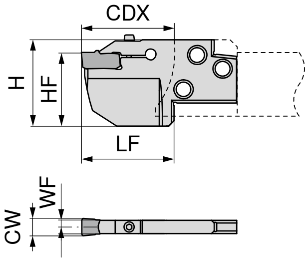
Designation	INSL inch	CW $_{-/+0,08}$ inch	CRE inch	PDPT inch	for tool holder	-M3 CTCP325 DRAGONSKIN ● ○ ○ 70 337 ...	-M3 CTCP335 DRAGONSKIN ○ ● ○ 70 337 ...	-M3 CTP1340 DRAGONSKIN ○ ● ○ 70 337 ...
LXR 4.00N-M3	0.748	0.315	0.157	0.197	E32 N ..-LX	908	518	618
P						●	●	●
M						○	○	●
K						●	●	●
N								○
S						○		●
H								
O								○

→ v_c Page 77
→ Application recommendation on page 82

Internal machining		*External machining*						
								
→ 57		→ 57	→ 58					

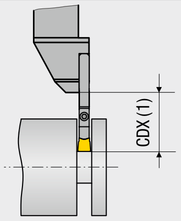
ModularClamp MSS – Axial and radial grooving module LX

- Grooving width 0.315 and 0.94 inch
- Axial grooving from Ø 19.7 inch onwards
- Internal grooving and turning, from Ø 7.9 inch onwards

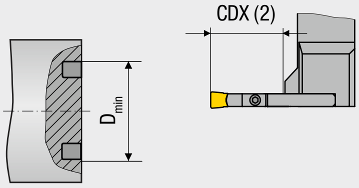


Designation	CW inch	WF inch	LF inch	HF inch	H inch	CDX (1) inch	CDX (2) inch	CDX (3) inch	for grooving inserts	Neutral 70 835 ...
E32 N 25-LX	0.315/0.394	0.134	1.063	1.260	1.732	0.984	0.748	0.551	LX ..	**032**
E32 N 32-LX	0.315/0.394	0.134	1.457	1.260	1.732	1.260	1.024	0.827	LX ..	**132**
E32 N 45-LX	0.315/0.394	0.134	1.850	1.260	1.732	1.772	1.535	1.339	LX ..	**232**

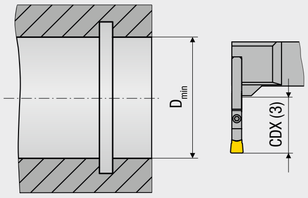
Radial grooving



Axial grooving D_{min} > 19.7 inch



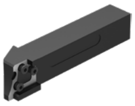
Internal grooving D_{min} > 7.9 inch



Screwdriver

Clamping screw

Spare parts **for grooving inserts**	Screwdriver	80 950 ...	Clamping screw	70 950 ...
LX ..	T20	**114**	M4x18	**204**



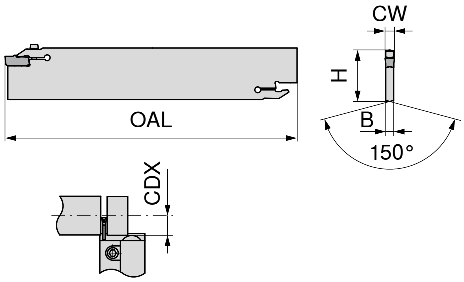
→ 55+56

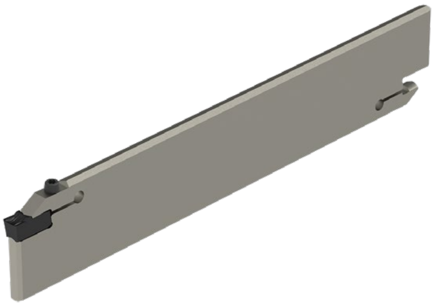
→ 69–71

MonoClamp – Blade LX

Scope of supply:

Blade incl. clamping screw and tightening wrench





Designation	H inch	B inch	OAL inch	CW inch	CDX inch	for grooving inserts	70 833 ...
XLCEN 4608-LX	1.811	0.268	9.843	0.315/0.394	3.150	LX ..	**108**


Screwdriver


Clamping screw

Spare parts for grooving inserts		80 950 ...		70 950 ...
LX ..	T20	**114**	M4x18	**204**


→ 55+56


→ 74+75


metric

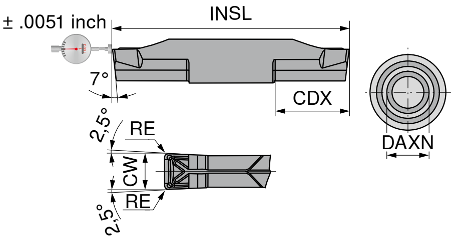
Grooving insert AX

- ▲ very good chip control
- ▲ DAXN minimum groove diameter refers to the outside diameter

F	M	R

-F50
CTP1340

DRAGONSKIN



70 327 ...

Designation	IH inch	INSL inch	CW +/-0,02 inch	RE +/-0,05 inch	CDX inch	DAXN inch	for tool holder	
AX 05 E3.00 N 0.30	N	0.945	0.118	0.012	0.197	0.394	E.. R/L.. -AX 05	**005**
AX 10 E3.00 N 0.30	N	1.339	0.118	0.012	0.394	0.787	E.. R/L.. -AX 10	**010**
AX 15 E3.00 N 0.30	N	1.732	0.118	0.012	0.591	1.181	E.. R/L.. -AX 15	**015**

P	●
M	●
K	●
N	○
S	●
H	
O	○

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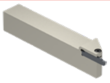
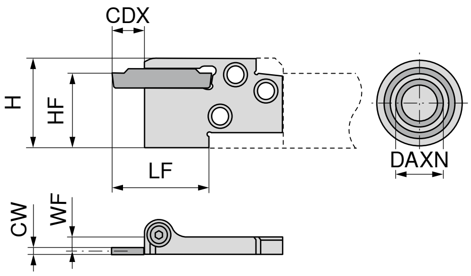
→ Application recommendation on page 83

5

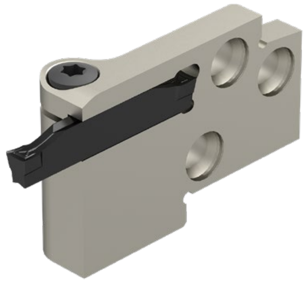
Internal machining		*External machining*						
								
		→ 60	metric	metric				

ModularClamp MSS – Axial grooving module AX

▲ for axial grooving and turning



Illustrations show right-hand versions



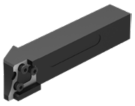
Designation	HF inch	CW inch	WF inch	LF inch	H inch	DAXN inch	CDX inch	for grooving inserts	Left-hand 70 827 ...	Right-hand 70 828 ...
E16 R/L 05-AX 05	0.630	0.118	0.098	0.945	0.807	0.394	0.197	AX05	**016**	**016**
E20 R/L 05-AX 05	0.787	0.118	0.122	1.102	0.984	0.394	0.197	AX05	**020**	**020**
E25 R/L 05-AX 05	0.984	0.118	0.181	1.083	1.181	0.394	0.197	AX05	**025**	**025**
E20 R/L 10-AX 10	0.787	0.118	0.122	1.299	0.984	0.787	0.394	AX10	**120**	**120**
E25 R/L 10-AX 10	0.984	0.118	0.181	1.280	1.181	0.787	0.394	AX10	**125**	**125**
E20 R/L 15-AX 15	0.787	0.118	0.122	1.732	0.984	1.181	0.591	AX15	**220**	**220**
E25 R/L 15-AX 15	0.984	0.118	0.181	1.713	1.181	1.181	0.591	AX15	**225**	**225**

Screwdriver

Clamping screw

Spare parts for Article no.	Screwdriver	80 950 ...	Clamping screw	70 950 ...
70 827 016 / 70 828 016	T15	**113**	M3,5x12,5	**441**
70 827 020 / 70 828 020	T15	**113**	M4x14	**403**
70 827 025 / 70 828 025	T20	**114**	M5x18	**404**
70 827 120 / 70 828 120	T15	**113**	M4x14	**403**
70 827 125 / 70 828 125	T20	**114**	M5x18	**404**
70 827 220 / 70 828 220	T15	**113**	M4x14	**403**
70 827 225 / 70 828 225	T20	**114**	M5x18	**404**

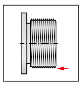
→ 59



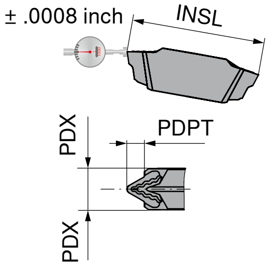
→ 69–71

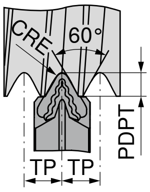
metric

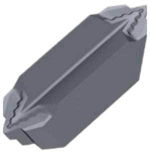
Threading inserts TC full profile – External thread ISO 60°

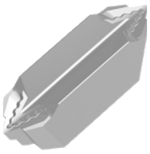


F	M	R
		









Designation	Size	TP mm	INSL inch	PDPT inch	PDX inch	CRE inch	for tool holder	CTPP520 DRAGONSKIN 70 357 ...	CTPP535 DRAGONSKIN 70 357 ...	-27P H216T 70 357 ...
TC 16-1 E 0.5 ISO	TC 16-1 ...	0.50	0.630	0.013	0.041	0.002	E.. R/L TC 16-1	010	110	610
TC 16-1 E 0.75 ISO	TC 16-1 ...	0.75	0.630	0.019	0.041	0.004	E.. R/L TC 16-1	012	112	612
TC 16-1 E 1.0 ISO	TC 16-1 ...	1.00	0.630	0.025	0.041	0.005	E.. R/L TC 16-1	014	114	614
TC 16-1 E 1.25 ISO	TC 16-1 ...	1.25	0.630	0.031	0.041	0.006	E.. R/L TC 16-1	016	116	616
TC 16-1 E 1.5 ISO	TC 16-1 ...	1.50	0.630	0.037	0.041	0.007	E.. R/L TC 16-1	018	118	618
TC 16-2 E 1.75 ISO	TC 16-2 ...	1.75	0.630	0.043	0.085	0.009	E.. R/L/N TC 16-2	030	130	630
TC 16-2 E 2.0 ISO	TC 16-2 ...	2.00	0.630	0.050	0.085	0.010	E.. R/L/N TC 16-2	032	132	632
TC 16-2 E 2.5 ISO	TC 16-2 ...	2.50	0.630	0.062	0.085	0.013	E.. R/L/N TC 16-2	034	134	634
TC 16-2 E 3.0 ISO	TC 16-2 ...	3.00	0.630	0.074	0.085	0.015	E.. R/L/N TC 16-2	036	136	636
TC 16-3 E 3.5 ISO	TC 16-3 ...	3.50	0.630	0.087	0.122	0.017	E25 N TC 16-3	050	150	
TC 16-3 E 4.0 ISO	TC 16-3 ...	4.00	0.630	0.100	0.122	0.020	E25 N TC 16-3	052	152	
TC 16-3 E 5.0 ISO	TC 16-3 ...	5.00	0.630	0.124	0.122	0.025	E25 N TC 16-3	056	156	
P								●	●	
M								●	●	
K								●	●	●
N										●
S								○	●	
H								○		
O										○

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→ Application recommendation on page 84

Internal machining

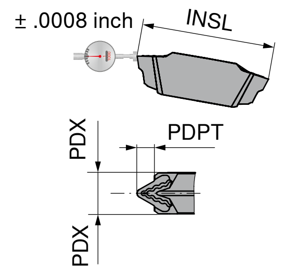
External machining

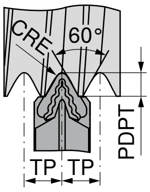
→ 66

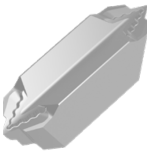
→ 67

Threading inserts TC full profile – Internal thread ISO 60°

F	M	R





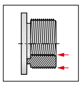


Designation	Size	TP mm	INSL inch	PDPT inch	PDX inch	CRE inch	for tool holder	CTPP535 DRAGONSKIN 70 358 ...	CTPP520 DRAGONSKIN 70 358 ...	-27P H216T 70 358 ...
TC 16-1 I 1.0 ISO	TC 16-1 ...	1.00	0.630	0.023	0.041	0.002	I32 R/L TC 16-1	**114**	**014**	**614**
TC 16-1 I 1.25 ISO	TC 16-1 ...	1.25	0.630	0.029	0.041	0.003	I32 R/L TC 16-1		**016**	
TC 16-1 I 1.5 ISO	TC 16-1 ...	1.50	0.630	0.035	0.041	0.004	I32 R/L TC 16-1	**118**	**018**	**618**
TC 16-2 I 1.75 ISO	TC 16-2 ...	1.75	0.630	0.040	0.085	0.004	I32 R/L TC 16-2		**030**	
TC 16-2 I 2.0 ISO	TC 16-2 ...	2.00	0.630	0.046	0.085	0.005	I32 R/L TC 16-2	**132**	**032**	**632**
TC 16-2 I 3.0 ISO	TC 16-2 ...	3.00	0.630	0.069	0.085	0.007	I32 R/L TC 16-2	**136**	**036**	**636**
P								●	●	
M								●	●	
K								●	●	●
N										●
S								●	○	
H									○	
O										○

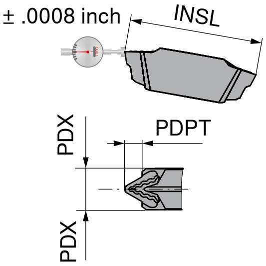
→ v_c Page 77
→ Application recommendation on page 84

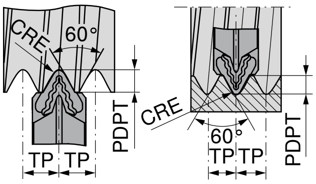
Internal machining		*External machining*						
								
→ 68	metric							

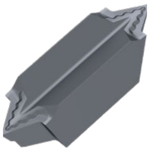
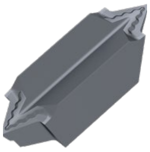
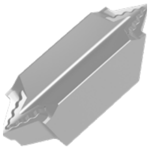
Threading inserts TC partial profile 60°



F	M	R
		





CTPP535	CTPP520	-27P
DRAGONSKIN	DRAGONSKIN	H216T
		

Designation	Size	TP mm	INSL inch	PDPT inch	PDX inch	CRE inch	for tool holder	70 355 ...	70 355 ...	70 355 ...
TC 16-1 EI A 60	TC 16-1 ...	0,5 - 1,5	0.630	0.050	0.041	0.001	E/I.. R/L TC 16-1	**110**	**010**	**610**
TC 16-2 EI G 60	TC 16-2 ...	1,75 - 3,0	0.630	0.098	0.085	0.004	E/I.. R/L/N TC 16-2	**130**	**030**	**630**
TC 16-2 EI AG 60	TC 16-2 ...	0,5 - 3,0	0.630	0.101	0.085	0.001	E/I.. R/L/N TC 16-2	**132**	**032**	**632**
TC 16-3 EI N 60	TC 16-3 ...	3,5 - 5,0	0.630	0.162	0.122	0.009	E/I.. N TC 16-3	**150**	**050**	**650**

P	●	●	
M	●	●	
K	●	●	●
N			●
S	●	○	
H		○	
O			○

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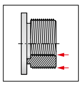
→ Application recommendation on page 84

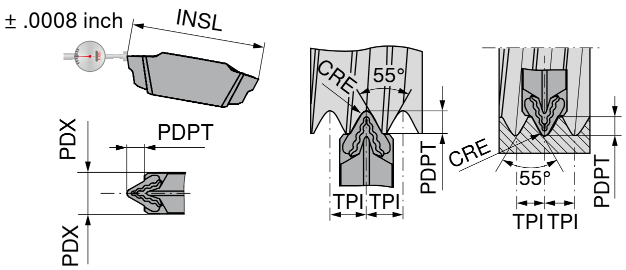
Internal machining		*External machining*	
			
→ 68	metric	→ 66	→ 67

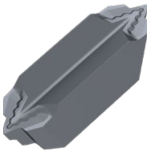
5

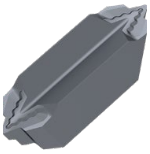
Threading inserts TC full profile Whitworth 55°

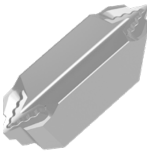


F	M	R
		









Designation	Size	TPI 1/"	INSL inch	PDPT inch	PDX inch	CRE inch	for tool holder	CTPP520 DRAGONSKIN 70 359 ...	CTPP535 DRAGONSKIN 70 359 ...	-27P H216T 70 359 ...
TC 16-1 EI 28 W	TC 16-1 ...	28	0.630	0.024	0.041	0.005	E/I.. R/L TC 16-1	**010**	**110**	
TC 16-1 EI 20 W	TC 16-1 ...	20	0.630	0.033	0.041	0.007	E/I.. R/L TC 16-1	**016**		
TC 16-1 EI 19 W	TC 16-1 ...	19	0.630	0.035	0.041	0.007	E/I.. R/L TC 16-1	**018**	**118**	**618**
TC 16-1 EI 16 W	TC 16-1 ...	16	0.630	0.041	0.041	0.008	E/I.. R/L TC 16-1	**022**		
TC 16-2 EI 14 W	TC 16-2 ...	14	0.630	0.047	0.085	0.009	E/I.. R/L/N TC 16-2	**030**	**130**	**630**
TC 16-2 EI 12 W	TC 16-2 ...	12	0.630	0.055	0.085	0.011	E/I.. R/L/N TC 16-2		**132**	
TC 16-2 EI 11 W	TC 16-2 ...	11	0.630	0.060	0.085	0.012	E/I.. R/L/N TC 16-2	**034**	**134**	**634**
P								●	●	
M								●	●	
K								●	●	●
N										●
S								○	●	
H								○		
O										○

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→ Application recommendation on page 84

Internal machining *External machining*

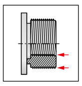
→ 68

metric

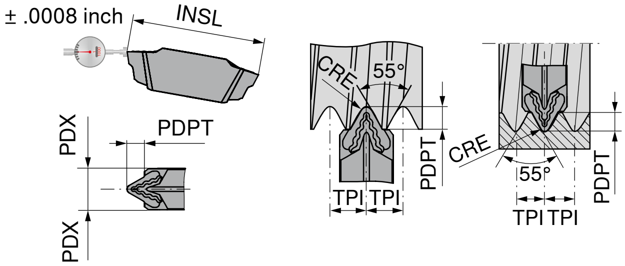
→ 66

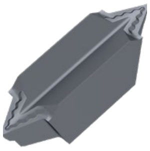
→ 67

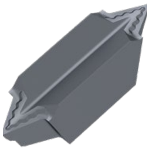
Threading inserts TC partial profile 55°



F	M	R
●	●	







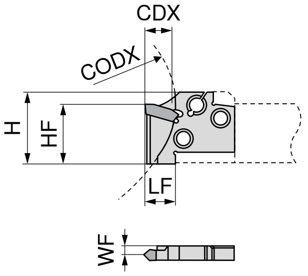
Designation	Size	TPI 1/"	INSL inch	PDPT inch	PDX inch	CRE inch	for tool holder	CTPP535 DRAGONSKIN 70 356 ...	CTPP520 DRAGONSKIN 70 356 ...
TC 16-1 EI A 55	TC 16-1 ...	28 - 16	0.630	0.055	0.041	0.005	E/I.. R/L TC 16-1	**110**	**010**
TC 16-2 EI AG 55	TC 16-2 ...	28 - 8	0.630	0.115	0.085	0.005	E/I.. R/L/N TC 16-2	**132**	**032**
TC 16-2 EI G 55	TC 16-2 ...	14 - 8	0.630	0.109	0.085	0.009	E/I.. R/L/N TC 16-2	**130**	**030**
TC 16-3 EI N 55	TC 16-3 ...	7 - 5	0.630	0.171	0.122	0.018	E/I.. N TC 16-3	**150**	**050**
P								●	●
M								●	●
K								●	●
N									
S								●	○
H									○
O									

→ v_c Page 77

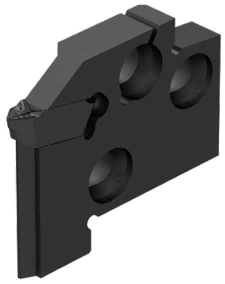
→ Application recommendation on page 84

Internal machining		*External machining*	
			
→ 68	metric	→ 66	→ 67

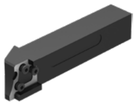
ModularClamp MSS – Threading module TC for external threads



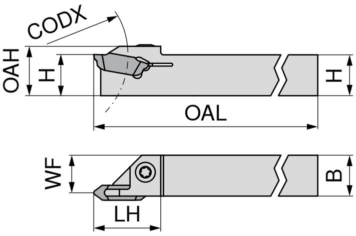
Illustrations show right-hand versions

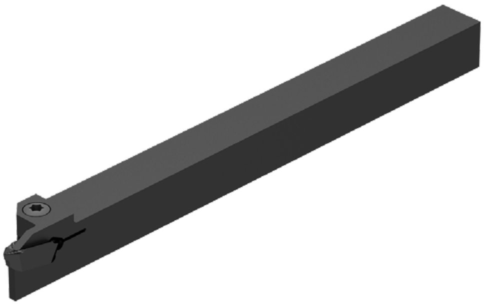


Designation	TP inch	TPI 1/"	WF inch	HF inch	LF inch	H inch	CODX inch	CDX inch	for grooving inserts	Left-hand 70 872 ...	Neutral 70 872 ...	Right-hand 70 872 ...
E20 R/L TC 16-1	0.020 - 0.059	28 - 16	0.136	0.512	0.787	0.945	2.362	0.315	TC 16-1 ...	120		020
E20 N TC 16-2	0.069 - 0.118	14 - 8	0.087	0.512	0.787	0.945		0.472	TC 16-2 ...		220	
E25 R/L TC 16-1	0.020 - 0.059	28 - 16	0.205	0.512	0.984	1.181	2.953	0.315	TC 16-1 ...	125		025
E25 R/L TC 16-2	0.069 - 0.118	14 - 8	0.161	0.512	0.984	1.181	2.953	0.394	TC 16-2 ...	325		225
E25 N TC 16-3	0.138 - 0.197	7 - 5	0.122	0.512	0.984	1.181		0.472	TC 16-3 ...		425	

		
→ 61-65	→ 69-71	metric

MonoClamp – Monoholder TC – external thread





Illustrations show right-hand versions

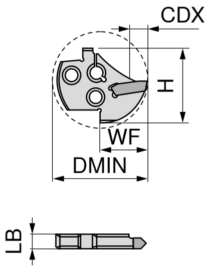
Designation	TP mm	TPI 1/"	H inch	B inch	OAL inch	LH inch	OAH inch	WF inch	CODX inch	for grooving inserts	Left-hand 78 883 ...	Right-hand 78 882 ...
E12 R/L 00-08 TC16-E	0,5 - 3	28 - 8	0.500	0.500	6.000	0.768	0.598	0.461	1.181	TC16-1/2..	**05000**	**05000**

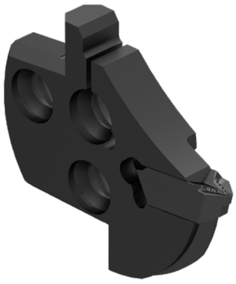
Spare parts **for grooving inserts**		 Screwdriver **80 950 ...**		 Clamping screw **70 950 ...**
TC16-1/2..	T15	**113**	M4x11	**442**

→ 61-65

5

ModularClamp MSS – Threading module TC for internal threads

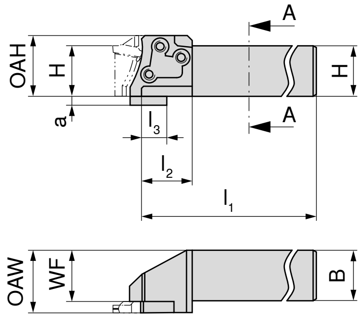




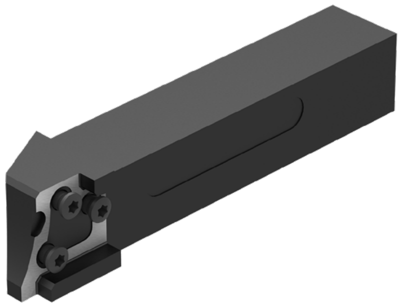
Designation	TP mm	TPI 1/"	LB inch	WF inch	H inch	DMIN inch	CDX inch	for grooving inserts	Left-hand 70 887 ...	Neutral 70 887 ...	Right-hand 70 887 ...
I32 R/L TC 16-1	0,5 - 1,5	28 - 16	0.244	0.205	1.268	1.575	0.276	TC 16-1 ...	**132**		**032**
I32 R/L TC 16-2	1,75 - 3,0	14 - 8	0.244	0.161	1.268	1.575	0.276	TC 16-2 ...	**332**		**232**
I32 N TC 16-3	3,5 - 5,0	7 - 5	0.244	0.122	1.268	1.575	0.276	TC 16-3 ...		**432**	

	
→ 61-65	→ 72

ModularClamp MSS – Tool holder 0°



Illustrations show right-hand versions



Designation	H inch	B inch	OAW inch	OAH inch	WF inch	l_1 inch	l_2 inch	l_3 inch	for modules	Left-hand 78 851 ...	Right-hand 78 850 ...
E12 R/L 00-08-E	0.500	0.500	0.650	0.598	0.512	3.000	0.472		E12 R/L ...	**05000**	**05000**
E16 R/L 00-10-E	0.625	0.625	0.787	0.763	0.650	3.500	0.630		E16 R/L ...	**06300**	**06300**
E 20 R/L 00-10-E	0.625	0.787	0.955	0.955	0.793	3.500	0.787		E20 R/L ...	**06400**	**06400**
E 20 R/L 00-12-E	0.750	0.750	0.955	0.955	0.793	4.500	0.787	0.393	E20 R/L ...	**07500**	**07500**
E 25 R/L 00-16-E	1.000	1.000	1.236	1.236	1.020	5.500	0.984		E25 R/L ...	**10000**	**10000**
E 32 R/L 00-20-E	1.250	1.000	1.236	1.236	1.020	6.500	1.260	0.630	E32 R/L ...	**12500**	**12500**
E 32 R/L 00-85-E	1.250	1.250	1.496	1.496	1.279	7.000	1.260	0.630	E32 R/L ...	**12600**	**12600**


Screwdriver

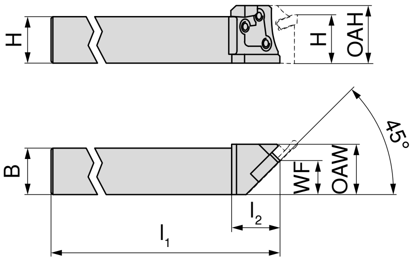

Clamping screw

Spare parts for Article no.		80 950 ...		70 950 ...
78 850 05000 / 78 851 05000	T08	**110**	M2,5x10	**440**
78 850 06300 / 78 851 06300	T15	**113**	M3,5x12,5	**441**
78 850 06400 / 78 851 06400	T15	**113**	M4x14	**403**
78 850 07500 / 78 851 07500	T15	**113**	M4x14	**403**
78 850 10000 / 78 851 10000	T20	**114**	M5x18	**404**
78 850 12500 / 78 851 12500	T25	**115**	M6x20	**405**
78 850 12600 / 78 851 12600	T25	**115**	M6x20	**405**

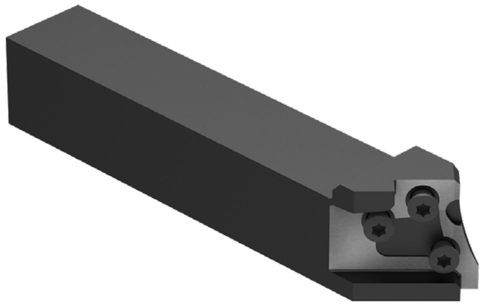
Module Overview

→ 4+5

ModularClamp MSS – Tool holder 45°



Illustrations show right-hand versions



Designation	H inch	B inch	OAW inch	OAH inch	WF inch	l_1 inch	l_2 inch	for modules	Left-hand 78 853 ...	Right-hand 78 852 ...
E20 R/L 45-12-E	0.750	0.750	0.846	0.984	0.571	4.500	0.787	E20 R/L ...	**07500**	**07500**
E25 R/L 45-12-E	1.000	1.000	1.024	1.197	0.709	5.500	0.984	E25 R/L ...	**10000**	**10000**

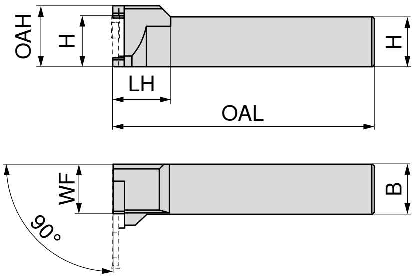
For right hand holder → left hand module only
For left hand holder → right hand module only

Spare parts **for Article no.**	 Screwdriver 80 950 ...		 Clamping screw 70 950 ...		 Clamping screw 70 950 ...	
78 852 07500 / 78 853 07500	T15	**113**	M4x11	**442**	M4x14	**403**
78 852 10000 / 78 853 10000	T20	**114**	M5x13,5	**513**	M5x18	**404**

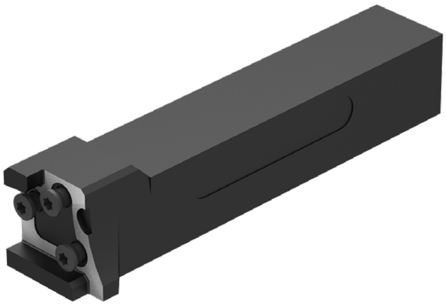
Module Overview

→ 4+5

ModularClamp MSS – Tool holder 90°



Illustrations show right-hand versions



Designation	H inch	B inch	OAH inch	WF inch	OAL inch	LH inch	for modules	Left-hand 78 855 ...	Right-hand 78 854 ...
E20 R/L 90-12-E	0.750	0.750	0.907	0.787	4.500	0.783	E20 R/L ...	**07500**	**07500**
E25 R/L 90-16-E	1.000	1.000	1.197	1.000	5.500	1.098	E25 R/L ...	**10000**	**10000**
E32 R/L 90-85-E	1.250	1.000	1.486	1.260	6.500	1.339	E32 R/L ...	**12500**	**12500**
E32 R/L 90-20-E	1.250	1.250	1.528	1.260	8.000	1.339	E32 R/L ...	**12600**	**12600**

For right hand holder → left hand module only
For left hand holder → right hand module only

Screwdriver

Clamping screw

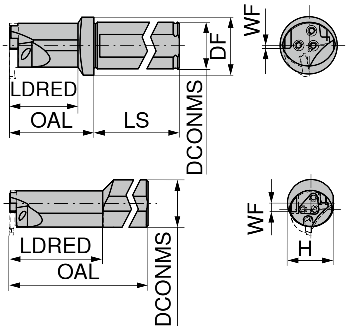
Spare parts for Article no.		**80 950 ...**		**70 950 ...**
78 854 07500 / 78 855 07500	T15	**113**	M4x14	**403**
78 854 10000 / 78 855 10000	T20	**114**	M5x18	**404**
78 854 12500 / 78 855 12500	T25	**115**	M6x20	**405**
78 854 12600 / 78 855 12600	T25	**115**	M6x20	**405**

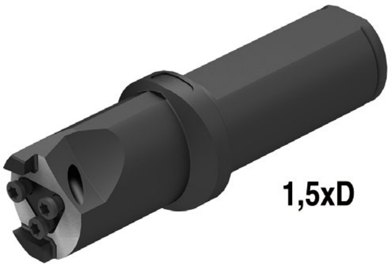
Module Overview

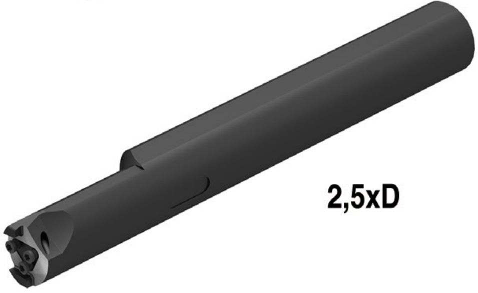
→ 4+5

ModularClamp MSS – Boring bars GX / TC

▲ With internal coolant supply







	Designation	DCONMS inch	DF inch	WF inch	H inch	OAL inch	LDRED inch	LS inch	for modules	Left-hand 78 861 ...	Right-hand 78 860 ...
≤ 1,5xD	I16 R/L 90-1.5 D-E	0.750	1.000	0.039	0.693	7.000	0.945	2.000	I 16 R/L	**07500**	**07500**
	I20 R/L 90-1.5 D-E	0.750	1.000	0.039	0.842	8.000	1.181	2.000	I 20 R/L	**07600**	**07600**
	I25 R/L 90-1.5 D-E	1.000	1.260	0.059	1.086	10.000	1.496	2.250	I 25 R/L	**10000**	**10000**
	I32 R/L 90-1.5 D-E	1.250	1.575	0.079	1.378	12.000	1.890	2.250	I 32 R/L	**12500**	**12500**
	I40 R/L 90-1.5 D-E	1.500	1.969	0.098	1.724	14.000	2.362	3.000	I 40 R/L/N	**15000**	**15000**
≤ 2,5xD	I16 R/L 90-2.5 D-E	0.750	1.000	0.177	0.693	7.000	1.575	2.000	I 16 R/L	**27500**	**27500**
	I20 R/L 90-2.5 D-E	1.000	1.000	0.236	0.842	8.000	1.969	2.000	I 20 R/L	**20000**	**20000**
	I25 R/L 90-2.5 D-E	1.250	1.250	0.276	1.086	10.000	2.480	2.250	I 25 R/L	**22500**	**22500**
	I32 R/L 90-2.5 D-E	1.500	1.575	0.374	1.378	12.000	3.150	2.250	I 32 R/L	**25000**	**25000**
	I40 R/L 90-2.5 D-E	2.000	1.969	0.433	1.724	14.000	3.937	3.000	I 40 R/L/N	**20100**	**20100**


Screwdriver


Clamping screw

Spare parts for modules		**80 950 ...**		**70 950 ...**
I 16 R/L	T08	**110**	M2,5x10	**440**
I 20 R/L	T10	**112**	M3x11	**444**
I 25 R/L	T15	**113**	M3,5x12,5	**441**
I 32 R/L	T20	**114**	M4,5x17	**445**
I 40 R/L/N	T20	**114**	M5x18	**404**

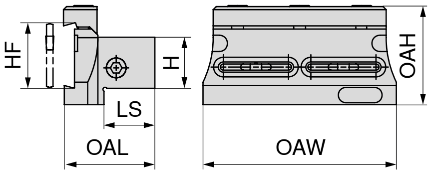
Module Overview

→ 6+7

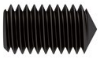
Split clamping block for blades DC

Scope of supply:

Complete clamping block, but without blade and coolant set



Designation	H inch	HF inch	OAH inch	LS inch	OAL inch	OAW inch	for blades	78 829 ...
SBN 12-26-DC-E	0.750	1.024	1.690	0.700	1.480	3.230	XLC.. 26..	**07500**
SBN 16-32-DC-E	1.000	1.260	1.910	0.950	1.750	3.740	XLC.. 32..	**10000**
SBN 20-32-DC-E	1.250	1.260	1.910	0.950	1.750	3.740	XLC.. 32..	**12500**

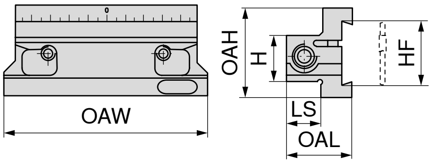
Spare parts for Article no.		 Coolant screw plug **70 950 ...**		 Clamping rail **70 950 ...**		 clamping screw **70 950 ...**
78 829 07500	G 1/8"	**294**	CU70	**290**	M6x12	**861**
78 829 10000	G 1/8"	**294**	CU85	**291**	M6x12	**861**
78 829 12500	G 1/8"	**294**	CU85	**291**	M6x12	**861**

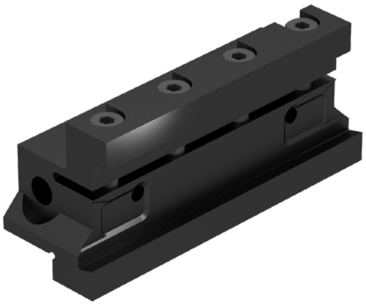
Spare parts for Article no.		 O-Ring **70 950 ...**		 O-Ring **70 950 ...**
78 829 07500	19x2,5	**293**		
78 829 10000			23x2,5	**292**
78 829 12500			23x2,5	**292**

Clamping block for blades GX/LX/FX/SX

Scope of supply:

Clamping block complete, but without blade and coolant set





Designation	H inch	HF inch	OAH inch	LS inch	OAL inch	OAW inch	for blades	78 830 ...
SBN 12-26K-E	0.750	1.024	1.535	0.700	1.369	3.540	XLC.. 26..	**07500**
SBN 20-32K-E	1.250	1.260	1.890	1.200	1.909	4.720	XLC.. 32..	**12500**
SBN 16-32K-E	1.000	1.260	1.890	0.950	1.647	4.330	XLC.. 32..	**10000**
SBN 24-46K-E	1.500	1.811	2.756	1.450	2.362	5.910	XLC.. 46..	**15000**
SBN 20-46K-E	1.250	1.811	2.756	1.200	2.106	5.910	XLC.. 46..	**12600**


Key I


Cooling agent set

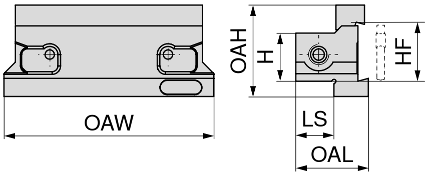

clamping screw

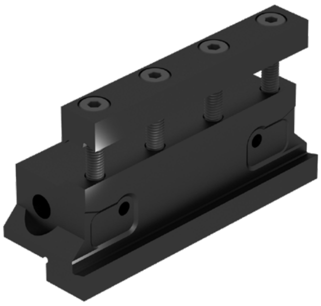
Spare parts for blades		70 950 ...	70 950 ...		70 950 ...
XLC.. 26..	SW5	**265**	**278**	M6x25	**269**
XLC.. 32..	SW5	**265**	**278**	M6x25	**269**
XLC.. 46..	SW6	**266**	**279**	M8x35	**282**

Split clamping block for blades GX/LX/FX/SX

Scope of supply:

Clamping block complete, but without blade and coolant set





Designation	H inch	HF inch	OAH inch	LS inch	OAL inch	OAW inch	for blades	78 831 ...
SBN 12-26KS-E	0.750	1.024	1.688	0.700	1.369	3.540	XLC.. 26..	**07500**
SBN 20-32KS-E	1.250	1.260	2.044	1.200	1.909	4.720	XLC.. 32..	**12500**
SBN 16-32KS-E	1.000	1.260	1.929	0.950	1.647	4.330	XLC.. 32..	**10000**


Key I


Cooling agent set


clamping screw

Spare parts for blades		70 950 ...	70 950 ...		70 950 ...
XLC.. 26..	SW5	**265**	**278**	M6x25	**269**
XLC.. 32..	SW5	**265**	**278**	M6x25	**269**

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength lbf/in^2* / HB / HRC	Material number	Material designation	Material number	Material designation
P	**Unalloyed steel**	**P.1.1**	< 0.15 % C	Annealed	60900 lbf/in^2 / 125 HB	1.0401	1015	1.0301	1010
		P.1.2	< 0.45 % C	Annealed	92800 lbf/in^2 / 190 HB	1.1191	1045	1.0737	12L14
		P.1.3		Tempered	121800 lbf/in^2 / 250 HB	1.1191	1045	1.0503	1043
		P.1.4	< 0.75 % C	Annealed	132000 lbf/in^2 / 270 HB	1.1223	1060	1.0535	1055
		P.1.5		Tempered	146500 lbf/in^2 / 300 HB	1.1223	1060	1.1274	1095
	Low-alloy steel	**P.2.1**		Annealed	88500 lbf/in^2 / 180 HB	1.7131	5115	1.6523	8620
		P.2.2		Tempered	134900 lbf/in^2 / 275 HB	1.7131	5115	1.6582	4340
		P.2.3		Tempered	146500 lbf/in^2 / 300 HB	1.7225	4142	1.7131	5115
		P.2.4		Tempered	174000 lbf/in^2 / 375 HB	1.7225	4142	17223	4140
	High-alloy steel and high-alloy tool steel	**P.3.1**		Annealed	98600 lbf/in^2 / 200 HB	1.4021	420	1.2379	D2
		P.3.2		Hardened and tempered	159500 lbf/in^2 / 300 HB	1.2343	H11	1.3343	M2
		P.3.3		Hardened and tempered	188500 lbf/in^2 / 400 HB	1.2343	H11	1.2363	A2
	Stainless steel	**P.4.1**	Ferritic / martensitic	Annealed	98600 lbf/in^2 / 200 HB	1.4016	430	1.4125	440C
		P.4.2	Martensitic	Tempered	117500 lbf/in^2 / 250 HB	1.4112	S44003	1.4021	420
M	**Stainless steel**	**M.1.1**	Austenitic / austenitic-ferritic	Quenched	88500 lbf/in^2 / 200 HB	1.4301	304	1.4401	316
		M.2.1	Austenitic	Tempered	300 HB	1.4841	314	1.4568	17-7 PH
		M.3.1	Austenitic / ferritic (Duplex)		113100 lbf/in^2 / 230 HB	1.4462	S32205	1.4410	S32750
K	**Grey cast iron**	**K.1.1**	Pearlitic / ferritic		88500 lbf/in^2 / 180 HB	0.6010	A48-20B	0.6025	A48-40 B
		K.1.2	Pearlitic (martensitic)		127600 lbf/in^2 / 260 HB	0.6030	A48-45B	0.6040	A48-60 B
	Spherulitic graphite cast iron	**K.2.1**	Ferritic		78300 lbf/in^2 / 160 HB	0.7040	60-40-18	0.7050	65-45-12
		K.2.2	Pearlitic		122600 lbf/in^2 / 250 HB	0.7070	100-70-03	0.7660	A439 Type D2
	Malleable iron	**K.3.1**	Ferritic		63800 lbf/in^2 / 130 HB	0.8035	GTW-35-04		
		K.3.2	Pearlitic		113100 lbf/in^2 / 230 HB	0.8170	70003		
N	**Aluminium wrought alloy**	**N.1.1**	Non-hardenable		60 HB	3.0255	A91060	3.0255	A91060
		N.1.2	Hardenable		49300 lbf/in^2 / 100 HB	3.1355	2024	3.1355	2024
	Cast aluminium alloy	**N.2.1**	≤ 12 % Si, non-hardenable		36300 lbf/in^2 / 75 HB	3.2581	A04130 / A413-0	3.2581	A04130 / A413-0
		N.2.2	≤ 12 % Si, hardenable		43500 lbf/in^2 / 90 HB	3.2134	G-AlSi5Cu1Mg		
		N.2.3	> 12 % Si, non-hardenable		63800 lbf/in^2 / 130 HB		G-AlSi17Cu4Mg		
	Copper and copper alloys (bronze/brass)	**N.3.1**	Free-machining alloys, PB > 1 %		54400 lbf/in^2 / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0380	C37700
		N.3.2	CuZn, CuSnZn		43500 lbf/in^2 / 90 HB	2.0331	CuZn15	2.0331	C34000
		N.3.3	CuSn, lead-free copper and electrolytic copper		49300 lbf/in^2 / 100 HB	2.0060	E-Cu57		
	Magnesium alloys	**N.4.1**	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn		
S	**Heat-resistant alloys**	**S.1.1**	Fe - basis	Annealed	98600 lbf/in^2 / 200 HB	1.4864	X12NiCrSi 36-16	1.4864	330
		S.1.2			137800 lbf/in^2 / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4980	S66286
		S.2.1	Ni or Co basis	Annealed	121800 lbf/in^2 / 250 HB	2.4856	Inconel 625	2.4812	Hastelloy C
		S.2.2			171100 lbf/in^2 / 350 HB	2.4952	Nimonic 80A	2.4668	Inconel 718
		S.2.3		Cast	156600 lbf/in^2 / 320 HB	2.4674	Nimocast PK24	2.4670	Nimocast 713
	Titanium alloys	**S.3.1**	Pure titanium		5800 lbf/in^2	3.7025	Ti99,8		
		S.3.2	Alpha + beta alloys		152300 lbf/in^2	3.7165	TiAl6V4		
		S.3.3	Beta alloys		203100 lbf/in^2 / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr		
H	**Hardened steel**	**H.1.1**		Hardened and tempered	46-55 HRC				
		H.1.2		Hardened and tempered	56-60 HRC				
		H.1.3		Hardened and tempered	61-65 HRC				
		H.1.4		Hardened and tempered	66-70 HRC				
	Chilled iron	**H.2.1**		Cast	400 HB				
	Hardened cast iron	**H.3.1**		Hardened and tempered	55 HRC				
O	**Non-metal materials**	**O.1.1**	Plastics, duroplastic		≤ 21800 lbf/in^2				
		O.1.2	Plastics, thermoplastic		≤ 14500 lbf/in^2				
		O.2.1	Aramid fibre-reinforced		≤ 145000 lbf/in^2				
		O.2.2	Glass/carbon-fibre reinforced		≤ 145000 lbf/in^2				
		O.3.1	Graphite						

*** Tensile Strength at Rupture (Rm)**

Cutting data values for grooving inserts GX/LX/FX/SX/AX/TC

	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		
	CTCP325	CTCP335	CTPP345	CTPP520	CTPP535	CTP1340	H216T (SX/FX/GX)	H216T (TC)
Index	v_c in ft/min							
P.1.1	890	760	550	980	770	760		
P.1.2	890	760	550	980	770	760		
P.1.3	890	760	550	980	770	760		
P.1.4	890	760	550	980	770	760		
P.1.5	890	760	550	980	770	760		
P.2.1	890	760	550	980	770	760		
P.2.2	890	760	550	980	770	760		
P.2.3	890	760	550	980	770	760		
P.2.4	890	760	550	980	770	760		
P.3.1	840	670	470	970	590	610		
P.3.2	840	670	470	970	590	610		
P.3.3	840	670	470	970	590	610		
P.4.1	840	670	470	970	590	610		
P.4.2	840	670	470	970	590	610		
M.1.1	840	670	470	970	590	610		
M.2.1	840	670	470	970	590	610		
M.3.1	840	670	470	970	590	610		
K.1.1	560	450		460	540	500	460	460
K.1.2	500	380		380	500	410	380	380
K.2.1	530	430		590	480	460	500	500
K.2.2	480	350		380	510	400	360	360
K.3.1	690	500		430	630	560	560	560
K.3.2	460	380		360	480	400	460	460
N.1.1						990	1320	1490
N.1.2						660	330	1490
N.2.1						990	1490	990
N.2.2						660	1490	990
N.2.3						500	1650	740
N.3.1						990	1400	630
N.3.2						990	1320	960
N.3.3						660	910	960
N.4.1						660	740	960
S.1.1	120			130	100	120	120	
S.1.2	100		100	100	80	100	90	
S.2.1	70		80	70	50	70	90	
S.2.2	50			50	50	50	80	
S.2.3	50			60	50	50	70	
S.3.1				410	280	280	300	
S.3.2				170	120	130	180	
S.3.3				120	80	100	130	
H.1.1				50				
H.1.2				50				
H.1.3								
H.1.4								
H.2.1				50				
H.3.1				130				
O.1.1						430	430	960
O.1.2								
O.2.1						350	350	960
O.2.2								
O.3.1								

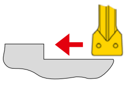
5

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

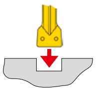
GX – Depths of cut and feed rates

GX Standard / GX-E

Turning



Parting / Grooving

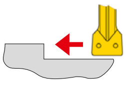


	Depth of Cut a_p in inch							
GX Standard / GX-E	**.020**	**.040**	**.060**	**.080**	**.100**	**.120**	**.140**	**GX Standard / GX-E**
Cutting width in inch	Feed rate f in inch/rev.							Feed rate f in inch/rev.
.0787	.0039 – .0059	.0020 – .0059	.0020 – .0047	.0020 – .0039				.0020 – .0079
.1181	.0039 – .0067	.0020 – .0067	.002 – .0067	.0020 – .0059	.0020 – .0047			.0039 – .0098
.1575	.0039 – .0079	.0028 – .0079	.0028 – .0079	.0028 – .0079	.0028 – .0067	.0028 – .0059		.0039 – .0098
.1969	.0039 – .0098	.0039 – .0098	.0028 – .0098	.0028 – .0098	.0028 – .0087	.0028 – .0079		.0039 – .0118
.2362	.0059 – .0118	.0059 – .0118	.0059 – .0118	.0059 – .0118	.0059 – .0118	.0059 – .0098	.0059 – .0087	.0059 – .0138

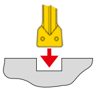
When axial grooving reduce feed by 40%.

GX-F2

Turning



Parting / Grooving

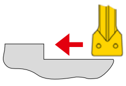


	Depth of Cut a_p in inch									
GX-F2	**.020**	**.030**	**.040**	**.050**	**.060**	**.070**	**.080**	**.090**	**.100**	**GX-F2**
Cutting width in inch	Feed rate f in inch/rev.									Feed rate f in inch/rev.
.0787	.0012 – .0059	.0012 – .0059	.0012 – .0059	.0012 – .0039						.0020 – .0059
.1181	.0016 – .0067	.0016 – .0067	.0016 – .0067	.0016 – .0059	.0016 – .0051	.0016 – .0047				.0028 – .0079
.1575	.0020 – .0079	.0020 – .0079	.0020 – .0079	.0020 – .0079	.0020 – .0079	.0020 – .0067	.0020 – .0059			.0039 – .0098
.1969	.0028 – .0079	.0028 – .0079	.0028 – .0079	.0028 – .0079	.0028 – .0079	.0028 – .0079	.0028 – .0067	.0028 – .0059		.0039 – .0118
.2362	.0039 – .0091	.0039 – .0091	.0039 – .0091	.0039 – .0091	.0039 – .0091	.0039 – .0091	.0039 – .0091	.0039 – .0075	.0039 – .0059	.0059 – .0128

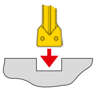
When axial grooving reduce feed by 40%.

GX-M40

Turning



Parting / Grooving

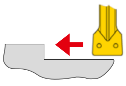


	Depth of Cut a_p in inch								
GX-M40	**.020**	**.040**	**.060**	**.080**	**.100**	**.120**	**.140**	**.160**	**GX-M40**
Cutting width in inch	Feed rate f in inch/rev.								Feed rate f in inch/rev.
.0787	.0039 – .0079	.0020 – .0079	.0020 – .0067	.0020 – .0059					.0020 – .0059
.1181	.0039 – .0087	.0039 – .0087	.0039 – .0083	.0039 – .0079	.0039 – .0067				.0028 – .0079
.1575	.0039 – .0098	.0039 – .0098	.0039 – .0098	.0039 – .0098	.0039 – .0087	.0039 – .0067			.0039 – .0098
.1969	.0039 – .0118	.0039 – .0118	.0039 – .0118	.0039 – .0118	.0039 – .0106	.0039 – .0091	.0039 – .0079		.0039 – .0118
.2362	.0039 – .0138	.0039 – .0138	.0039 – .0138	.0039 – .0138	.0039 – .0126	.0039 – .0106	.0039 – .0091	.0039 – .0079	.0059 – .0128

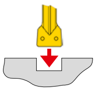
When axial grooving reduce feed by 40%.

GX-27P

Turning



Parting / Grooving



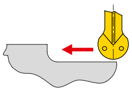
	Depth of Cut a_p in inch								
GX-27P	**.020**	**.040**	**.060**	**.080**	**.100**	**.120**	**.140**	**.160**	**GX-27P**
Cutting width in inch	Feed rate f in inch/rev.								Feed rate f in inch/rev.
.0787	.0020 – .0091	.0020 – .0091	.0020 – .0091	.0020 – .0079					.0020 – .0079
.1181	.0020 – .0098	.0020 – .0098	.0020 – .0098	.0020 – .0098	.0020 – .0079				.0020 – .0098
.1575	.0039 – .0118	.0039 – .0118	.0039 – .0118	.0039 – .0118	.0039 – .0118	.0039 – .0098			.0020 – .0118
.1969	.0039 – .0138	.0039 – .0138	.0039 – .0138	.0039 – .0138	.0039 – .0138	.0039 – .0126	.0039 – .0118		.0039 – .0138
.2362	.0039 – .0157	.0039 – .0157	.0039 – .0157	.0039 – .0157	.0039 – .0157	.0039 – .0142	.0039 – .013	.0039 – .0118	.0039 – .0157

When axial grooving reduce feed by 40%.

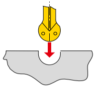
GX – Depths of cut and feed rates

GX-M3

Turning



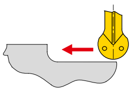
Parting / Grooving



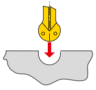
	Depth of Cut a_p in inch								
GX–M3	**.020**	**.040**	**.060**	**.080**	**.100**	**.120**	**.140**	**.160**	**GX–M3**
Radius RE in inch	Feed rate f in inch/rev.								Feed rate f in inch/rev.
.0591	.0059 – .0138	.0059 – .0138	.0059 – .0118						.0020 – .0079
.0787	.0059 – .0157	.0059 – .0157	.0059 – .0157	.0059 – .0118					.0039 – .0098
.0984	.0059 – .0197	.0059 – .0197	.0059 – .0197	.0059 – .0157	.0059 – .0138				.0039 – .0098
.1181	.0079 – .0276	.0079 – .0276	.0079 – .0276	.0079 – .0236	.0079 – .0197	.0079 – .0157			.0039 – .0138

GX-27P Full Radius

Turning



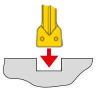
Parting / Grooving



	Depth of Cut a_p in inch								
GX-27P Full Radius	**.020**	**.040**	**.060**	**.080**	**.100**	**.120**	**.140**	**.160**	**GX-27P Full Radius**
Radius RE in inch	Feed rate f in inch/rev.								Feed rate f in inch/rev.
.0591	.0039 – .0177	.002 – .0177	.002 – .0157						.0020 – .0059
.0787	.0059 – .0197	.0039 – .0197	.0039 – .0197	.0039 – .0157					.0030 – .0079
.0984	.0059 – .0236	.0039 – .0236	.0039 – .0236	.0039 – .0197	.0039 – .0177				.0039 – .0098
.1181	.0098 – .0276	.0079 – .0276	.0059 – .0276	.0059 – .0276	.0059 – .0256	.0059 – .0236	.0059 – .0217		.0039 – .0118
.1575	.0098 – .0315	.0079 – .0315	.0059 – .0315	.0059 – .0315	.0059 – .0315	.0059 – .0315	.0059 – .0295	.0059 – .0276	.0059 – .0138

GX-M1

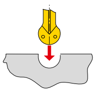
Parting / Grooving



GX-M1	
Cutting width in inch	Feed rate f in inch/rev.
.0787	.0020 – .0059
.1181	.0039 – .0079
.1575	.0039 – .0098

GX Radius grooving inserts

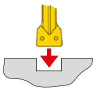
Parting / Grooving



GX Radius grooving insert	
Radius RE in inch	Feed rate f in inch/rev.
.0315	.0020 – .0039
.0394	.0020 – .0059
.0472	.0020 – .0059

GX circlip grooving

Grooving

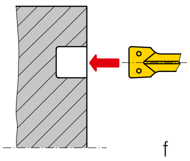
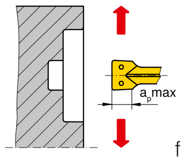


GX circlip grooves	
Cutting width in inch	Feed rate f in inch/rev.
.0236 – .0669	.0008 – .0035
.0768 – .0886	.0020 – .0039
.1083 – .1280	.0020 – .0047

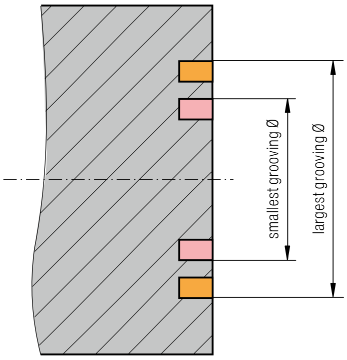
Feed guide and machining instructions for axial grooving and face turning with GX 24 axial

Approximate feed rates

GX

Designation	 f in inch/rev.	 f in inch/rev.	$a_p$max inch
GX 24-2 E 3.00 ..	.0019 – .0057	.0019 – .0078	0.100
GX 24-3 E 4.00 ..	.0019 – .0057	.0019 – .0098	0.120
GX 24-3 E 5.00 ..	.0019 – .0057	.0039 – .0098	0.120
GX 24-4 E 6.00 ..	.0019 – .0078	.0039 – .0117	0.140

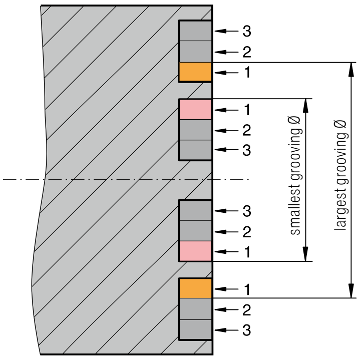
Axial grooving



It is only possible to plunge within the fixed diameter range of the axial grooving module or monoholder (e.g. 1.9685 – 2.7559 inch).

Important: The indicated diameter range is always valid for the external diameter of the groove!

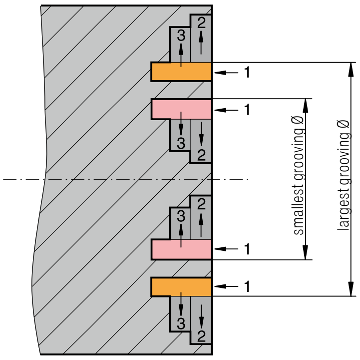
Axial grooving – Groove widening



In case of face turning it is possible to widen the groove above and below the diameter range indicated on the Axial grooving module or monoholder.

Important: Only the first groove must lie within the diameter range of the axial grooving module or axial monoholder. The depth of the widening groove must not be larger than the depth of the original groove.

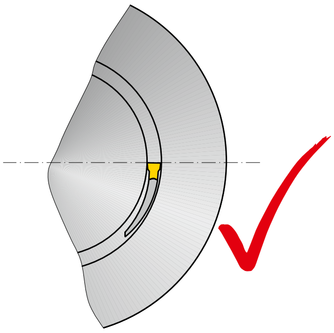
Axial grooving and face turning



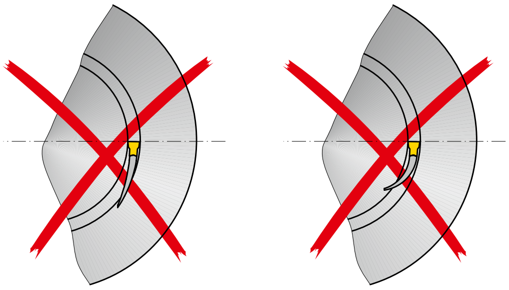
Groove widening by face turning
in the diameter range above and below the values specified for the Axial grooving module and
Axial monoholder are possible.

Important: Only the first groove must lie within the diameter range of the module.

Attention: The diameter of face grooves must lie within the diameter range indicated on the axial grooving module and axial monoholder. Not following this range will result in the tool being damaged or destroyed.



Correct Axial mono holder

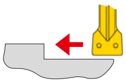


Incorrect Axial mono holder

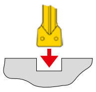
SX – Depths of cut and feed rates

SX-F2

Turning



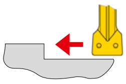
Parting / Grooving



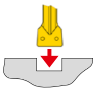
	Depth of Cut a_p in inch									
SX -F2	**.020**	**.003**	**.040**	**.050**	**.060**	**.070**	**.080**	**.090**	**.100**	**SX -F2**
Cutting width in inch	Feed rate f in inch/rev.									Feed rate f in inch/rev.
.0787	.0012 – .0059	.0012 – .0059	.0012 – .0059	.0012 – .0039						.0020 – .0059
.1181	.0016 – .0067	.0016 – .0067	.0016 – .0067	.0016 – .0059	.0016 – .0051	.0016 – .0047				.0028 – .0079
.1575	.0020 – .0079	.0020 – .0079	.0020 – .0079	.0020 – .0079	.0020 – .0079	.0020 – .0067	.0020 – .0059			.0039 – .0098

SX-M2

Turning



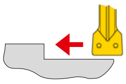
Parting / Grooving



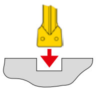
	Depth of Cut a_p in inch								
SX–M2	**.020**	**.040**	**.060**	**.080**	**.100**	**.120**	**.140**	**.160**	**SX–M2**
Cutting width in inch	Feed rate f in inch/rev.								Feed rate f in inch/rev.
.0787	.0020 – .0067	.0020 – .0051	.0020 – .0039						.0020 – .0059
.1181	.0028 – .0079	.0028 – .0079	.0028 – .0071	.0028 – .0059					.0028 – .0079
.1575	.0039 – .0098	.0039 – .0098	.0039 – .0098	.0039 – .0087	.0039 – .0071				.0039 – .0098
.1969	.0047 – .0106	.0047 – .0106	.0047 – .0106	.0047 – .0098	.0047 – .0087				.0039 – .0118
.2362	.0059 – .0118	.0059 – .0118	.0059 – .0118	.0059 – .0118	.0059 – .0098	.0059 – .0079			.0059 – .0138

SX-27P

Turning



Parting / Grooving

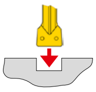


	Depth of Cut a_p in inch								
SX-27P	**.020**	**.040**	**.060**	**.080**	**.100**	**.120**	**.140**	**.160**	**SX-27P**
Cutting width in inch	Feed rate f in inch/rev.								Feed rate f in inch/rev.
.0787	.0029 – .0091	.0020 – .0091	.0020 – .0091	.0020 – .0079					.0020 – .0079
.1181	.0020 – .0098	.0020 – .0098	.0020 – .0098	.0020 – .0098	.0020 – .0079				.0020 – .0098
.1575	.0039 – .0118	.0039 – .0118	.0039 – .0118	.0039 – .0118	.0039 – .0118	.0039 – .0098			.0020 – .0118

SX/LX – Depths of cut and feed rates

SX-M1

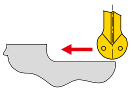
Parting / Grooving



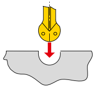
SX-M1	
Cutting width in inch	Feed rate f in inch/rev.
.0787	.0020 – .0059
.1181	.0039 – .0079
.1575	.0039 – .0098
.1969	.0059 – .0118
.2362	.0059 – .0138

SX-M3

Turning



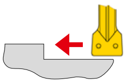
Parting / Grooving



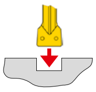
	Depth of Cut a_p in inch								
SX–M3	**.020**	**.040**	**.060**	**.080**	**.010**	**.120**	**.140**	**.160**	**SX–M3**
Radius in inch	Feed rate f in inch/rev.								Feed rate f in inch/rev.
.0591	.0059 – .0138	.0059 – .0138	.0059 – .0118						.0022 – .008
.0787	.0059 – .0157	.0059 – .0157	.0059 – .0157	.0059 – .0118					.004 – .0010
.0984	.0059 – .0197	.0059 – .0197	.0059 – .0197	.0059 – .0157	.0059 – .0138				.004 – .0010
.1181	.0079 – .0276	.0079 – .0276	.0079 – .0276	.0079 – .0236	.0079 – .0197	.0079 – .0157			.004 – .0014

LX-M2

Turning



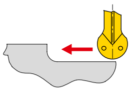
Parting / Grooving



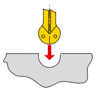
	Depth of Cut a_p in inch								
LX–M2	**.020**	**.040**	**.060**	**.080**	**.010**	**.120**	**.140**	**.160**	**LX–M2**
Cutting width in inch	Feed rate f in inch/rev.								Feed rate f in inch/rev.
.3150	.0067 – .0177	.0067 – .0177	.0067 – .0177	.0067 – .0177	.0067 – .0157	.0067 – .0146	.0067 – .0138		.0080 – .0020
.3937	.0079 – .0197	.0079 – .0197	.0079 – .0197	.0079 – .0197	.0079 – .0181	.0079 – .0165	.0079 – .0150	.0079 – .0138	.0080 – .0020

LX-M3

Turning



Parting / Grooving

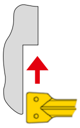


	Depth of Cut a_p in inch								
LX–M3	**.020**	**.040**	**.060**	**.080**	**.010**	**.120**	**.140**	**.160**	**LX–M3**
Radius in inch	Feed rate f in inch/rev.								Feed rate f in inch/rev.
.1575	.0098 – .0315	.0098 – .0315	.0098 – .0315	.0098 – .0315	.0098 – .0315	.0098 – .0276	.0098 – .0236	.0098 – .0197	.0060 – .0014

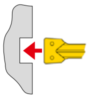
AX/FX – Depths of cut and feed rates

AX-F50

Face turning



Axial grooving

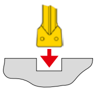


	Depth of Cut a_p in inch			
AX-F50	**0,5**	**1,0**	**1,5**	**2,3**
Size	Feed rate f in inch/rev.			
AX 05	.0012 – .0039	.0012 – .0039		
AX 10	.0012 – .0051	.0012 – .0051	.0012 – .0053	
AX 15	.0012 – .0059	.0012 – .0059	.0012 – .0059	.0012 – .0059

1. Plunging	
Feed rate f in inch/rev.	Feed rate f in inch/rev.
.0010 – .0031	.0008 – .0079
.0010 – .0026	.0020 – .0098
.0010 – .0020	.0020 – .0118

FX-F1

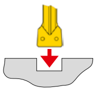
Parting / Grooving



FX-F1	
Cutting width in inch	Feed rate f in inch/rev.
.0866	.0008 – .0039
.1220	.0020 – .0059
.1614	.0020 – .0079

FX-M1

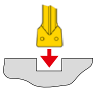
Parting / Grooving



FX-M1	
Cutting width in inch	Feed rate f in inch/rev.
.0866	.0020 – .0059
.1220	.0031 – .0071
.1614	.0039 – .0079
.2008	.0059 – .0110
.2559	.0059 – .013
.3228	.0079 – .0157
.3819	.0079 – .0157

FX-27P

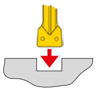
Parting / Grooving



FX-27P	
Cutting width in inch	Feed rate f in inch/rev.
.0866	.0004 – .0039
.1220	.0004 – .0049
.1614	.0020 – .0059

FX-R2

Grooving



FX-R2	
Cutting width in inch	Feed rate f in inch/rev.
.1220	.0039 – .0108
.1614	.0059 – .0138

TC – Reference values for profile depth and number of passes

All listed values are guide values for steel machining

Metric ISO 60° external thread

Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4-6	4-7	4-8	5-9	6-10	7-11	8-12	9-14	10-18	10-18	12-20	12-20	12-20
Thread profile depth in inch	.013	.019	.025	.031	.037	.043	.050	.062	.074	.087	0.100	0.112	0.124

Metric ISO 60° internal thread

Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4-6	4-7	4-8	5-9	6-10	7-11	8-12	9-14	10-18	10-18	12-20	12-20	12-20
Thread profile depth in inch	.012	.018	.023	.029	.035	.040	.046	.057	.069	.080	.093	.104	.115

Whitworth 55° external and internal thread

TPI	28	26	24	20	19	18	16	14	12	11	10	9	8	7	6	5
Number/cuts	5-8	5-8	5-9	5-9	6-10	6-10	7-11	8-12	9-14	9-14	10-17	10-18	10-18	12-20	12-20	12-20
Thread profile depth in inch	.024	.026	.028	.033	.035	.037	.041	.047	.055	.060	.066	.074	.083	.095	.111	.133

Partial profile 60° external and internal thread

External	TC 16-2EI-AG60																
	TC 16-1EI-A60									TC 16-2EI-G60				TC 16-3EI-N60			
Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4-6	4-7	5-9	6-10	7-11	8-12	9-14	10-15	12-19	8-12	9-14	10-15	12-20	12-20	13-21	14-22	14-22
Thread profile depth in inch	.013	.020	.028	.035	.043	.050	.058	.072	.087	.048	.056	.070	.085	.096	.111	.126	.141

Internal	TC 16-2EI-AG60																
	TC 16-1EI-A60									TC 16-2EI-G60				TC 16-3EI-N60			
Pitch in mm	0,5	0,75	1,0	1,25	1,5	1,75	2,0	2,5	3,0	1,75	2,0	2,5	3,0	3,5	4,0	4,5	5,0
Number/cuts	4-6	4-7	5-9	6-10	7-11	8-12	9-14	10-15	12-19	8-12	9-14	10-15	12-20	12-20	13-21	14-22	14-22
Thread profile depth in inch	.011	.017	.024	.030	.036	.043	.049	.062	.075	.041	.047	.060	.073	.081	.094	.107	.120

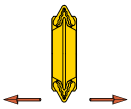
Partial profile 55° external and internal thread

External	TC 16-2EI-AG55												
	TC 16-1EI-A55												
TPI	28	26	24	20	19	18	16	14	12	11	10	9	8
Number/cuts	5-8	5-8	6-9	6-9	7-12	7-12	8-14	9-14	10-16	10-16	11-18	12-20	12-20
Thread profile depth in inch	.026	.028	.031	.037	.040	.042	.048	.055	.064	.070	.078	.087	.098

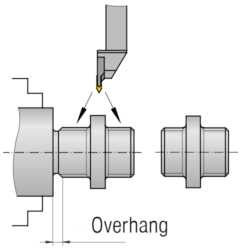
Internal	TC 16-2EI-G55						TC 16-3EI-N55		
TPI	14	12	11	10	9	8	7	6	5
Number/cuts	8-12	9-14	10-15	11-18	12-20	12-20	12-20	12-20	14-22
Thread profile depth in inch	.048	.057	.061	.071	.080	.091	.094	.114	.140

Comparison threading system with TC and conventional

TC

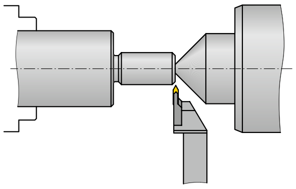


- Neutral configuration of insert makes operation in both directions possible
- Only one threading insert per pitch for partial profile and Whitworth thread; only two threading inserts (internal – external) per pitch for ISO threads
- Reduced stock holding
- good chip formation due to chip breaker with rake angle + 10 °

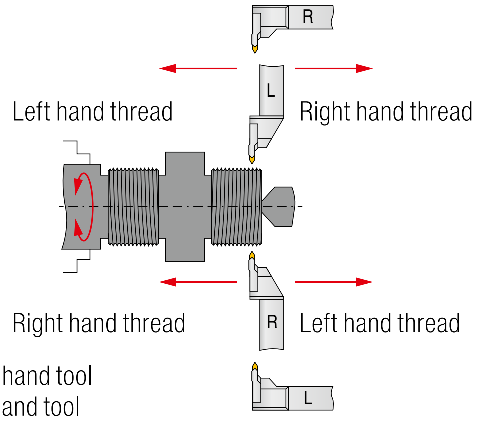


Greater efficiency through:

- shorter operating time
- Less tool changing
- High stability wih small overhang
- Material saving
- Thread turning between shoulders
- Fewer tools and indexable inserts



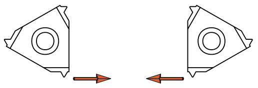
- Very good access to workpiece, therefore use of tailstock also possible with small thread diameters



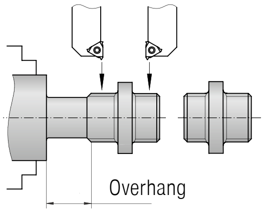
R = Right hand tool
L = Left hand tool

- ease of use, as the tools have no pitch angle correction they can be used in both directions

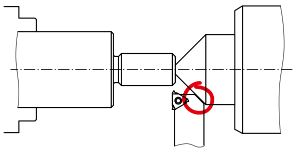
Conventional



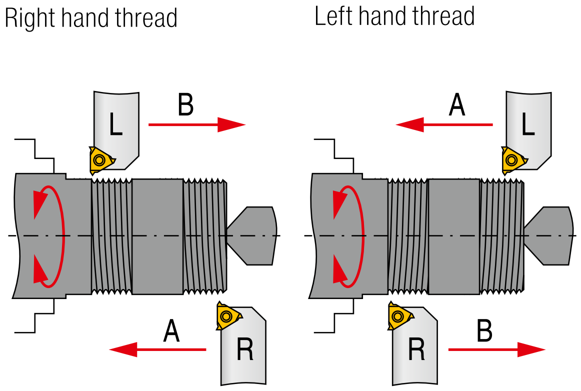
- Right-hand and left-hand version of indexable insert, therefore operation only in one direction
- For every pitch 4 threading inserts are necessary (right – left, internal – external)



- For this machining method 2 tools are required
- additional material and stability loss with large overhang



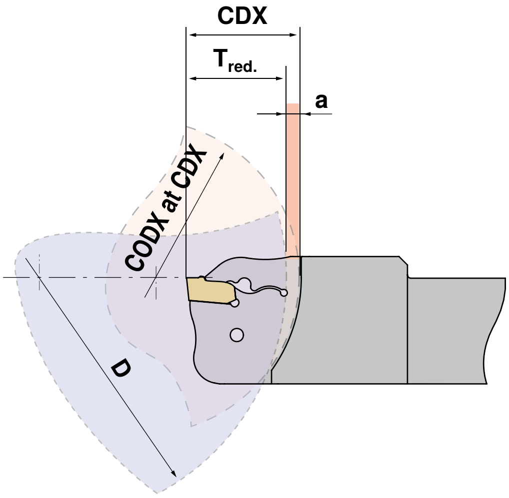
- poor accessibility
- Collision danger



- With conventional thread turning the correction of the helix angle is necessary, therefore a high degree of application know-how is required
- Can only be operated in one direction

ModularClamp

GX **SX** **LX** **FX**



The ModularClamp grooving modules are matched according to size on a particular workpiece diameter CODX. If the diameter of the workpiece is greater than CODX of the grooving Modules, this reduces the achievable penetration depth by the dimension „a“. The extent of reduction can be determined with the following table.

CDX	maximum plunge depth in inch
CODX	maximum workpiece Ø with full penetration depth in inch
a	Reduction amount in inch

$$\boxed{T_{red.} = CDX - a}$$

Grooving depth reduction

	Reduction a (inch) of the maximum grooving depth (CDX)																
Size		.020	.040	.060	.080	.100	.120	.140	.160	.180	.200	.220	.240	.260	.280	.300	.320
E12	1.38	1.57	1.77	2.36	2.95	4.53	9.84										
E16	1.97	2.17	2.36	2.76	3.15	3.94	5.12	7.87	16.54								
E20	2.36	2.56	2.76	2.95	3.35	3.74	4.33	5.12	6.50	8.66	12.99						
E25	2.95	3.15	3.35	3.54	3.94	4.33	4.92	5.51	6.30	7.48	9.45	12.60	19.69				
E32	3.74	3.94	4.13	4.33	4.72	4.92	5.31	5.71	6.30	7.09	7.87	8.86	10.63	12.60	15.75	20.87	31.50
	Workpiece diameter D (inch)																

Maximum workpiece diameter (CODX)
with full penetration depth (CDX) in inch

Calculation example:

E25R**21**-GX24-3

Size 25

CDX = .826", Ø 2.95"

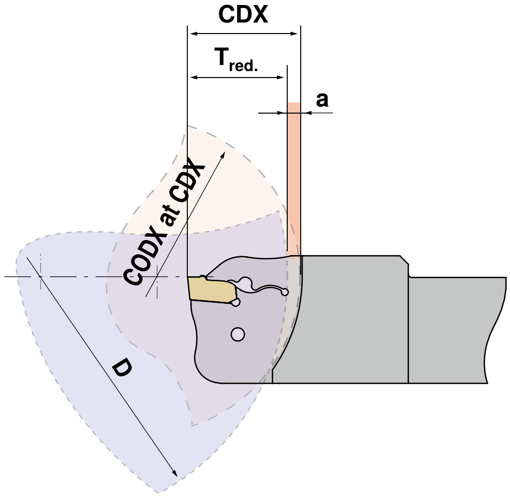
D = Ø 3.93"

$CDX - a = T_{red.}$

.826" - .080" = .746"

MonoClamp

SX



Depending on the groove width and shank size, the MonoClamp tools are designed for use with a specific workpiece diameter CODX. If the workpiece diameter is larger than the CODX of the grooving module, the achievable groove depth is reduced by the dimension „a“. The extent of the reduction is determined using the following table.

CDX	maximum plunge depth in inch
CODX	maximum workpiece Ø with full penetration depth in inch
a	Reduction amount in inch

$$T_{red.} = CDX - a$$

Grooving depth reduction

	Reduction a (inch) of the maximum grooving depth (CDX)																
Shank		.020	.040	.060	.080	.100	.120	.140	.160	.180	.200	.220	.240	.260	.280	.300	.320
E12R/L0022...	1.73	2.76	3.15	3.74	4.53	5.91	8.86	17.72									
E16R/L0026...	2.05	3.54	4.13	4.92	6.10	8.27	12.01	23.62									
E20R/L0026...	2.05	4.33	4.92	5.51	6.30	7.68	9.45	12.60	18.70	37.40							
E20R/L0033...	2.60	4.33	4.92	5.51	6.30	7.68	9.45	12.60	18.70	37.40							
E25R/L0026...	2.05	5.51	6.30	7.48	9.25	12.20	18.31	36.61									
E25R/L0033...	2.60	6.10	6.89	7.87	9.06	10.83	13.39	17.72	26.57	53.15							
E25R/L0040...	3.15	6.10	6.89	7.87	9.06	10.83	13.39	17.72	26.57	53.15							
	Workpiece diameter D (inch)																

Maximum workpiece diameter (CODX)
with full penetration depth (CDX) in inch

Calculation example:

E25R**0033...**

CDX = 1.30". Ø 2.60"

D = Ø 7.87"

$CDX - a = T_{red.}$

1.30" - .060" = 1.24"

Clamping Method – SX-System

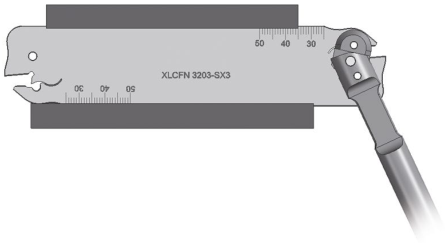
System function – inserting and removing the cutting inserts

Precision system for internal and external grooving.

The key has been designed in such a way that it will not stress the material beyond its ‘elastic limit’.

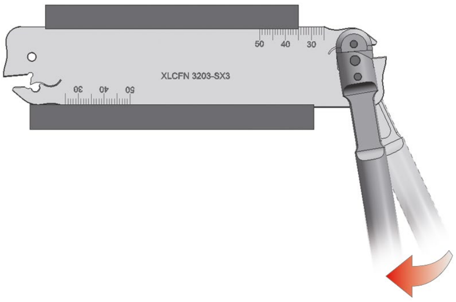
With this alternate system the material always remains in its flexible range and provides a substantial increase in tool life.

1



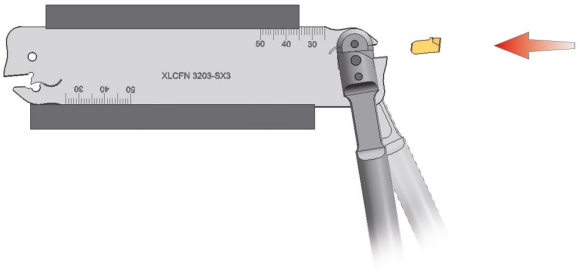
Locate wrench into blade with pins located in two holes

2



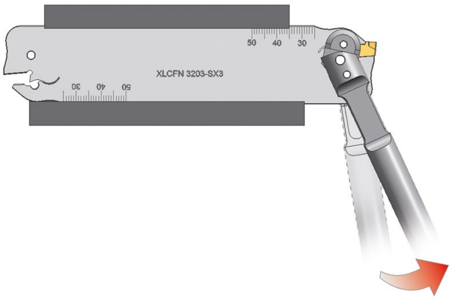
Movement of the fitting key in the direction of the insert seat opens the tool.

3



Load the grooving insert into position and press against the seat.

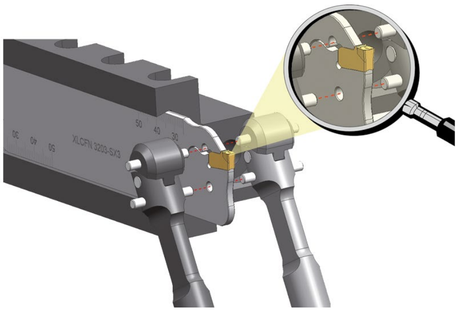
4



Moving the key forward causes the insert seat to close and clamp the insert.

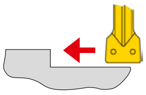
When changing the inserts, always maintain tension on the key!

The clamp is designed so that the wrench can be inserted from both sides of the blade according to the accessibility.



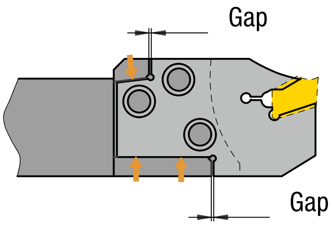
Maximum blade projection when turning

Blade	max. overhang
SX 2 – SX 3	.984 inch
SX 4 – SX 5	1.181 inch
SX 6	1.378 inch



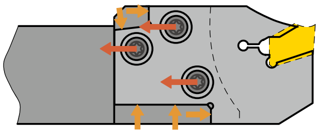
Clamping function – ModularClamp-Module

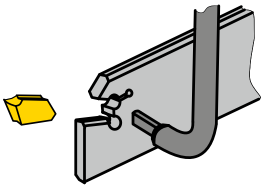
Module unclamped



- Gap between module and support face for axial clamping

Module clamped

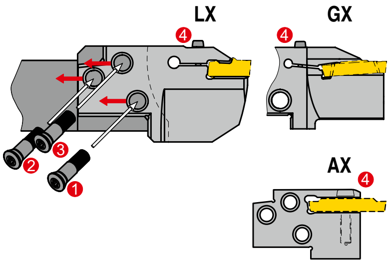




- Axial clamping with support face
- Connection free from play, therefore maximum stability

GX **LX** **AX**

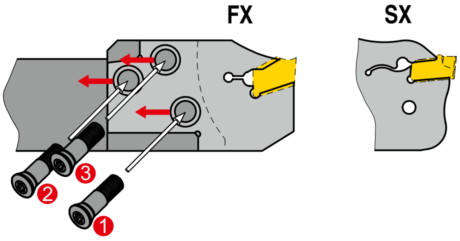
Active insert clamping



Clamping screws 1, 2 and 3 are used to clamp the modules.
The insert is clamped in the module via the additional screw 4.

FX **SX**

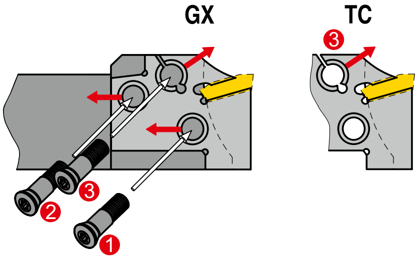
Self clamping of the insert



Clamping screws 1, 2 and 3 are used for clamping the module.
The insert is self-clamping.

GX **TC**

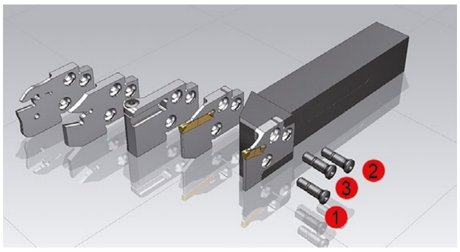
Active insert clamping



Clamping screws 1 and 2 are used for clamping the module.
Important: first tighten clamp screws 1 and 2.
Then clamp the insert with screw 3.

Torque Moment ModularClamp Module Screws

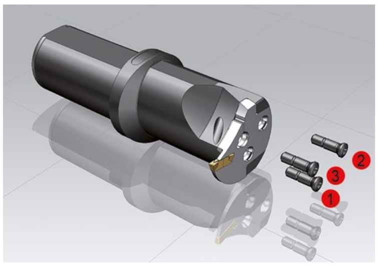
ModularClamp – Tool holder



Tighten screws to the correct Torque moment in this order.

ModularClamp – Tool holder	Screw	Torx	Torque moment	
			Nm	in.lbs
E12..	M2,5x10	T08	1,2	10,6
E16..	M3,5x12,5	T15	3,2	28,3
E20..	M4x14	T15	4,0	35,4
E25..	M5x18	T20	5,0	44,3
E32..	M6x20	T25	6,0	53,1

ModularClamp – Boring bar



Tighten screws to the correct Torque moment in this order.

ModularClamp – Boring bar	Screw	Torx	Torque moment	
			Nm	in.lbs
I16..	M2,5x10	T08	1,2	10,6
I20..	M3x11	T10	2,0	17,7
I25..	M3,5x12,5	T15	3,2	28,3
I32..	M4,5x17	T20	4,0	35,4
I40..	M5x18	T20	5,0	44,3

Tightening torque for the insert clamping

Recommended tightening torque

Grooving systems	Screw	Torx	Torque moment	
			Nm	in.lbs
GX / AX / LX	M3,5	T15	3,2	28,3
	M4,0	T15/T20	4,0	35,4
	M5,0	T20	5,0	44,3

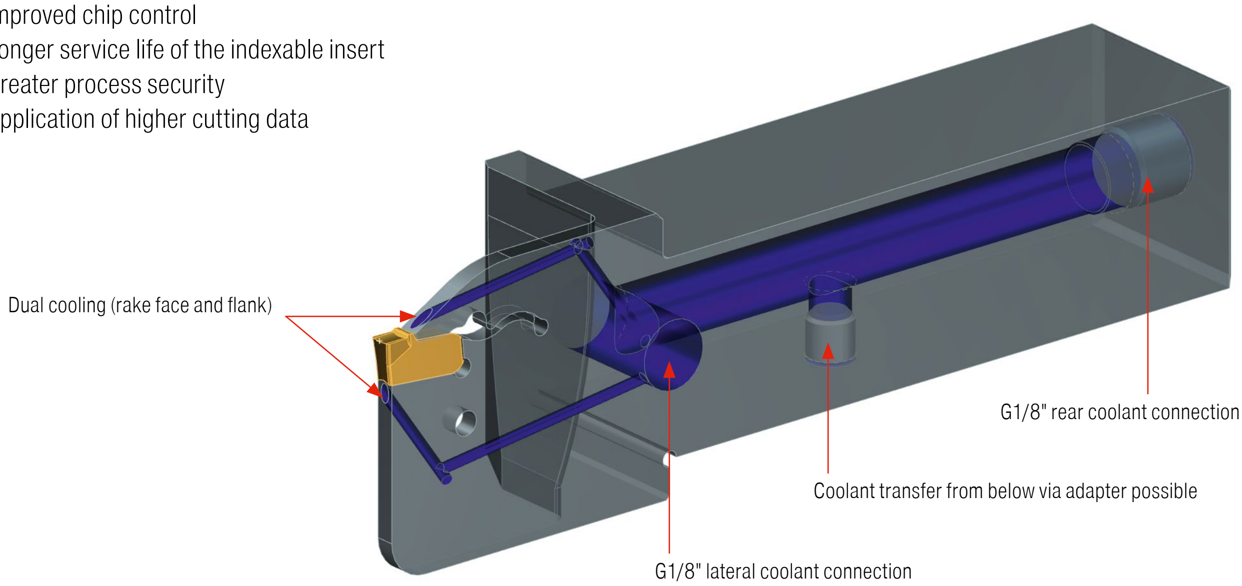
Advantages due to DirectCooling

Internal coolant supply with groove machining has a decisively positive effect on your turning process.
In our CERATIZIT grooving range, the following grooving systems have an internal coolant supply:

- **GX** Grooving holder (single tool)

Advantages due to DirectCooling

- Improved chip control
- Longer service life of the indexable insert
- Greater process security
- Application of higher cutting data



Advantages of the trochoidal turning strategy

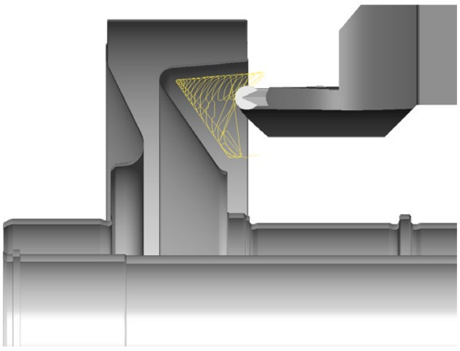
- Less wear and longer tool life due to softer entry and exit
- Smaller angle of engagement = less vibration
- Up to 40% higher feed rate values possible
- Target application: austenitic steels, heat-resistant steels, Inconel and nickel-base alloys as well as long-chipping ductile materials
- Savings on tools

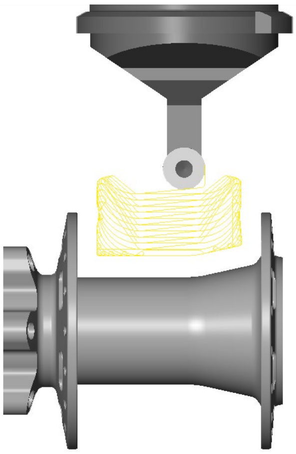
Trochoidal turning with support of the following CAM systems:

- hyperMILL – High-performance turning
- Esprit CAM – ProfitTurning
- SolidCAM – Turning
- EdgeCAM – Waveform turning
- MasterCAM – Dynamic turning

Possible applications

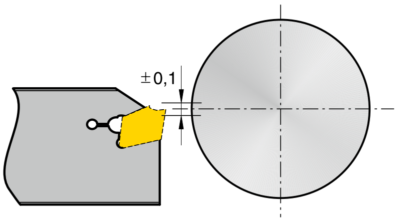
- Radial and axial recesses and grooves
- Rough machining – high-speed turning with button insert

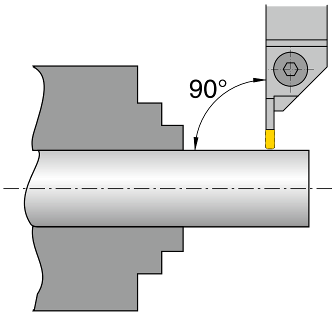




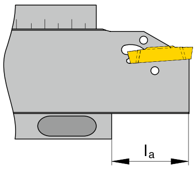
General references

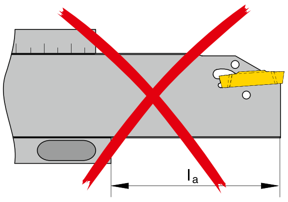
Tool position

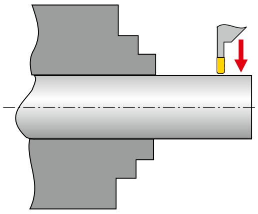


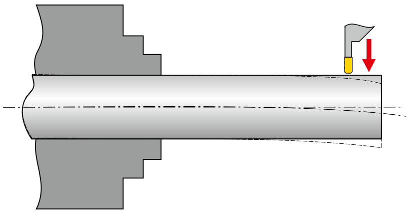


Tool overhang



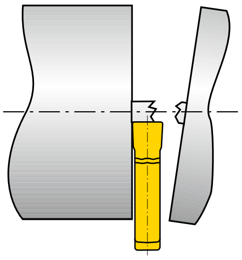




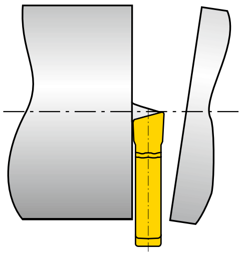


As a rule of thumb: Overhang l_a should not be greater than 8 x s (Groove width).

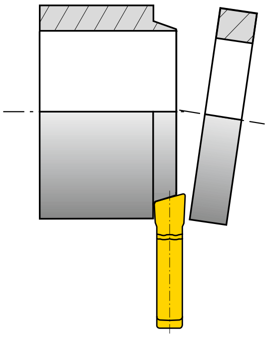
References for Parting off



From Ø 0.1969 inch on, reduce feed "f" by approx. 50%. No parting across centre (risk of breakage).

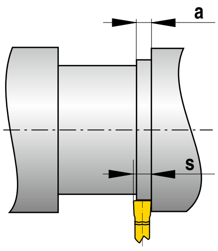


For parting pip-free, use R or L inserts. In order to minimize lateral deflection reduce feed by approx. 20–50 %.

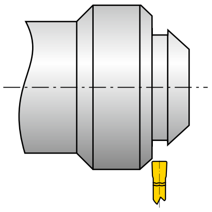


In order to prevent ring formation, use R or L inserts. Reduce feed "f" because of lateral deflection by approx. 20–50%.

References for grooving



When grooving with an axial displacement the width **"a"** should amount to at least 70 % of the grooving width **"s"**.



When grooving oblique surfaces the feed should be reduced by approx. 20–50 % until fully engaged.

Trouble shooting guide for grooving FX/SX/GX/LX

Type of problem												
Type of wear				Work piece problems				Chip control				
Edge breakage	Built-up edge	Wear on clearance face	Plastic deformation	Vibration	Formation of pips and burrs	Chattered surface	Surface quality	Chip too long (snarl chip)	Chip too short (fragmented chip)			
	⬆	⬇	⬇	↓			↑	↓		Cutting speed	Cutting data	Remedy measures
⬇			↓	↑		⬇	⬇	⬆	⬇	Feed rate		
⬇		↓	↓		⬇	↓	↓			Feed rate at centre -R -F -M ↑ ↓		
⬆	⬇		~	~	⬇	⬇	↓	⬇	⬆	Chip groove	Insert selection	
					●					R/L execution		
⬆		⬆	⬆	↓	⬇	↓	↑			Corner radius ↑ larger smaller ↓		
⬇		⬆	⬆							Tool Material ↑ Wear resistance toughness ↓		
				⬇		↑	↑			Groove width		
~				~		~	~			Tool clamping	General criteria	
~				~		~	~			Work piece clamping		
~				~			↓			Overhang		
~		~		~	~		~			Tip height		
	●	●	●		●		●	●		Cooling lubricant		

⬆ raise, increase
large influence

↑ raise, increase
small influence

⬇ avoid, reduce
large influence

↓ avoid, reduce
small influence

~ check, optimise

● use

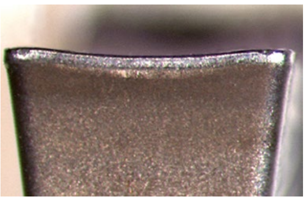
Trouble shooting guide for TC threading

Type of problem													
Type of wear				Workpiece				Chip control					
Wear on clearance face	Break out cut	Plastic deformation	Built-up edge	Formation of a shoulder at the external thread Ø	Profile	Surface quality	Chatter marks, vibrations	Chip too thick	Chip too thin	Chip shape (snarl chip)			
⬇		⬇	⬆			⬆	↓				Cutting speed	**Cutting data**	**Remedy measures**
a, b	a, b		a, b	a, b		a, b	a, b	a, b		a, b	Feed a – over the flanks b – Alternating flanks		
↑	⬇	⬇		↓	↓	↓	↓	⬇	⬆	～	Feed (Cutting depth)		
↓	⬆	↑		～	～	↑	～	⬆	⬇	↓	Number of passes		
				●	●	●					Spring cut (Air cut)		
			●			●	●			●	Chip groove	**Indexable insert selection**	
⬆	⬇	⬆									Tool Material Wear resistance ↑ ↓ toughness		
				●	●	●					Full profile		
											Partial profile		
	～					～	～				Stable tool holder / insert	**Various criteria**	
	～					～	～				Stable workpiece		
	↓					↓	↓				Overhang		
～	～	～			～	～	～				Tip height		
●	●	●	●	●		●					Cooling lubricant		

⬆	raise, increase large influence	⬇	avoid, reduce large influence	～	check, optimise
↑	raise, increase small influence	↓	avoid, reduce small influence	●	use

Wear causes

Wear on clearance face



Abrasion on the flank, normal wear after a given operation time

Cause

- cutting speed too high
- grade with too low wear resistance
- insufficient coolant

Remedy

- Reduce the cutting speed
- select a more wear resistant grade
- Improve/check coolant feed

Edge chipping

Excessive mechanical stress on the cutting edge causing carbide particles to break out.

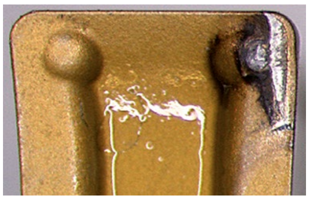
Cause

- too hard grade
- vibration
- too high feed and depth of cut
- chip impact

Remedy

- use tougher grade
- use negative geometry with chip breaker
- reduce overhang, check center height
- stabilize the cutting edge

Cratering



The outgoing hot chip causes cratering of the insert on the clamping surface.

Cause

- too high cutting speed, feed, or both
- too low rake angle
- grade with too low wear resistance
- incorrectly supplied cooling

Remedy

- Reduce cutting speed and / or feed
- Check coolant flow and / or increase pressure
- Use harder grade

Plastic deformation

Large mechanical load produces high temperature machining, this can lead to plastic deformation.

Cause

- too high operating temperature, thus softening the base material
- unsuitable grade
- inadequate coolant supply

Remedy

- Reduce the cutting speed
- select a more wear resistant grade
- use coolant

Built-up edge

Weld deposits of material on the cutting edge occurs when the chip does not flow caused by low average temperature.

Cause

- too low cutting speed
- too low rake angle
- Incorrect grade
- lack of cooling / lubrication

Remedy

- Increase the cutting speed
- Increase rake angle
- Use TiN coating
- increase coolant strength

Notch wear

Contraction at maximum cutting depth.

Cause

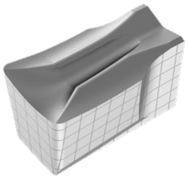
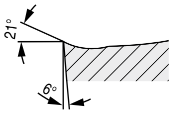
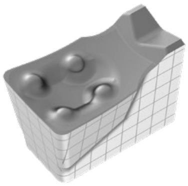
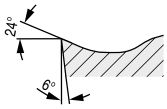
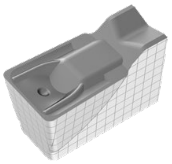
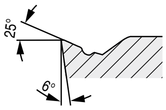
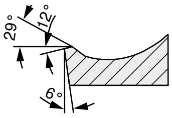
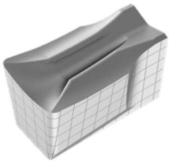
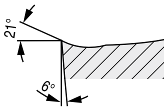
- Oxidation at the cutting edge
- Too high a temperature at the edge

Remedy

- Use different cutting depths
- Reduce cutting speed
- Improve/check coolant feed

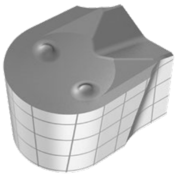
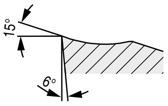
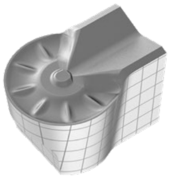
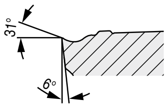
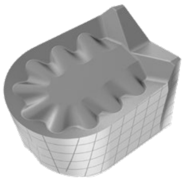
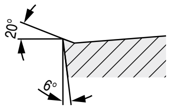
Chip breakers / Applications

System GX

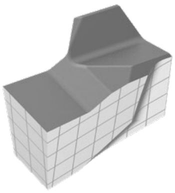
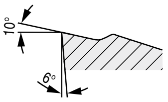
		Smooth cut ○	irregular cut ◐	interrupted cut ◌	Model	f in inch/rev.
-F2		**CTCP325**	**CTP1340**	**CTPP345**		.002-.006
▲ very positive geometry ▲ honed cutting edge ▲ low feed rates ▲ low cutting forces ▲ first choice for stainless materials		**CTP1340**	**CTP1340/CTPP345**	**CTPP345**		
		CTCP325	**CTP1340**			
		CTP1340	**CTP1340**	CTPP345		
		CTCP325				
		CTP1340	CTP1340			
-Standard / -E		**CTCP325**	**CTCP335/CTP1340**	**CTPP345**		.002-.007
▲ positive geometry ▲ low-medium feed rates ▲ low cutting forces ▲ universal application ▲ first choice for axial grooving		**CTP1340**	**CTP1340/CTPP345**	**CTPP345**		
		CTCP325	**CTCP335/CTP1340**	CTP1340		
		CTP1340	**CTP1340**	CTPP345		
		CTCP325				
		CTP1340	CTP1340			
-M40		**CTCP325**	**CTP1340**	**CTPP345**		.003-.008
▲ stable geometry ▲ medium feed rates ▲ universal application ▲ good chip control		**CTP1340**	**CTP1340/CTPP345**	**CTPP345**		
		CTCP325	**CTCP325/CTP1340**	CTP1340		
		CTP1340	**CTP1340**	CTPP345		
		CTCP325				
		CTP1340	CTP1340			
-M1		**CTCP325**	**CTP1340**	**CTPP345**		.004-.008
▲ very stable cutting edge ▲ medium-high feed rates ▲ for intterrupted cut ▲ for high tensile materials ▲ first choice for parting off		**CTP1340**	**CTP1340/CTPP345**	**CTPP345**		
		CTCP325	**CTCP325/CTP1340**	CTP1340		
		CTP1340	**CTP1340**	CTPP345		
		CTCP325				
		CTP1340	CTP1340			
-27P						.002-.010
▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals						
		H216T	**H216T**	**H216T**		
		H216T	**H216T**	**H216T**		
		H216T	H216T			
		H216T				

Chip breakers / Applications

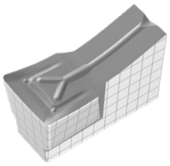
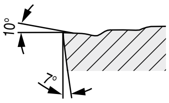
System GX

		Smooth cut ○	irregular cut ●	interrupted cut ◌	Model	f in inch/rev.
Standard – Radius ▲ positive geometry ▲ honed cutting edge ▲ low-medium feed rates ▲ low cutting forces ▲ Radius grooving/copy turning		**CTCP325**	**CTCP325/CTP1340**	CTP1340		.0018–.008
		CTP1340	**CTP1340**	CTP1340		
		CTCP325	**CTCP325/CTP1340**	CTP1340		
		CTP1340	**CTP1340**			
		CTCP325				
		CTP1340	CTP1340			
-M3 – Radius ▲ stable geometry ▲ medium-high feed rates ▲ high surface quality ▲ Radius grooving/copy turning		**CTCP325**	**CTCP325/CTCP335**	**CTCP335**		.003–.008
		CTCP335	CTCP335			
		CTCP325	**CTCP325/CTCP335**	**CTCP335**		
		CTCP325				
		CTCP325				
-27P – Radius ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals						.002–.012
		H216T	**H216T**	**H216T**		
		H216T	**H216T**	**H216T**		
		H216T	H216T			
		H216T				

Circlip grooving

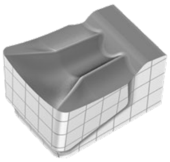
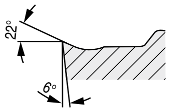
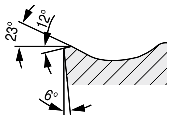
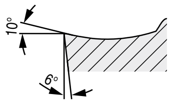
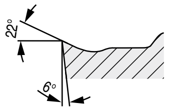
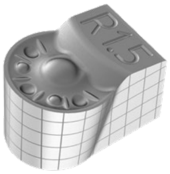
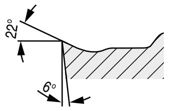
		Smooth cut ○	irregular cut ●	interrupted cut ◌	Model	f in inch/rev.
Standard ▲ positive geometry ▲ honed cuttign edge ▲ low feed rates ▲ small corner radius ▲ Circlip grooves		**CTP1340**	**CTP1340**	CTP1340		.002–.012
		CTP1340	**CTP1340**	CTP1340		
		CTP1340	**CTP1340**	CTP1340		
		CTP1340	CTP1340	CTP1340		
		CTP1340	**CTP1340**	CTP1340		
		CTP1340	CTP1340			

System AX

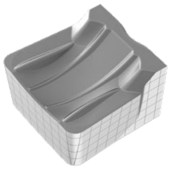
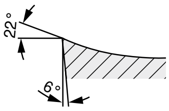
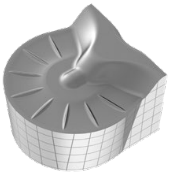
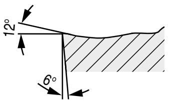
		Smooth cut ○	irregular cut ●	interrupted cut ◌	Model	f in inch/rev.
-F50 ▲ positive geometry ▲ honed cuttign edge ▲ low feed rates ▲ small corner radius ▲ Circlip grooves		**CTP1340**	**CTP1340**	CTP1340		.001–.005
		CTP1340	**CTP1340**	CTP1340		
		CTP1340	**CTP1340**	CTP1340		
		CTP1340	CTP1340	CTP1340		
		CTP1340	**CTP1340**	CTP1340		
		CTP1340	CTP1340			

Chip breakers / Applications

System SX

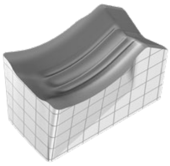
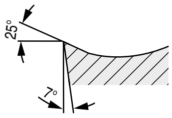
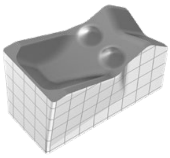
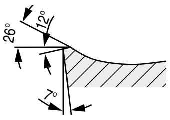
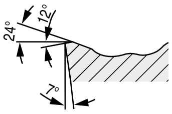
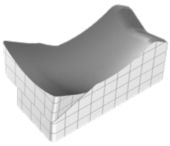
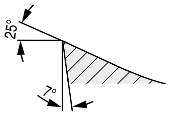
		Smooth cut ○	irregular cut ◐	interrupted cut ◌	Model	f in inch/rev.
-F2 ▲ very positive geometry ▲ honed cutting edge ▲ low feed rates ▲ low cutting forces ▲ first choice for stainless materials		**CTCP325**	**CTCP325/CTP1340**	**CTPP345**		.002–.006
		CTP1340	**CTP1340/CTPP345**	**CTPP345**		
		CTCP325	**CTCP325/CTP1340**	**CTP1340**		
		CTP1340	**CTP1340**	CTPP345		
		CTCP325				
		CTP1340	CTP1340			
-M1 ▲ very stable cutting edge ▲ medium-high feed rates ▲ for interrupted cut ▲ for high tensile materials ▲ first choice for parting off		CTCP325	CTCP335/CTP1340	CTPP345		.004–.008
		CTP1340	**CTP1340**	**CTPP345**		
		CTCP325	**CTCP325/CTP1340**	CTP1340		
		CTP1340	**CTP1340**	CTPP345		
		CTCP325				
		CTP1340	CTP1340			
-M2 ▲ stable geometry ▲ medium feed rates ▲ universal application ▲ good chip control		CTCP325	CTCP335/CTP1340	CTPP345		.003–.008
		CTP1340	**CTP1340**	**CTPP345**		
		CTCP325	**CTCP325/CTP1340**	CTP1340		
		CTP1340	**CTP1340**	CTPP345		
		CTCP325				
		CTP1340	CTP1340			
-27P ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals						.002–.010
		H216T	**H216T**	**H216T**		
		H216T	**H216T**	**H216T**		
		H216T	H216T			
		H216T				
-M3 – Radius ▲ stable geometry ▲ medium-high feed rates ▲ high surface quality ▲ Radius grooving / Copy turning		**CTCP335**	**CTCP335/CTP1340**	**CTP1340**		.002–.008
		CTP1340	**CTP1340**	**CTP1340**		
		CTCP335	**CTCP335/CTP1340**	**CTP1340**		
		CTP1340	**CTP1340**	CTP1340		
		CTP1340	CTP1340			

System LX

-M2 ▲ stable geometry ▲ medium feed rates ▲ universal application ▲ good chip control		**CTCP325**	**CTCP335/CTP1340**	**CTCP335**		.008–.020
		CTCP335	**CTP1340**	CTP1340		
		CTCP325	**CTCP325**	**CTCP335**		
		CTP1340	**CTP1340**	CTP1340		
		CTCP325				
		CTP1340	CTP1340			
-M3 – Radius ▲ stable geometry ▲ medium-high feed rates ▲ high surface quality ▲ Radius grooving/copy turning		**CTCP325**	**CTCP335/CTP1340**	**CTCP335**		.002–.014
		CTCP335	**CTCP335/CTP1340**	CTP1340		
		CTCP325	**CTCP325/CTCP335**	**CTCP335**		
		CTP1340	**CTP1340**	CTP1340		
		CTCP325				
		CTP1340	CTP1340			

Chip breakers / Applications

System FX

		Smooth cut	irregular cut	interrupted cut	Model	f in inch/rev.
-F1 ▲ very positive geometry ▲ low-medium feed rates ▲ low cutting forces ▲ good chip control ▲ low cutting edge build up		**CTCP325**	**CTCP325/CTP1340**	**CTPP345**		.002–.006
		CTP1340	**CTP1340/CTPP345**	**CTPP345**		
		CTCP325	**CTCP325/CTP1340**	CTP1340		
		CTP1340	**CTP1340**	CTPP345		
		CTCP325				
		CTP1340	CTP1340			
-M1 ▲ very stable cutting edge ▲ medium-high feed rates ▲ for intterrupted cut ▲ for high tensile materials ▲ first choice for parting off		**CTCP325**	**CTCP335/CTP1340**	**CTPP345**		.003–.008
		CTP1340	**CTP1340/CTPP345**	**CTPP345**		
		CTCP325	**CTCP325/CTP1340**	CTP1340		
		CTP1340	**CTP1340**	CTPP345		
		CTCP325				
		CTP1340	CTP1340			
-R2 ▲ very stable cutting edge ▲ high feed rates ▲ good chip control		**CTCP325**	**CTCP325/CTP1340**	**CTPP345**		.004–.011
		CTP1340	**CTP1340/CTPP345**	**CTPP345**		
		CTCP325	**CTCP325/CTP1340**	CTP1340		
		CTP1340	**CTP1340**	CTPP345		
		CTCP325				
		CTP1340	CTP1340			
-27P ▲ very positive geometry ▲ ground periphery ▲ sharp cutting edge ▲ polished chip breaker ▲ first choice for non-ferrous metals						.001–.005
		H216T	**H216T**	**H216T**		
		H216T	**H216T**	**H216T**		
		H216T	H216T			
		H216T				

Example of Coding Grooving Tools

Grooving insert

GX	16	2	E	3.00	N	0.50
Grooving system (GX)	Insert length (16 mm / .6299 inch)	Width class of the holder / module or support surface (2 mm / .0787 inch)	Type of insert, application	Groove width (3.0 mm / .1181 inch)	Insert seat N=Neutral L=Left Handed R=Right Handed	Corner radius size (0.5 mm / .0197 inch)

Module

E	25	R	12	GX	16	2
Application E = external I = internal	Size (25 mm / .9843 inch)	Module version R=Right Handed L=Left Handed	Maximum groove depth (12 mm / .4724 inch)	Grooving system (GX)	Insert size (16 mm / .6299 inch)	Width class 2

Basic holder

E	25	R	00	2525	L
Application E = external I = internal	Size (25 mm / .9843 inch)	Holder version R=Right Handed L=Left Handed	Approach angle 0°	Shank type 25x25mm / .9843 x .9843 inch	Shank length L = (sh. ISO)

Monobloc tool holder

E	25	R	00	33	2525	M	K	DC	SX3
Application E = external I = internal	Size (25 mm / .9843 inch)	Holder version R=Right Handed L=Left Handed	Approach angle 0°	Groove depth (33 mm / 1.2992 inch)	Shank type 25x25mm / .9843 x .9843 inch	Shank length M = (sh. ISO)	Insert clamping K = Key	Cooling system DC = DirectCooling	Grooving system/width (3 mm / .1181 inch)

Compilation

Basic holder	Module	Grooving insert
E25 R 00 - 2525L	**E25 R 12 - GX 16-2**	**GX 16-2 E3.00 N 0.50**

Grades Overview

CTCP325

- Carbide, TiCN-Al_2O_3-coated
- ISO | **P25** | M20 | **K30** | S25
- The wear-resistant solution for steel and cast iron materials at high cutting speeds

CTCP335

- Carbide, TiCN-Al_2O_3-coated
- ISO | **P35** | M30 | **K35**
- The reliable choice for machining steel and cast iron materials

CTPP345

- Carbide, TiAlTaN-coated
- ISO | **P45** | **M40** | S40
- The reliable solution for steel materials and austenitic steels under unstable conditions

CTP1340

- Carbide, TiAlTaN-coated
- ISO | **P30** | **M25** | **K30** | N30 | **S30** | O30
- The universal high-performance grade for steel materials, austenitic steel, cast iron materials and heat-resistant alloys

CTPP520

- Carbide, TiAlTaN-coated
- ISO | **P20** | **M15** | **K25** | S25 | H5
- The wear-resistant grade for wet machining of steels

CTPP535

- Carbide, AlTiN-coated
- ISO | **P35** | **M30** | **K25** | **S30**
- The tough thread turning grade for universal application

H216T

- Carbide, uncoated
- ISO | **K15** | **N15** | S15 | O5
- The uncoated carbide grade for machining aluminium and other non-ferrous metals
- Also highly suitable for HSC machining

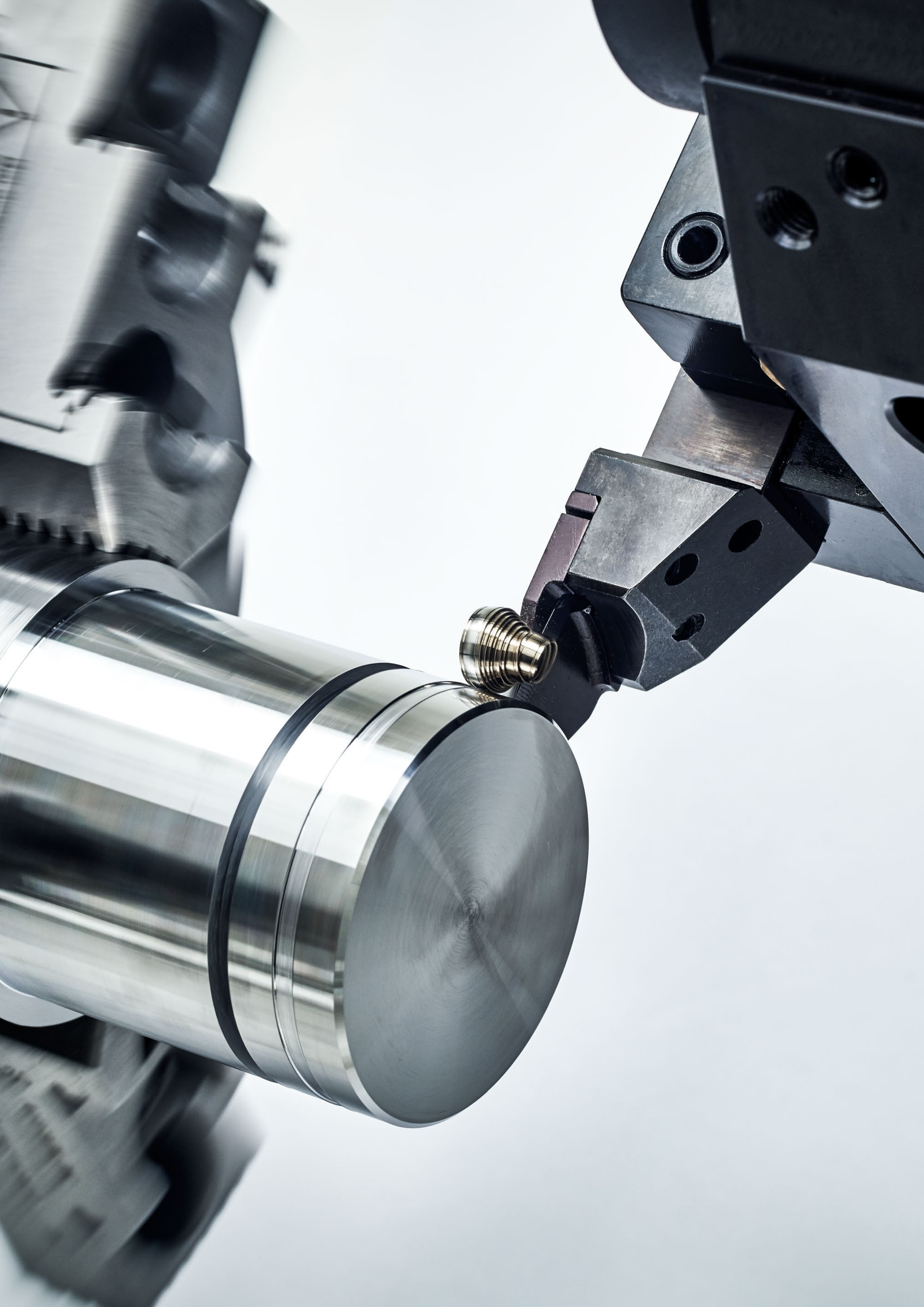
Application

Grade designation		ISO application range	Steel P	Stainless steel M	Cast iron K	Non-ferrous metals N	Heat-resistant S	Tempered steel H	Non-metal materials O
Grooving									
CTCP325	DRAGONSKIN	15–35	●						
		15–30		○					
		20–40			●				
		15–30					○		
CTCP335	DRAGONSKIN	15–45	●						
		15–35		○					
		15–35			●				
CTPP345	DRAGONSKIN	35–50	●						
		35–50		●					
		35–45					○		
CTP1340	DRAGONSKIN	15–40	●						
		15–35		●					
		15–35			●				
		25–40				○			
		20–40					●		
		01–10							○
H216T		05–25			●				
		05–20				●			
		10–20					○		
		01–10							○
TC thread									
CTPP520	DRAGONSKIN	10–30	●						
		10–20		●					
		20–30			●				
		10–20					○		
		01–10						○	
CTPP535	DRAGONSKIN	25–50	●						
		20–40		●					
		20–30			●				
		10–35					●		
H216T		05–25			●				
		05–20				●			
		01–10							○

ISO application range scale: 01, 05, 10, 15, 20, 25, 30, 35, 40, 45, 50

● **Main Application**
○ Extended application

wear-resistant v_c+ ◯ ⟷ ◌ v_c– tough



New products for machining technicians

→ Page 16–23

NEW FreeTurn

The innovative and extremely flexible FreeTurn tools have 3 cutting edges and are suitable for almost all external turning operations.

With High Dynamic Turning ("HDT", for short) and the dynamic FreeTurn turning tools, CERATIZIT is turning the conventional method of turning completely on its head. All familiar turning operations such as roughing, finishing, contour turning, facing and longitudinal turning can now be completed using just one tool.

Curious? More information about High Dynamic Turning and FreeTurn can be found on our website:

https://cutting.tools/us/en/freeturn

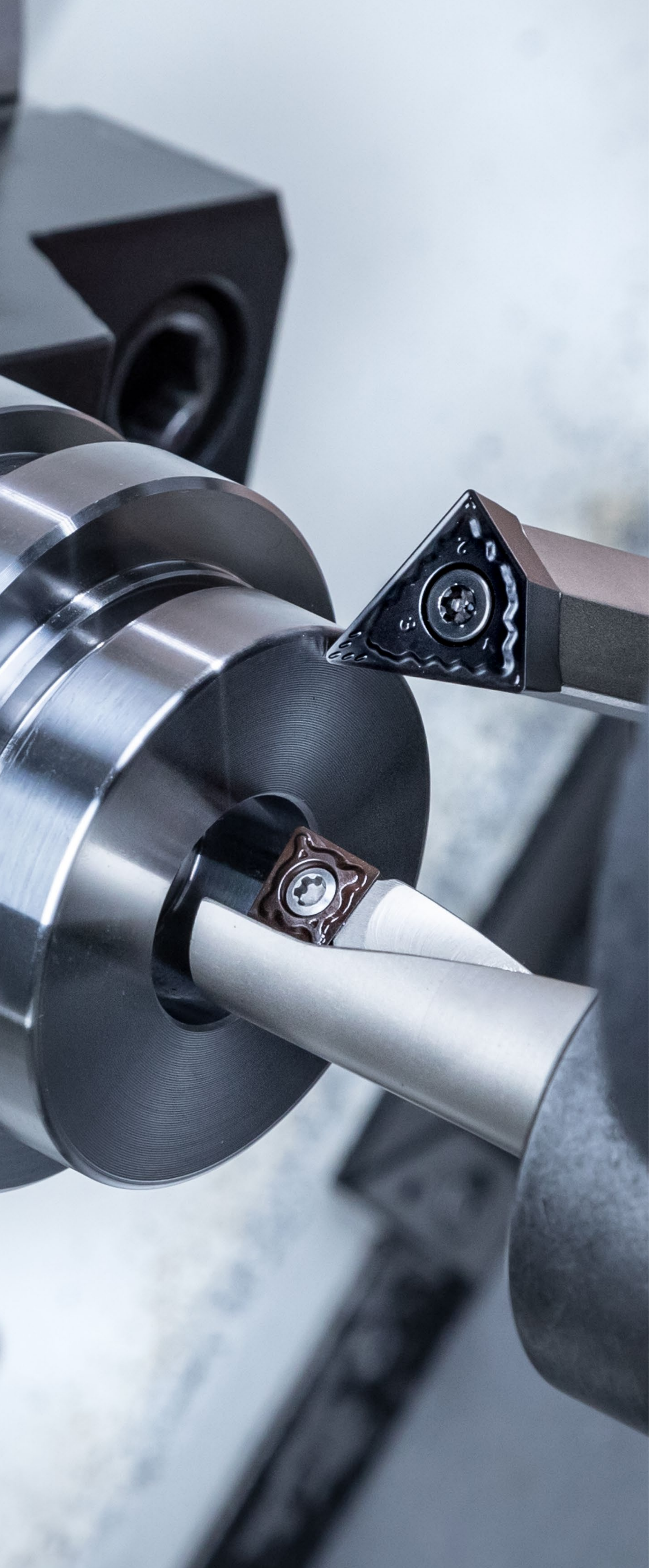


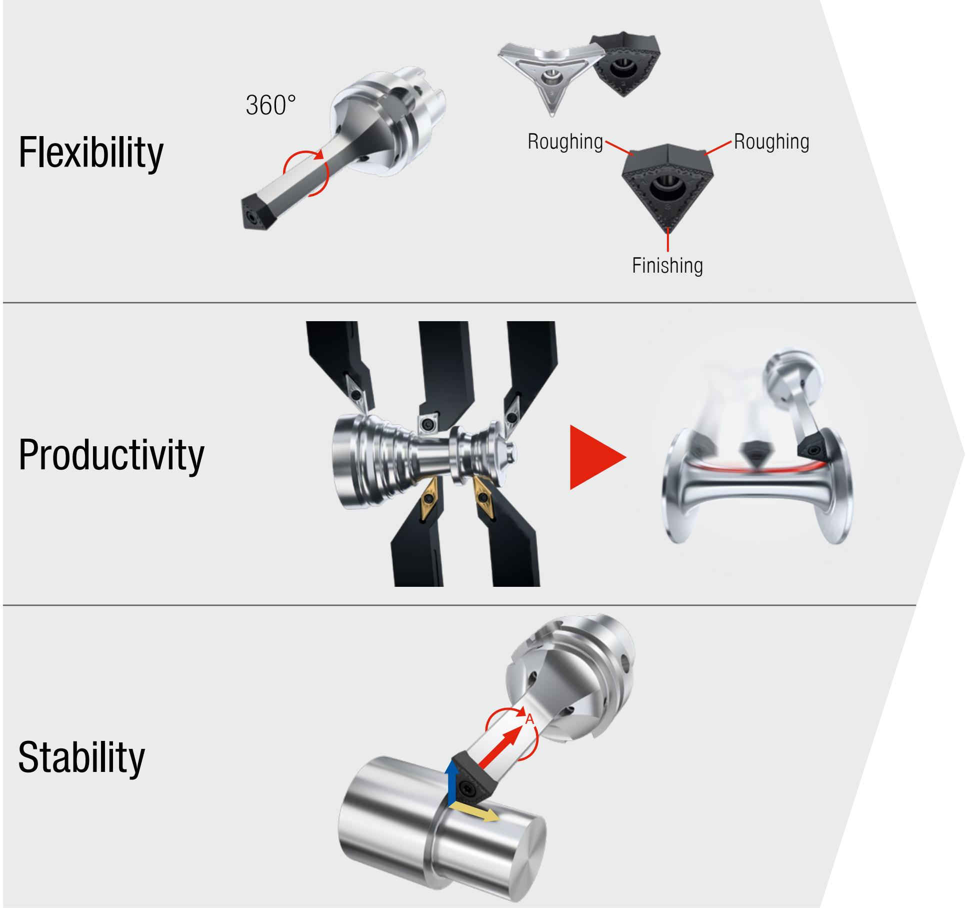
Table of contents

CERATIZIT \ Performance

Premium quality tools for high performance.

The premium quality tools from the **CERATIZIT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

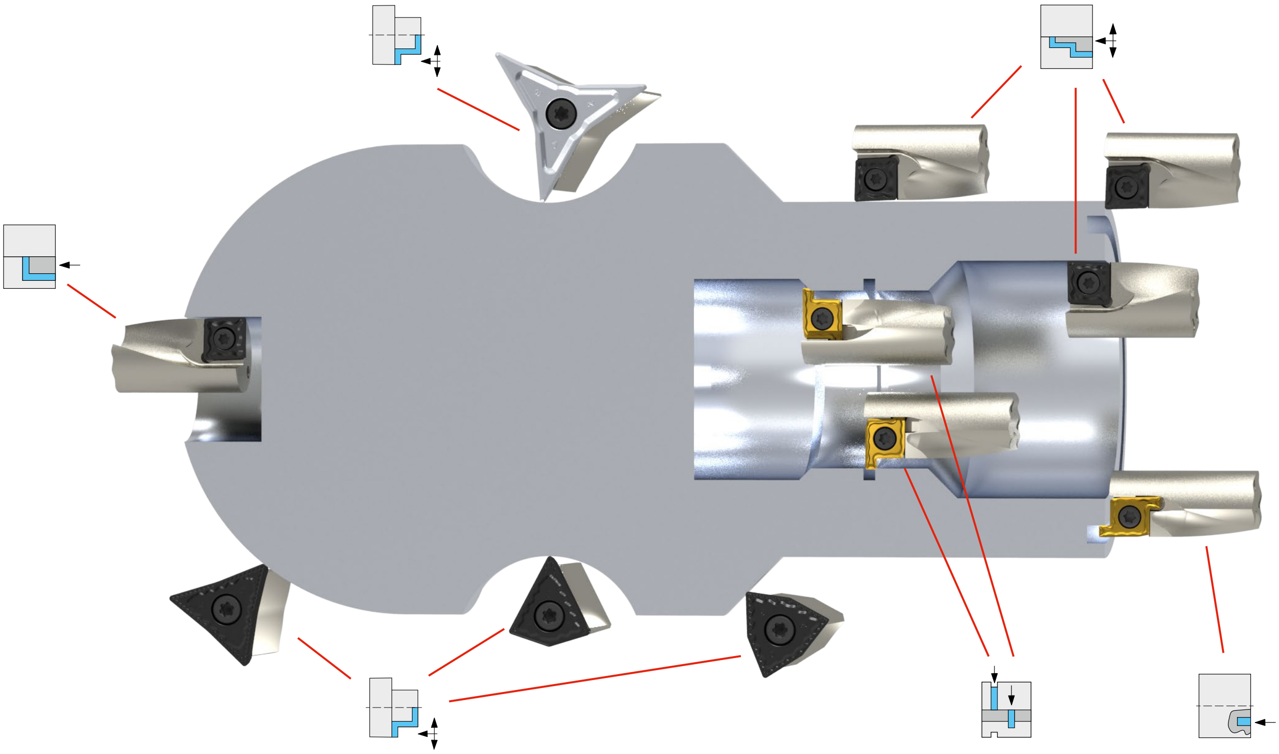
Advantages of FreeTurn



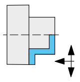
Advantages of EcoCut

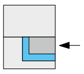
- ▲ reduced machining time
- ▲ reduced need for tool positions
- ▲ generates flat bottom of hole
- ▲ less programming
- ▲ lower set-up costs / reduced setting time
- ▲ time savings due to fewer tool changes

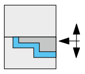
Application examples

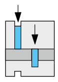


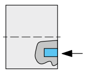
Symbol explanation

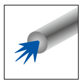

Turning outside profiles


Drilling into solid material


Turning internal profiles


External / internal radial grooving


Axial grooving


Int. coolant supply

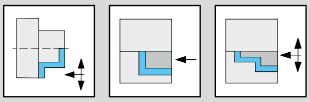
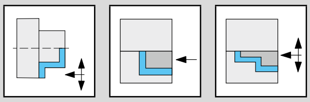
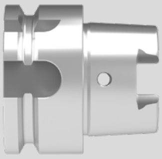
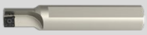
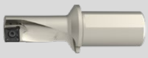
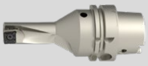
-28P — Polished chip breaker
H216T — Carbide Grade

F	Fine Machining
M	Medium Machining
R	Rough Machining

○ ○ ◌

○	Smooth cut
○	Irregular cutting depth
◌	Interrupted cut

Toolfinder

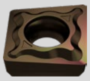
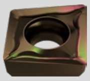
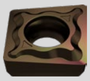
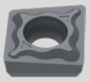
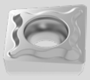
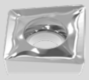
Tool system	**EcoCut Mini**	**EcoCut Classic**
Application		
Machine interface	  → 7+8 Adapter for EcoCut Mini	  HSK-T 63 metric
Lengths and diameters Versions	**2.25xD** Ø 0.078-0.314"  → 6 **4.0xD** Ø 0.078-0.314"  → 6	**1.5xD** Ø 0.314-1.260"  → 10 **2.25xD** Ø 0.314-1.260"  → 11 **3.0xD** Ø 0.314-1.260"  → 12 **2.25xD** Ø 0.314-1.260"  metric

EcoCut Mini

Grade description	CTPP435	CTPP435	CTWN425	CTWN425
	DRAGONSKIN	DRAGONSKIN		
Cutting conditions	○ ○ ○	○ ○ ○	○ ○ ○	○ ○ ○
				
	Solid carbide	Solid carbide	Solid carbide	Solid carbide
	Left-hand	Right-hand	Left-hand	Right-hand
Application range	●	●		
	●	●		
	○	○	○	○
	○	○	●	●
	●	●	○	○
	○	○	○	○
Page No.	→ 6	→ 6	→ 6	→ 6

→ v_c Page 25

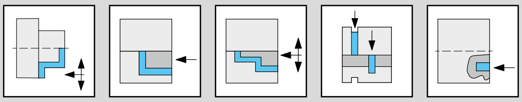
EcoCut Classic

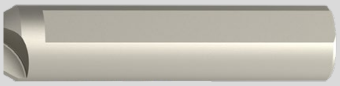
Grade description	CTCP425	**-M50Q** CTCP425	CTCP435	CTPP430	**-27P** H216T	**-27Q** H210T
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		
Cutting conditions	○ ○ ○	○ ○ ○	○ ○ ○	○ ○ ○	○ ○ ○	○ ○ ○
						
	M	M	M	M	M	M
	XCNT	XCNT	XCNT	XCNT	XCET	XCET
Application range	●	●	●	●		
	○	○	○	●		
	○	○	○	○	●	○
				○	●	●
			○	○	○	●
				○	○	○
Page No.	→ 9	→ 9	→ 9	→ 9	→ 9	→ 9

→ v_c Page 25

EcoCut tools are suitable for off-center drilling. This allows for creating a larger diameter hole from the nominal diameter of the tool → **For details, see the technical information.**

EcoCut ProfileMaster





1.5xD
Ø 0.394–1.260"

→ 14

2.25xD
Ø 0.394–1.260"

→ 15

-M20 CTPP430	**-M20** CTPP430
DRAGONSKIN	DRAGONSKIN
○ ○ ◌	○ ○ ◌
	
M	**M**
PM-R	PM-L
●	●
●	●
○	○
○	○
●	●
○	○
→ 13	→ 13

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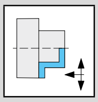
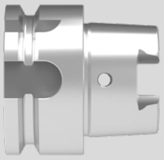
FreeTurn





HSK-T 63

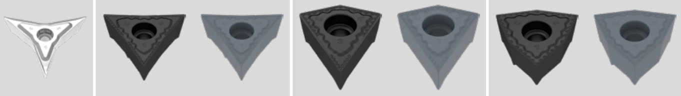
PSC 63

LPR = 3.937"
LPR = 4.921"

→ 19+22

LPR = 3.937"
LPR = 4.921"

→ 20+23

-28P H216T	CTCP125	CTPM125	CTCP125	CTPM125	CTCP125	CTPM125
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
○ ○ ◌	○ ○ ◌	○ ○ ◌	○ ○ ◌	○ ○ ◌	○ ○ ◌	○ ○ ◌
						
F F F	**F F F**		**M M F**		**M M M**	
FT15 . 353535...	FT15 . 555555...		FT15 . 808055...		FT17 . 808080...	
	●	○	●	○	●	○
		●		●		●
○	○		○		○	
●						
○						
→ 16	→ 17	→ 17	→ 18	→ 18	→ 21	→ 21

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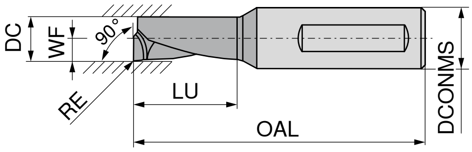
6

metric
Additional metric items are available in our Online-Shop at cuttingtools.ceratizit.com and in the metric main catalog.

EcoCut – Mini

▲ Drilling and turning tool for small diameters

≥
Ø 0.076”



Designation	DC inch	DCONMS inch	OAL inch	LU inch	WF inch	RE inch	CTPP435 DRAGONSKIN Solid carbide Left-hand 70 805 ...	CTPP435 DRAGONSKIN Solid carbide Right-hand 70 804 ...	CTWN425 Solid carbide Left-hand 70 805 ...	CTWN425 Solid carbide Right-hand 70 804 ...
ECM 02 R/L 2,25D	0.079	0.157	1.102	0.177	0.039	0.004	320	320		
ECM 02 R/L 2,25D AL	0.079	0.157	1.102	0.177	0.039	0.004			420	420
ECM 02 R/L 4,00D	0.079	0.157	1.220	0.315	0.039	0.004	321	321		
ECM 02 R/L 4,00D AL	0.079	0.157	1.220	0.315	0.039	0.004			421	421
ECM 02,5 R/L 2,25D	0.098	0.157	1.142	0.222	0.049	0.004	325	325		
ECM 02,5 R/L 2,25D AL	0.098	0.157	1.142	0.222	0.049	0.004			425	425
ECM 02,5 R/L 4,00D	0.098	0.157	1.299	0.394	0.049	0.004	326	326		
ECM 02,5 R/L 4,00D AL	0.098	0.157	1.299	0.394	0.049	0.004			426	426
ECM 03 R/L 2,25D	0.118	0.157	1.220	0.266	0.059	0.004	330	330		
ECM 03 R/L 2,25D AL	0.118	0.157	1.220	0.266	0.059	0.004			430	430
ECM 03 R/L 4,00D	0.118	0.157	1.378	0.472	0.059	0.004	331	331		
ECM 03 R/L 4,00D AL	0.118	0.157	1.378	0.472	0.059	0.004			431	431
ECM 03,5 R/L 2,25D	0.138	0.157	1.260	0.310	0.069	0.004	335	335		
ECM 03,5 R/L 2,25D AL	0.138	0.157	1.260	0.310	0.069	0.004			435	435
ECM 03,5 R/L 4,00D	0.138	0.157	1.457	0.551	0.069	0.004	336	336		
ECM 03,5 R/L 4,00D AL	0.138	0.157	1.457	0.551	0.069	0.004			436	436
ECM 04 R/L 2,25D	0.157	0.236	1.378	0.354	0.079	0.008	300	300		
ECM 04 R/L 2,25D AL	0.157	0.236	1.378	0.354	0.079	0.008			450	450
ECM 04 R/L 4,00D	0.157	0.236	1.614	0.630	0.079	0.008	301	301		
ECM 04 R/L 4,00D AL	0.157	0.236	1.614	0.630	0.079	0.008			451	451
ECM 05 R/L 2,25D	0.197	0.236	1.457	0.443	0.098	0.008	302	302		
ECM 05 R/L 2,25D AL	0.197	0.236	1.457	0.443	0.098	0.008			452	452
ECM 05 R/L 4,00D	0.197	0.236	1.772	0.787	0.098	0.008	303	303		
ECM 05 R/L 4,00D AL	0.197	0.236	1.772	0.787	0.098	0.008			453	453
ECM 06 R/L 2,25D	0.236	0.315	1.496	0.531	0.118	0.008	306	306		
ECM 06 R/L 2,25D AL	0.236	0.315	1.496	0.531	0.118	0.008			456	456
ECM 06 R/L 4,00D	0.236	0.315	1.929	0.945	0.118	0.008	312	312		
ECM 06 R/L 4,00D AL	0.236	0.315	1.929	0.945	0.118	0.008			462	462
ECM 07 R/L 2,25D	0.276	0.315	1.654	0.620	0.138	0.008	308	308		
ECM 07 R/L 2,25D AL	0.276	0.315	1.654	0.620	0.138	0.008			458	458
ECM 07 R/L 4,00D	0.276	0.315	2.087	1.102	0.138	0.008	314	314		
ECM 07 R/L 4,00D AL	0.276	0.315	2.087	1.102	0.138	0.008			464	464
ECM 08 R/L 2,25D	0.315	0.315	1.772	0.709	0.157	0.008	310	310		
ECM 08 R/L 2,25D AL	0.315	0.315	1.772	0.709	0.157	0.008			460	460
ECM 08 R/L 4,00D	0.315	0.315	2.244	1.260	0.157	0.008	316	316		
ECM 08 R/L 4,00D AL	0.315	0.315	2.244	1.260	0.157	0.008			466	466

P	●	●		
M	●	●		
K	○	○	○	○
N	○	○	●	●
S	●	●	○	○
H				
O	○	○	○	○

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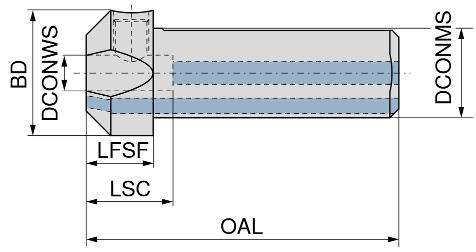
EcoCut – Adapter Mini



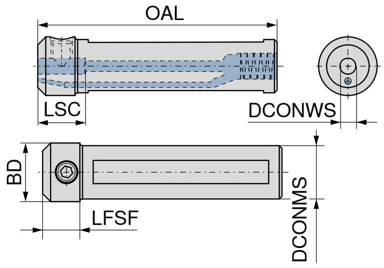
Designation	DCONWS inch	DCONMS inch	BD inch	OAL inch	LFSF inch	LSC inch	**70 800 ...**
EC-ADX12-04-E	0.157	0.750	0.984	2.500	0.551	0.708	**719**
EC-ADX12-06-E	0.236	0.750	0.984	2.500	0.551	0.708	**986**
EC-ADX12-08-E	0.314	0.750	0.984	2.500	0.551	0.708	**988**

Spare parts for Article no.	Clamping screw	**70 950 ...**
70 800 719	M5x10 ISO 4026	**867**
70 800 986	M8x1x8 - SW4	**123**
70 800 988	M8x1x8 - SW4	**123**

Metric Adaptors can be found in our Online-Shop or in the Metric Catalog 2021

metric

EcoCut – Mini adapter with coolant connection thread



Designation	DCONWS inch	DCONMS inch	BD inch	OAL inch	LFSF inch	LSC inch	70 801 ...
ECA 0750-04	0.157	0.750	0.787	3.937	0.551	0.708	**719**
ECA 1000-04	0.157	1.000	0.984	4.330	0.551	0.708	**726**
ECA 0750-06	0.236	0.750	0.866	3.937	0.551	0.708	**819**
ECA 1000-06	0.236	1.000	0.984	4.330	0.551	0.708	**826**
ECA 0750-08	0.314	0.750	0.866	3.937	0.551	0.708	**919**
ECA 1000-08	0.314	1.000	0.984	4.330	0.551	0.708	**926**

Metric Adaptors can be found in our Online-Shop or in the Metric Catalog 2021

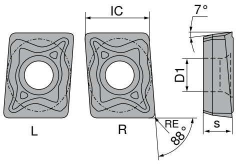
metric

Clamping screw

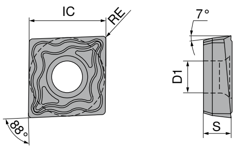
Spare parts for Article no.		70 950 ...
70 801 726	M5x10 ISO 4026	**867**
70 801 819	M8x1x8 - SW4	**123**
70 801 826	M8x1x8 - SW4	**123**
70 801 919	M8x1x8 - SW4	**123**
70 801 926	M8x1x8 - SW4	**123**

XCNT / XCET

Designation	S inch	D1 inch	IC inch
XC.T 0401..	0.070	0.082	0.177
XC.T 0502..	0.082	0.088	0.228
XC.T 0602..	0.093	0.098	0.255
XC.T 0703..	0.125	0.110	0.299
XC.T 0803..	0.125	0.133	0.334
XC.T 09T3..	0.156	0.133	0.377
XC.T 10T3..	0.156	0.173	0.417
XC.T 1304..	0.187	0.208	0.531
XC.T 1705..	0.218	0.208	0.688

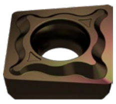
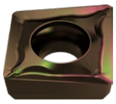
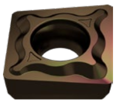
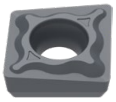
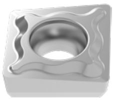


XC. T 04..



XC. T 05../06../07../08../09../10../
13../17..

XCNT / XCET

ISO	RE inch	CTCP425	**-M50Q** CTCP425	CTCP435	CTPP430	**-27P** H216T	**-27Q** H210T
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		
							
		M	**M**	**M**	**M**	**M**	**M**
		XCNT	XCNT	XCNT	XCNT	XCET	XCET
		70 386 ...	**70 386 ...**	**70 386 ...**	**70 386 ...**	**70 286 ...**	**70 286 ...**
040102EL	0.008	720		820	920		
040102ER	0.008	722		822	922		
040102FL	0.008					620	120
040102FR	0.008					622	122
040104EL	0.016	700	750	800	900		
040104ER	0.016	702	752	802	902		
040104FL	0.016					600	100
040104FR	0.016					602	102
050202EN	0.008	723		823	923		
050202FN	0.008					623	123
050204EN	0.016	703	753	803	903		
050204FN	0.016					603	103
060202EN	0.008	724		824	924		
060202FN	0.008					624	124
060204EN	0.016	704	754	804	904		
060204FN	0.016					604	104
070304EN	0.016	705	755	805	905		
070304FN	0.016					605	105
080304EN	0.016	706	756	806	906		
080304FN	0.016					606	106
09T304EN	0.016	707	757	807	907		
09T304FN	0.016					607	107
10T304EN	0.016	708	758	808	908		
10T304FN	0.016					608	108
10T308EN	0.031	738	788	838	938		
10T308FN	0.031					628	128
130404EN	0.016	710	760	810	910		
130404FN	0.016					610	110
130408EN	0.031	740	790	840	940		
130408FN	0.031					611	111
170508EN	0.031	712	762	812	912		
170508FN	0.031					612	112
P		●	●	●	●		
M		○	○	○	●		
K		○	○	○	○	●	○
N					○	●	●
S				○	○	○	●
H							
O					○	○	○

6

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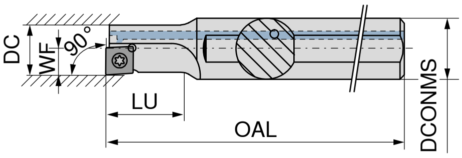
EcoCut – Classic 1.5xD

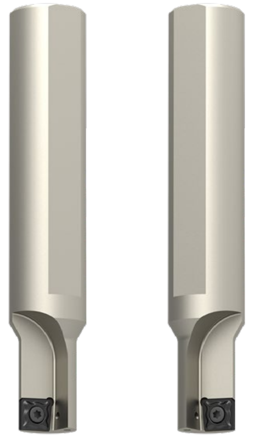
▲ Drilling and turning tool

Scope of supply:

Toolholder with one clamping screw, two spare screws and a screwdriver

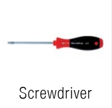
≥ Ø 0.315”





Designation	DC inch	DCONMS inch	OAL inch	LU inch	WF inch	torque moment Nm	Insert	Left-hand **78 805 ...**	Right-hand **78 804 ...**
ECC 08 L 1,5D 04-E	0.315	0.500	3.100	0.470	0.157	0,4	XC.T 0401..EL	**00800 2)**	
ECC 08 R 1,5D 04-E	0.315	0.500	3.100	0.470	0.157	0,4	XC.T 0401..ER		**00800 1)**
ECC 10 R/L 1,5D 05-E	0.394	0.500	3.500	0.590	0.197	0,7	XC.T 0502..	**01000**	**01000**
ECC 12 R/L 1,5D 06-E	0.472	0.625	3.900	0.710	0.236	1,0	XC.T 0602..	**01200**	**01200**
ECC 14 R/L 1,5D 07-E	0.551	0.625	4.300	0.830	0.276	1,2	XC.T 0703..	**01400**	**01400**
ECC 16 R/L 1,5D 08-E	0.630	0.750	4.900	0.940	0.315	2,2	XC.T 0803..	**01600**	**01600**
ECC 18 R/L 1,5D 09-E	0.709	1.000	5.300	1.060	0.354	2,2	XC.T 09T3..	**01800**	**01800**
ECC 20 R/L 1,5D 10-E	0.787	1.000	5.900	1.180	0.394	3,2	XC.T 10T3..	**02000**	**02000**
ECC 25 R/L 1,5D 13-E	0.984	1.250	7.000	1.480	0.492	5,0	XC.T 1304..	**02500**	**02500**
ECC 32 R/L 1,5D 17-E	1.260	1.500	7.800	1.890	0.630	5,0	XC.T 1705..	**03200**	**03200**

1) Note! Right-hand insert on right-hand tool → **Page 39**
2) Note! Left-hand insert on left-hand tool → **Page 39**



Screwdriver

Clamping screw

Spare parts **for Article no.**	Screwdriver	**80 950 ...**	Clamping screw	**70 950 ...**
78 805 00800	T06 - IP	**123**	M1,8x3,6 - IP	**862**
78 804 00800	T06 - IP	**123**	M1,8x3,6 - IP	**862**
78 804 01000 / 78 805 01000	T06 - IP	**123**	M2x4,3 - IP	**863**
78 804 01200 / 78 805 01200	T07 - IP	**124**	M2,2x5 - IP	**856**
78 804 01400 / 78 805 01400	T08 - IP	**125**	M2,5x6 - IP	**857**
78 804 01600 / 78 805 01600	T09 - IP	**126**	M3x7 - IP	**819**
78 804 01800 / 78 805 01800	T09 - IP	**126**	M3x7 - IP	**819**
78 804 02000 / 78 805 02000	T15 - IP	**128**	M3,5x8,6 - IP	**859**
78 804 02500 / 78 805 02500	T20 - IP	**129**	M4,5x10,5 - IP	**864**
78 804 03200 / 78 805 03200	T20 - IP	**129**	M4,5x10,5 - IP	**864**

Metric Adaptors can be found in our Online-Shop or in the Metric Catalog 2021

metric

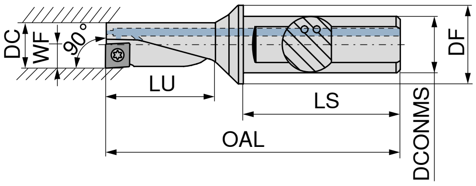
EcoCut – Classic 2.25xD

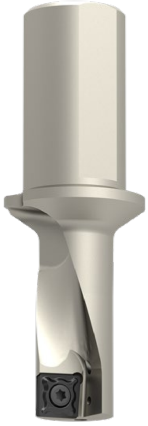
▲ Drilling and turning tool

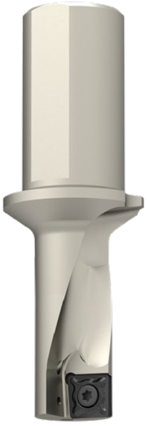
Scope of supply:

Toolholder with one clamping screw, two spare screws and a screwdriver

≥ Ø 0.315"




Left-hand


Right-hand

Designation	DC	DCONMS	DF	OAL	LU	LS	WF	torque moment	Insert	78 805 ...	78 804 ...
	inch	inch	inch	inch	inch	inch	inch	Nm			
ECC 08 L 2,25D 04-E	0.315	0.375	0.472	2.300	0.710	1.430	0.157	0,4	XC.T 0401..EL	**10800**	
ECC 08 R 2,25D 04-E	0.315	0.375	0.472	2.300	0.710	1.430	0.157	0,4	XC.T 0401..ER		**10800** 1)
ECC 10 R/L 2,25D 05-E	0.394	0.500	0.630	2.700	0.890	1.615	0.197	0,7	XC.T 0502..	**11000**	**11000**
ECC 12 R/L 2,25D 06-E	0.472	0.625	0.787	3.000	1.060	1.700	0.236	1,0	XC.T 0602..	**11200**	**11200**
ECC 14 R/L 2,25D 07-E	0.551	0.625	0.787	3.200	1.240	1.700	0.276	1,2	XC.T 0703..	**11400**	**11400**
ECC 16 R/L 2,25D 08-E	0.630	0.750	0.984	3.700	1.420	1.970	0.315	2,2	XC.T 0803..	**11600**	**11600**
ECC 18 R/L 2,25D 09-E	0.709	1.000	1.260	4.300	1.590	2.190	0.354	2,2	XC.T 09T3..	**11800**	**11800**
ECC 20 R/L 2,25D 10-E	0.787	1.000	1.260	4.400	1.770	2.230	0.394	3,2	XC.T 10T3..	**12000**	**12000**
ECC 25 R/L 2,25D 13-E	0.984	1.250	1.575	5.000	2.220	2.285	0.492	5,0	XC.T 1304..	**12500**	**12500**
ECC 32 R/L 2,25D 17-E	1.260	1.500	1.969	6.200	2.830	2.740	0.630	5,0	XC.T 1705..	**13200**	**13200**

1) Note! Right-hand insert on right-hand tool → **Page 39**


Screwdriver


Clamping screw

Spare parts **for Article no.**		80 950 ...		70 950 ...
78 805 10800	T06 - IP	**123**	M1,8x3,6 - IP	**862**
78 804 10800	T06 - IP	**123**	M1,8x3,6 - IP	**862**
78 804 11000 / 78 805 11000	T06 - IP	**123**	M2x4,3 - IP	**863**
78 804 11200 / 78 805 11200	T07 - IP	**124**	M2,2x5 - IP	**856**
78 804 11400 / 78 805 11400	T08 - IP	**125**	M2,5x6 - IP	**857**
78 804 11600 / 78 805 11600	T09 - IP	**126**	M3x7 - IP	**819**
78 804 11800 / 78 805 11800	T09 - IP	**126**	M3x7 - IP	**819**
78 804 12000 / 78 805 12000	T15 - IP	**128**	M3,5x8,6 - IP	**859**
78 804 12500 / 78 805 12500	T20 - IP	**129**	M4,5x10,5 - IP	**864**
78 804 13200 / 78 805 13200	T20 - IP	**129**	M4,5x10,5 - IP	**864**

Metric Adaptors can be found in our Online-Shop or in the Metric Catalog 2021

metric

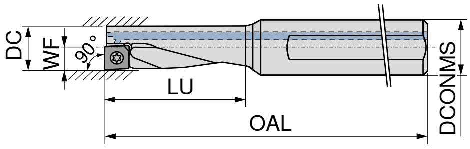
EcoCut – Classic 3xD – Heavy metal

- Drilling and turning tool
- vibration-damped

Scope of supply:

Toolholder with one clamping screw, two spare screws and a screwdriver

≥ Ø 0.315”




Left-hand


Right-hand

Designation	DC inch	DCONMS inch	OAL inch	LU inch	WF inch	torque moment Nm	Insert	78 805 ...	78 804 ...
ECC 08 L 3,00D 04 H-E	0.315	0.500	3.100	0.940	0.157	0,4	XC.T 0401..EL	**60800 2)**	
ECC 08 R 3,00D 04 H-E	0.315	0.500	3.100	0.940	0.157	0,4	XC.T 0401..ER		**60800 1)**
ECC 10 R/L 3,00D 05 H-E	0.394	0.500	3.300	1.180	0.197	0,7	XC.T 0502..	**61000**	**61000**
ECC 12 R/L 3,00D 06 H-E	0.472	0.625	3.700	1.420	0.236	1,0	XC.T 0602..	**61200**	**61200**
ECC 14 R/L 3,00D 07 H-E	0.551	0.625	3.900	1.650	0.276	1,2	XC.T 0703..	**61400**	**61400**
ECC 16 R/L 3,00D 08 H-E	0.630	0.750	4.300	1.860	0.315	2,2	XC.T 0803..	**61600**	**61600**
ECC 18 R/L 3,00D 09 H-E	0.709	1.000	5.000	2.120	0.354	2,2	XC.T 09T3..	**61800**	**61800**
ECC 20 R/L 3,00D 10 H-E	0.787	1.000	5.100	2.360	0.394	3,2	XC.T 10T3..	**62000**	**62000**
ECC 25 R/L 3,00D 13 H-E	0.984	1.250	5.900	2.950	0.492	5,0	XC.T 1304..	**62500**	**62500**
ECC 32 R/L 3,00D 17 H-E	1.260	1.500	7.200	3.780	0.630	5,0	XC.T 1705..	**63200**	**63200**

1) Note! Right-hand insert on right-hand tool → **Page 39**
2) Note! Left-hand insert on left-hand tool → **Page 39**


Screwdriver


Clamping screw

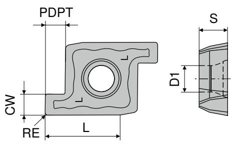
Spare parts for Article no.		**80 950 ...**		**70 950 ...**
78 805 60800	T06 - IP	**123**	M1,8x3,6 - IP	**862**
78 804 60800	T06 - IP	**123**	M1,8x3,6 - IP	**862**
78 804 61000 / 78 805 61000	T06 - IP	**123**	M2x4,3 - IP	**863**
78 804 61200 / 78 805 61200	T07 - IP	**124**	M2,2x5 - IP	**856**
78 804 61400 / 78 805 61400	T08 - IP	**125**	M2,5x6 - IP	**857**
78 804 61600 / 78 805 61600	T09 - IP	**126**	M3x7 - IP	**819**
78 804 61800 / 78 805 61800	T09 - IP	**126**	M3x7 - IP	**819**
78 804 62000 / 78 805 62000	T15 - IP	**128**	M3,5x8,6 - IP	**859**
78 804 62500 / 78 805 62500	T20 - IP	**129**	M4,5x10,5 - IP	**864**
78 804 63200 / 78 805 63200	T20 - IP	**129**	M4,5x10,5 - IP	**864**

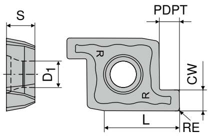
Metric Adaptors can be found in our Online-Shop or in the Metric Catalog 2021

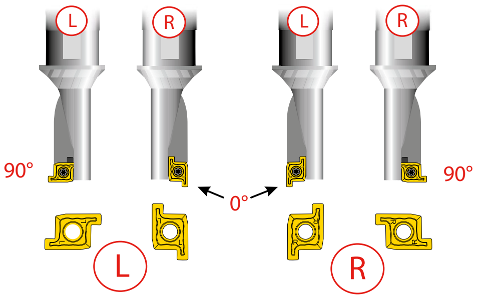
metric

PM-L / PM-R

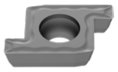
Designation	CW inch	PDPT inch	L inch	S inch	D1 inch
PM 10 G 201504	0.078	0.059	0.196	0.082	0.082
PM 12 G 201804	0.078	0.070	0.236	0.090	0.098
PM 16 G 252004	0.098	0.078	0.314	0.110	0.133
PM 20 G 302504	0.118	0.098	0.393	0.145	0.157
PM 25 G 353004	0.137	0.118	0.492	0.177	0.173
PM 32 G 404004	0.157	0.157	0.629	0.220	0.236

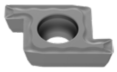






PM-L / PM-R





Designation	RE inch	**-M20** CTPP430 DRAGONSKIN ○ ○ ○ **M** PM-L **70 289 ...**	**-M20** CTPP430 DRAGONSKIN ○ ○ ○ **M** PM-R **70 289 ...**
PM 10 R/L G 201504	0.016	**510**	**511**
PM 12 R/L G 201804	0.016	**515**	**516**
PM 16 R/L G 252004	0.016	**520**	**521**
PM 20 R/L G 302504	0.016	**525**	**526**
PM 25 R/L G 353004	0.016	**530**	**531**
PM 32 R/L G 404004	0.016	**535**	**536**
P		●	●
M		●	●
K		○	○
N		○	○
S		●	●
H			
O		○	○

→ v_c Page 25

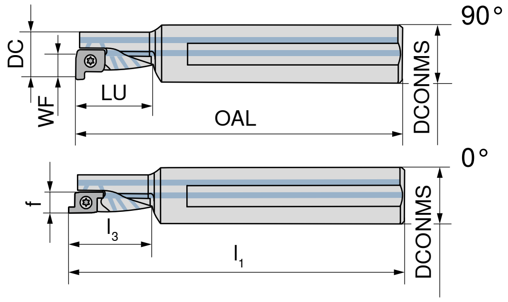
EcoCut – ProfileMaster 1.5xD

▲ Drilling, turning and grooving tool

Scope of supply:

Toolholder with one clamping screw and one screwdriver

≥
Ø 0.397”



Designation	DC inch	DCONMS inch	OAL inch	LU inch	WF inch	l_1 inch	l_3 inch	f inch	torque moment Nm	Insert	Left-hand 78 811 ...	Right-hand 78 810 ...
PMC 10 R/L 1,5D-E	0.394	0.500	3.100	0.590	0.197				0,4	PM 10R/L	**01000** 1)	**01000** 1)
PMC 12 R/L 1,5D-E	0.472	0.625	3.500	0.709	0.236				1,0	PM 12R/L	**01200** 1)	**01200** 1)
PMC 16 R/L 1,5D-E	0.630	0.750	4.900	1.004	0.315	4.991	1.094	0.224	2,2	PM 16R/L	**01600**	**01600**
PMC 20 R/L 1,5D-E	0.787	1.000	5.900	1.181	0.394	6.010	1.291	0.283	2,2	PM 20R/L	**02000**	**02000**
PMC 25 R/L 1,5D-E	0.984	1.250	7.000	1.476	0.492	7.130	1.606	0.362	3,2	PM 25R/L	**02500**	**02500**
PMC 32 R/L 1,5D-E	1.260	1.500	7.800	1.890	0.630	7.969	2.059	0.461	5,0	PM 32R/L	**03200**	**03200**

1) only usable as 90° version

Spare parts for Article no.	Screwdriver	80 950 ...	Clamping screw	70 950 ...
78 810 01000 / 78 811 01000	T06	**100**	M1,8x3,8	**57300**
78 810 01200 / 78 811 01200	T07	**101**	M2,2x4	**360**
78 810 01600 / 78 811 01600	T08	**102**	M3x5,7	**365**
78 810 02000 / 78 811 02000	T15	**105**	M3,5x7,2	**110**
78 810 02500 / 78 811 02500	T15	**105**	M3,5x8,6	**304**
78 810 03200 / 78 811 03200	T20 - IP	**129**	M5x10,8 - IP	**010**

Metric Adaptors can be found in our Online-Shop or in the Metric Catalog 2021

metric

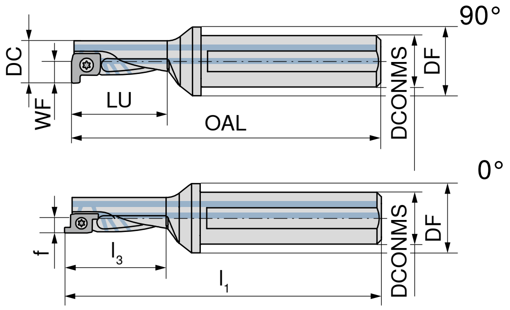
EcoCut – ProfileMaster 2.25xD

▲ Drilling, turning and grooving tool

Scope of supply:

Toolholder with one clamping screw and one screwdriver

≥ Ø 0.397”



Designation	DC inch	DCONMS inch	DF inch	OAL inch	LU inch	WF inch	l_1 inch	l_3 inch	f inch	torque moment Nm	Insert	Left-hand 78 811 ...	Right-hand 78 810 ...
PMC 10 R/L 2,25D-E	0.394	0.500	0.630	2.800	0.886	0.197				0,4	PM 10R/L	**11000** 1)	**11000** 1)
PMC 12 R/L 2,25D-E	0.472	0.625	0.787	3.000	1.063	0.236				1,0	PM 12R/L	**11200** 1)	**11200** 1)
PMC 16 R/L 2,25D-E	0.630	0.750	0.984	3.800	1.417	0.315	3.891	1.508	0.224	2,2	PM 16R/L	**11600**	**11600**
PMC 20 R/L 2,25D-E	0.787	1.000	1.260	4.400	1.772	0.394	4.510	1.882	0.283	2,2	PM 20R/L	**12000**	**12000**
PMC 25 R/L 2,25D-E	0.984	1.250	1.575	5.200	2.217	0.492	5.330	2.347	0.362	3,2	PM 25R/L	**12500**	**12500**
PMC 32 R/L 2,25D-E	1.260	1.500	1.969	6.200	2.835	0.630	6.369	3.004	0.461	5,0	PM 32R/L	**13200**	**13200**

1) only usable as 90° version

Screwdriver

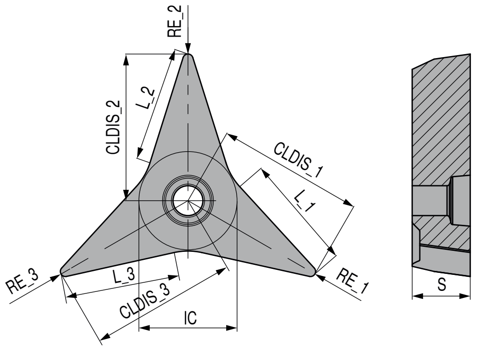
Clamping screw

Spare parts for Article no.		Screwdriver 80 950 ...		Clamping screw 70 950 ...
78 810 11000 / 78 811 11000	T06	**100**	M1,8x3,8	**57300**
78 810 11200 / 78 811 11200	T07	**101**	M2,2x4	**360**
78 810 11600 / 78 811 11600	T08	**102**	M3x5,7	**365**
78 810 12000 / 78 811 12000	T15	**105**	M3,5x7,2	**110**
78 810 12500 / 78 811 12500	T15	**105**	M3,5x8,6	**304**
78 810 13200 / 78 811 13200	T20 - IP	**129**	M5x10,8 - IP	**010**

Metric Adaptors can be found in our Online-Shop or in the Metric Catalog 2021

metric

FT15 . 353535...



Designation	IC inch	CLDIS_1 inch	L_1 inch	CLDIS_2 inch	L_2 inch	CLDIS_3 inch	L_3 inch	S inch
FT15 G 353535R04-28P	0.590	0.945	0.633	0.945	0.633	0.945	0.633	0.359
FT15 G 353535R08-28P	0.590	0.908	0.598	0.908	0.598	0.908	0.598	0.359

NEW

-28P
H216T

DRAGONSKIN

F F F

FT15 . 353535...

ISO	RE_1 inch	RE_2 inch	RE_3 inch	74 001 ...
FT15 G 353535R04-28P	0.016	0.016	0.016	**20200**
FT15 G 353535R08-28P	0.031	0.031	0.031	**20400**

P	
M	
K	○
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S	
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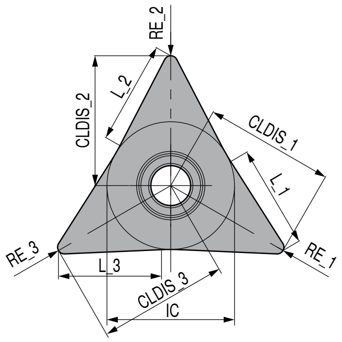
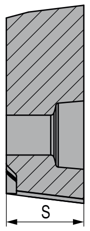
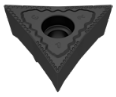
FT15 . 555555...





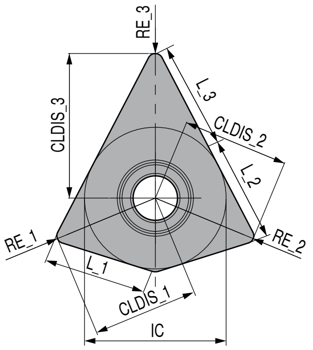
Designation	IC inch	CLDIS_1 inch	L_1 inch	CLDIS_2 inch	L_2 inch	CLDIS_3 inch	L_3 inch	S inch
FT15 M 555555R04-FFF	0.590	0.621	0.496	0.621	0.496	0.621	0.496	0.359
FT15 M 555555R08-FFF	0.590	0.602	0.484	0.602	0.484	0.602	0.484	0.359

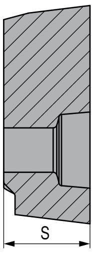
NEW	**NEW**
CTCP125	CTPM125
DRAGONSKIN	DRAGONSKIN
	
F F F	**F F F**
FT15 . 555555...	FT15 . 555555...
74 002 ...	**74 002 ...**

ISO	RE_1 inch	RE_2 inch	RE_3 inch	CTCP125	CTPM125
FT15 M 555555R04-FFF	0.016	0.016	0.016	**00200**	
FT15 M 555555R08-FFF	0.031	0.031	0.031	**00400**	**10400**
P				●	○
M					●
K				○	
N					
S					
H					
O					

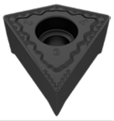
→ v_c Page 26

FT15 . 808055...





Designation	IC inch	CLDIS_1 inch	L_1 inch	CLDIS_2 inch	L_2 inch	CLDIS_3 inch	L_3 inch	S inch
FT15 M 808055R080804-MMF	0.590	0.441	0.425	0.441	0.448	0.621	0.448	0.359
FT15 M 808055R08-MMF	0.590	0.441	0.425	0.441	0.440	0.602	0.440	0.359
FT15 M 808055R121208-MMF	0.590	0.433	0.421	0.433	0.440	0.602	0.440	0.359

ISO	RE_1 inch	RE_2 inch	RE_3 inch	NEW CTCP125 DRAGONSKIN  M M F FT15 . 808055... 74 003 ...	NEW CTPM125 DRAGONSKIN  M M F FT15 . 808055... 74 003 ...
FT15 M 808055R080804-MMF	0.031	0.031	0.016	**00400**	
FT15 M 808055R08-MMF	0.031	0.031	0.031	**00200**	**10200**
FT15 M 808055R121208-MMF	0.047	0.047	0.031	**00600**	

P	●	○
M		●
K	○	
N		
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H		
O		

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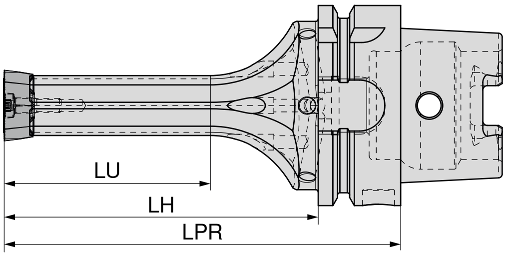
FreeTurn – HSK-T tool holder FT15

- Tool holder for FreeTurn indexable insert
- DirectCooling coolant supply

Direct Cooling



Figures show version FT15 . 808055...

Designation	Adapter	LPR inch	LH inch	LU inch	Insert	NEW DirectCooling 74 700 ...
HSK-T63-100-FT15 353535	HSK-T 63	3.937	2.913	1.575	FT15 . 353535...	**00137**
HSK-T63-100-FT15 808055	HSK-T 63	3.937	2.913	1.575	FT15 . 808055...	**00537**
HSK-T63-100-FT15 555555	HSK-T 63	3.937	2.913	1.575	FT15 . 555555...	**00337**
HSK-T63-125-FT15 353535	HSK-T 63	4.921	3.898	2.559	FT15 . 353535...	**00237**
HSK-T63-125-FT15 808055	HSK-T 63	4.921	3.898	2.559	FT15 . 808055...	**00637**
HSK-T63-125-FT15 555555	HSK-T 63	4.921	3.898	2.559	FT15 . 555555...	**00437**

Screwdriver

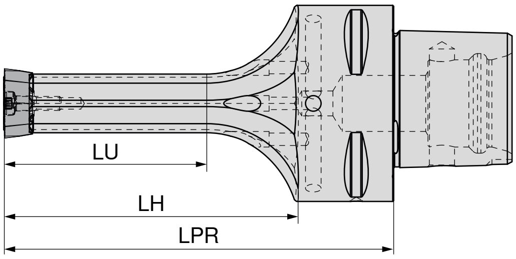
Clamping screw

Spare parts **Adapter**	Screwdriver 80 950 ...		Clamping screw 70 950 ...	
HSK-T 63	T20 - IP	**121**	M4,5x18 - IP	**25900**

FreeTurn – PSC tool holder FT15

- Tool holder for FreeTurn indexable insert
- DirectCooling coolant supply

Direct Cooling



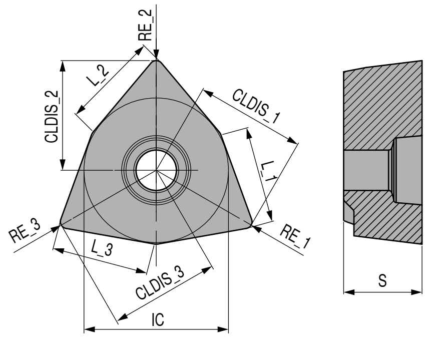
Figures show version FT15 . 808055...

Designation	Adapter	LPR inch	LH inch	LU inch	Insert	NEW DirectCooling 74 700 ...
PSC-63-100-FT15 353535	PSC 63	3.937	2.732	1.575	FT15 . 353535...	**00193**
PSC-63-100-FT15 808055	PSC 63	3.937	2.728	1.575	FT15 . 808055...	**00593**
PSC-63-100-FT15 555555	PSC 63	3.937	2.740	1.575	FT15 . 555555...	**00393**
PSC-63-125-FT15 353535	PSC 63	4.921	3.717	2.559	FT15 . 353535...	**00293**
PSC-63-125-FT15 808055	PSC 63	4.921	3.713	2.559	FT15 . 808055...	**00693**
PSC-63-125-FT15 555555	PSC 63	4.921	3.724	2.559	FT15 . 555555...	**00493**

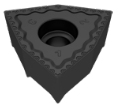
Spare parts

Adapter		 Screwdriver **80 950 ...**		 Clamping screw **70 950 ...**
PSC 63	T20 - IP	**121**	M4,5x18 - IP	**25900**

FT17 . 808080...



Designation	IC inch	CLDIS_1 inch	L_1 inch	CLDIS_2 inch	L_2 inch	CLDIS_3 inch	L_3 inch	S inch
FT17 M 808080R04-MMM	0.669	0.511	0.444	0.511	0.444	0.511	0.444	0.359
FT17 M 808080R08-MMM	0.669	0.503	0.444	0.503	0.444	0.503	0.444	0.359
FT17 M 808080R12-MMM	0.669	0.494	0.440	0.494	0.440	0.494	0.440	0.359

				NEW	**NEW**
				CTCP125	CTPM125
				DRAGONSKIN	DRAGONSKIN
				○ ◐ ◌	○ ◐ ◌
					
				M M M	**M M M**
				FT17 . 808080...	FT17 . 808080...
				74 000 ...	74 000 ...
ISO	RE_1 inch	RE_2 inch	RE_3 inch		
FT17 M 808080R04-MMM	0.016	0.016	0.016	**00200**	
FT17 M 808080R08-MMM	0.031	0.031	0.031	**00400**	**10400**
FT17 M 808080R12-MMM	0.047	0.047	0.047	**00600**	
P				●	○
M					●
K				○	
N					
S					
H					
O					

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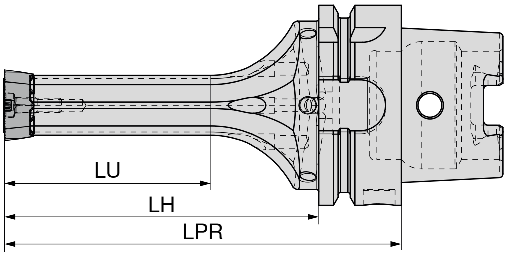
FreeTurn – HSK-T tool holder FT17

- Tool holder for FreeTurn indexable insert
- DirectCooling coolant supply

Direct Cooling



NEW

DirectCooling

Designation	Adapter	LPR inch	LH inch	LU inch	Insert	74 701 ...
HSK-T63-100-FT17 808080	HSK-T 63	3.937	2.913	1.575	FT17 . 808080...	**00737**
HSK-T63-125-FT17 808080	HSK-T 63	4.921	3.898	2.559	FT17 . 808080...	**00837**

Screwdriver

Clamping screw

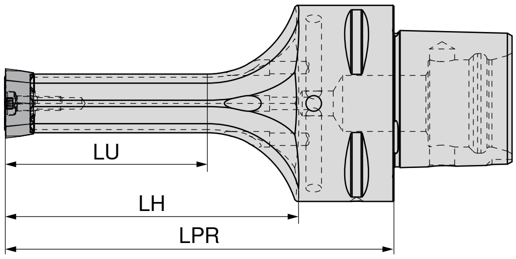
Spare parts

Adapter		80 950 ...		70 950 ...
HSK-T 63	T20 - IP	**121**	M4,5x18 - IP	**25900**

FreeTurn – PSC tool holder FT17

- Tool holder for FreeTurn indexable insert
- DirectCooling coolant supply

Direct Cooling



NEW

DirectCooling

Designation	Adapter	LPR inch	LH inch	LU inch	Insert	74 701 ...
PSC-63-100-FT17 808080	PSC 63	3.937	2.728	1.575	FT17 . 808080...	**00793**
PSC-63-125-FT17 808080	PSC 63	4.921	3.713	2.559	FT17 . 808080...	**00893**

Spare parts

Adapter	Screwdriver 80 950 ...		Clamping screw 70 950 ...	
PSC 63	T20 - IP	**121**	M4,5x18 - IP	**25900**

6

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength lbf/in^{2*} / HB / HRC	Material number	Material designation	Material number	Material designation
P	**Unalloyed steel**	**P.1.1**	< 0.15 % C	Annealed	60900 lbf/in^2 / 125 HB	1.0401	1015	1.0301	1010
		P.1.2	< 0.45 % C	Annealed	92800 lbf/in^2 / 190 HB	1.1191	1045	1.0737	12L14
		P.1.3		Tempered	121800 lbf/in^2 / 250 HB	1.1191	1045	1.0503	1043
		P.1.4	< 0.75 % C	Annealed	132000 lbf/in^2 / 270 HB	1.1223	1060	1.0535	1055
		P.1.5		Tempered	146500 lbf/in^2 / 300 HB	1.1223	1060	1.1274	1095
	Low-alloy steel	**P.2.1**		Annealed	88500 lbf/in^2 / 180 HB	1.7131	5115	1.6523	8620
		P.2.2		Tempered	134900 lbf/in^2 / 275 HB	1.7131	5115	1.6582	4340
		P.2.3		Tempered	146500 lbf/in^2 / 300 HB	1.7225	4142	1.7131	5115
		P.2.4		Tempered	174000 lbf/in^2 / 375 HB	1.7225	4142	17223	4140
	High-alloy steel and high-alloy tool steel	**P.3.1**		Annealed	98600 lbf/in^2 / 200 HB	1.4021	420	1.2379	D2
		P.3.2		Hardened and tempered	159500 lbf/in^2 / 300 HB	1.2343	H11	1.3343	M2
		P.3.3		Hardened and tempered	188500 lbf/in^2 / 400 HB	1.2343	H11	1.2363	A2
	Stainless steel	**P.4.1**	Ferritic / martensitic	Annealed	98600 lbf/in^2 / 200 HB	1.4016	430	1.4125	440C
		P.4.2	Martensitic	Tempered	117500 lbf/in^2 / 250 HB	1.4112	S44003	1.4021	420
M	**Stainless steel**	**M.1.1**	Austenitic / austenitic-ferritic	Quenched	88500 lbf/in^2 / 200 HB	1.4301	304	1.4401	316
		M.2.1	Austenitic	Tempered	300 HB	1.4841	314	1.4568	17-7 PH
		M.3.1	Austenitic / ferritic (Duplex)		113100 lbf/in^2 / 230 HB	1.4462	S32205	1.4410	S32750
K	**Grey cast iron**	**K.1.1**	Pearlitic / ferritic		88500 lbf/in^2 / 180 HB	0.6010	A48-20B	0.6025	A48-40 B
		K.1.2	Pearlitic (martensitic)		127600 lbf/in^2 / 260 HB	0.6030	A48-45B	0.6040	A48-60 B
	Spherulitic graphite cast iron	**K.2.1**	Ferritic		78300 lbf/in^2 / 160 HB	0.7040	60-40-18	0.7050	65-45-12
		K.2.2	Pearlitic		122600 lbf/in^2 / 250 HB	0.7070	100-70-03	0.7660	A439 Type D2
	Malleable iron	**K.3.1**	Ferritic		63800 lbf/in^2 / 130 HB	0.8035	GTW-35-04		
		K.3.2	Pearlitic		113100 lbf/in^2 / 230 HB	0.8170	70003		
N	**Aluminium wrought alloy**	**N.1.1**	Non-hardenable		60 HB	3.0255	A91060	3.0255	A91060
		N.1.2	Hardenable		49300 lbf/in^2 / 100 HB	3.1355	2024	3.1355	2024
	Cast aluminium alloy	**N.2.1**	≤ 12 % Si, non-hardenable		36300 lbf/in^2 / 75 HB	3.2581	A04130 / A413-0	3.2581	A04130 / A413-0
		N.2.2	≤ 12 % Si, hardenable		43500 lbf/in^2 / 90 HB	3.2134	G-AlSi5Cu1Mg		
		N.2.3	> 12 % Si, non-hardenable		63800 lbf/in^2 / 130 HB		G-AlSi17Cu4Mg		
	Copper and copper alloys (bronze/brass)	**N.3.1**	Free-machining alloys, PB > 1 %		54400 lbf/in^2 / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0380	C37700
		N.3.2	CuZn, CuSnZn		43500 lbf/in^2 / 90 HB	2.0331	CuZn15	2.0331	C34000
		N.3.3	CuSn, lead-free copper and electrolytic copper		49300 lbf/in^2 / 100 HB	2.0060	E-Cu57		
	Magnesium alloys	**N.4.1**	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn		
S	**Heat-resistant alloys**	**S.1.1**	Fe - basis	Annealed	98600 lbf/in^2 / 200 HB	1.4864	X12NiCrSi 36-16	1.4864	330
		S.1.2			137800 lbf/in^2 / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4980	S66286
		S.2.1	Ni or Co basis	Annealed	121800 lbf/in^2 / 250 HB	2.4856	Inconel 625	2.4812	Hastelloy C
		S.2.2			171100 lbf/in^2 / 350 HB	2.4952	Nimonic 80A	2.4668	Inconel 718
		S.2.3		Cast	156600 lbf/in^2 / 320 HB	2.4674	Nimocast PK24	2.4670	Nimocast 713
	Titanium alloys	**S.3.1**	Pure titanium		5800 lbf/in^2	3.7025	Ti99,8		
		S.3.2	Alpha + beta alloys		152300 lbf/in^2	3.7165	TiAl6V4		
		S.3.3	Beta alloys		203100 lbf/in^2 / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr		
H	**Hardened steel**	**H.1.1**		Hardened and tempered	46-55 HRC				
		H.1.2		Hardened and tempered	56-60 HRC				
		H.1.3		Hardened and tempered	61-65 HRC				
		H.1.4		Hardened and tempered	66-70 HRC				
	Chilled iron	**H.2.1**		Cast	400 HB				
	Hardened cast iron	**H.3.1**		Hardened and tempered	55 HRC				
O	**Non-metal materials**	**O.1.1**	Plastics, duroplastic		≤ 21800 lbf/in^2				
		O.1.2	Plastics, thermoplastic		≤ 14500 lbf/in^2				
		O.2.1	Aramid fibre-reinforced		≤ 145000 lbf/in^2				
		O.2.2	Glass/carbon-fibre reinforced		≤ 145000 lbf/in^2				
		O.3.1	Graphite						

*** Tensile Strength at Rupture (Rm)**

Cutting data standard values for EcoCut

		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN			DRAGONSKIN
	EcoCut Mini CTWN425	EcoCut Mini CTPP435	EcoCut Classic CTCP425	EcoCut Classic CTCP435	EcoCut Classic CTPP430	EcoCut Classic H210T	EcoCut Classic H216T	EcoCut ProfileMaster CTPP430
Index	v_c in ft/min							
P.1.1		**480**	**750**	**690**	**600**			**550**
P.1.2		**410**	**650**	**590**	**510**			**470**
P.1.3		**350**	**560**	**500**	**440**			**380**
P.1.4		**330**	**530**	**470**	**410**			**350**
P.1.5		**300**	**480**	**420**	**370**			**310**
P.2.1		**420**	**670**	**600**	**530**			**480**
P.2.2		**320**	**520**	**460**	**400**			**340**
P.2.3		**300**	**480**	**420**	**370**			**310**
P.2.4		**220**	**370**	**310**	**270**			**200**
P.3.1		**340**	**510**	**470**	**380**			**370**
P.3.2		**220**	**370**	**320**	**280**			**250**
P.3.3		**100**	**230**	**170**	**190**			**130**
P.4.1		**340**	**510**	**470**	**380**			**370**
P.4.2		**280**	**440**	**400**	**330**			**310**
M.1.1		**340**	510	470	**380**			**370**
M.2.1		**220**			**280**			**250**
M.3.1		**310**			**350**			**340**
K.1.1	460	460	680	610	530	360	**560**	590
K.1.2	380	400	680	610	460	300	**430**	860
K.2.1	500	460	660	590	530	400	**590**	530
K.2.2	360	400	660	590	460	280	**430**	830
K.3.1	560	500	640	580	410	460	**630**	430
K.3.2	460	410	640	580	360	360	**530**	760
N.1.1	**990**	130			130	**130**	**200**	990
N.1.2	**170**	960			960	**960**	**1020**	660
N.2.1	**990**	960			960	**960**	**200**	990
N.2.2	**990**	630			630	**630**	**1520**	660
N.2.3	**1490**	1120			1120	**1120**	**200**	500
N.3.1	**1160**	790			790	**790**	**1520**	990
N.3.2	**1160**	790			790	**790**	**1520**	990
N.3.3	**830**	630			630	**630**	**1190**	660
N.4.1	**660**	460			460	**460**	**860**	660
S.1.1	120	**120**		120	180	**110**	140	**120**
S.1.2	90	**100**		100	180	**80**	110	**100**
S.2.1	90	**60**		60	180	**80**	110	**70**
S.2.2	80	**50**		50	180	**70**	80	**50**
S.2.3	70	**50**		50	180	**70**	70	**50**
S.3.1	300	**280**		280	230	**210**	360	**280**
S.3.2	180	**130**		130	200	**140**	230	**130**
S.3.3	130	**100**		100	130	**100**	170	**100**
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1	430	360			360	360	510	430
O.1.2								
O.2.1	350	310			310	310	460	350
O.2.2								
O.3.1								

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values for FreeTurn

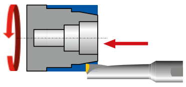
	F		M		-28P
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
	CTCP125	CTPM125	CTCP125	CTPM125	H216T
Index	v_c in ft/min		v_c in ft/min		v_c in ft/min
P.1.1	**980**	670	**980**	670	
P.1.2	**830**	560	**830**	560	
P.1.3	**700**	470	**700**	470	
P.1.4	**660**	440	**660**	440	
P.1.5	**590**	390	**590**	390	
P.2.1	**850**	580	**850**	580	
P.2.2	**650**	430	**650**	430	
P.2.3	**590**	390	**590**	390	
P.2.4	**430**	270	**430**	270	
P.3.1	**560**	470	**560**	470	
P.3.2	**350**	320	**350**	320	
P.3.3	**140**	170	**140**	170	
P.4.1	**560**	470	**560**	470	
P.4.2	**450**	390	**450**	390	
M.1.1		**470**		**470**	
M.2.1		**320**		**320**	
M.3.1		**420**		**420**	
K.1.1	560		560		560
K.1.2	530		530		430
K.2.1	590		590		590
K.2.2	530		530		430
K.3.1	660		660		630
K.3.2	530		530		530
N.1.1					**5450**
N.1.2					**4460**
N.2.1					**3960**
N.2.2					**3630**
N.2.3					**1980**
N.3.1					**1730**
N.3.2					**1650**
N.3.3					**1240**
N.4.1					**910**
S.1.1					
S.1.2					
S.2.1					
S.2.2					
S.2.3					
S.3.1					
S.3.2					
S.3.3					
H.1.1					
H.1.2					
H.1.3					
H.1.4					
H.2.1					
H.3.1					
O.1.1					530
O.1.2					
O.2.1					460
O.2.2					
O.3.1					

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine. The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Depth of Cut and Feedrate for EcoCut Mini

Turning

2.25xD

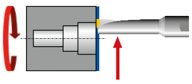


EcoCut Mini Size	Depth of Cut a_p in inch									
	0.010	0.020	0.030	0.040	0.060	0.080	0.100	0.120	0.140	0.160
	Feed rate f in inch/rev.									
ECM 02..	.0008-.0028	.0008-.0028								
ECM 02.5..	.0008-.0028	.0008-.0028	.0008-.0020							
ECM 03..	.0008-.0028	.0008-.0028	.0008-.0020	.0008-.0020						
ECM 03.5..	.0008-.0028	.0008-.0028	.0008-.0020	.0008-.0020	.0008-.0020					
ECM 04..	.0016-.0040	.0016-.0040	.0016-.0040	.0016-.0040	.0012-.0028	.0004-.0020				
ECM 05..	.0016-.0040	.0016-.0040	.0016-.0040	.0016-.0040	.0012-.0032	.0008-.0024	.0004-.0016			
ECM 06..	.0016-.0040	.0016-.0040	.0016-.0040	.0016-.0040	.0016-.0040	.0012-.0032	.0008-.0024	.0004-.0016		
ECM 07..	.0016-.0040	.0016-.0040	.0016-.0040	.0016-.0040	.0016-.0040	.0016-.0040	.0012-.0032	.0008-.0024	.0004-.0016	
ECM 08..	.0016-.0040	.0016-.0040	.0016-.0040	.0016-.0040	.0016-.0040	.0016-.0040	.0016-.0040	.0012-.0032	.0008-.0024	.0004-.0016

4xD

EcoCut Mini Size	Depth of Cut a_p in inch									
	0.010	0.020	0.030	0.040	0.060	0.080	0.100	0.120	0.140	0.160
	Feed rate f in inch/rev.									
ECM 02..	.0008-.0020	.0004-.0020								
ECM 02.5..	.0008-.0020	.0004-.0020								
ECM 03..	.0008-.0020	.0008-.0020	.0004-.0020							
ECM 03.5..	.0008-.0020	.0008-.0020	.0008-.0020	.0004-.0020						
ECM 04..	.0016-.0040	.0016-.0040	.0016-.0040	.0012-.0032	.0004-.0020					
ECM 05..	.0016-.0040	.0016-.0040	.0016-.0040	.0012-.00325	.0008-.0024	.0004-.0016				
ECM 06..	.0016-.0040	.0016-.0040	.0016-.0040	.0012-.00325	.0008-.0024	.0004-.0016				
ECM 07..	.0016-.0040	.0016-.0040	.0016-.0040	.0016-.0040	.0012-.0032	.0008-.0024	.0004-.0016			
ECM 08..	.0016-.0040	.0016-.0040	.0016-.0040	.0016-.0040	.0016-.00365	.0012-.0032	.0008-.0024	.0004-.0016		

Face turning

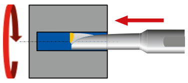


EcoCut Mini Size	2.25xD		4xD	
	$a_{p\ max.}$ in inch	f in inch/rev.	$a_{p\ max.}$ in inch	f in inch/rev.
ECM 02..	0.012	.0004-.0020	0.012	.0004-.0012
ECM 02.5..	0.012	.0004-.0020	0.012	.0004-.0012
ECM 03..	0.020	.0004-.0024	0.020	.0004-.0016
ECM 03.5..	0.020	.0004-.0024	0.020	.0004-.0016
ECM 04..	0.028	.0012-.0028	0.028	.0008-.0020
ECM 05..	0.028	.0012-.0028	0.028	.0008-.0020
ECM 06..	0.028	.0012-.0028	0.028	.0008-.0020
ECM 07..	0.039	.0016-.0032	0.039	.0012-.0024
ECM 08..	0.039	.0016-.0032	0.039	.0012-.0024

Depth of Cut and Feedrate for EcoCut Mini

Drilling

Feed rate



EcoCut Mini Size	2.25xD	4xD
	f in inch/rev.	f in inch/rev.
ECM 02..	.0001-.0003	.0001-.0002
ECM 02.5..	.0001-.0004	.0001-.0002
ECM 03..	.0001-.0005	.0001-.0004
ECM 03.5..	.0001-.0006	.0001-.0004
ECM 04..	.0002-.0012	.0002-.0005
ECM 05..	.0002-.0012	.0002-.0006
ECM 06..	.0002-.0012	.0002-.0008
ECM 07..	.0002-.0014	.0002-.0010
ECM 08..	.0002-.0016	.0002-.0012

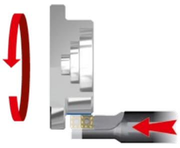
max. bore depth

EcoCut Mini Size	2.25xD	4xD
	Max. hole depth in inch	Max. hole depth in inch
ECM 02..	0.177	0.315
ECM 02.5..	0.222	0.394
ECM 03..	0.266	0.472
ECM 03.5..	0.310	0.551
ECM 04..	0.354	0.630
ECM 05..	0.443	0.787
ECM 06..	0.531	0.945
ECM 07..	0.620	1.102
ECM 08..	0.709	1.260

Depth of Cut and Feedrate for EcoCut Classic

Turning

1.5xD



EcoCut Classic Size	Depth of Cut a_p in inch											
	0.039	0.079	0.118	0.157	0.197	0.236	0.276	0.315	0.354	0.394	0.472	0.551
	Feed rate f in inch/rev.											
ECC 08	.0024-.0048	.0024-.0048	.0016-.0040	.0008-.0032								
ECC 10	.0028-.0060	.0028-.0060	.0020-.0052	.0016-.0043	.0008-.0036							
ECC 12	.0032-.0064	.0032-.0064	.0032-.0064	.0024-.0056	.0016-.0048	.0008-.0040						
ECC 14	.0036-.0072	.0036-.0072	.0036-.0072	.0036-.0072	.0028-.0064	.0020-.0056	.0008-.0043					
ECC 16	.0040-.0080	.0040-.0080	.0040-.0080	.0040-.0080	.0032-.0072	.0024-.0064	.0016-.0056	.0008-.0048				
ECC 18	.0043-.0088	.0043-.0088	.0043-.0088	.0043-.0088	.0043-.0088	.0036-.0080	.0028-.0072	.0020-.0064	.0012-.0052			
ECC 20	.0048-.0096	.0048-.0096	.0048-.0096	.0048-.0096	.0048-.0096	.0043-.0092	.0036-.0084	.0028-.0076	.0020-.0066	.0012-.0060		
ECC 25	.0052-.0102	.0052-.0102	.0052-.0102	.0052-.0102	.0052-.0102	.0052-.0102	.0052-.0102	.0043-.0096	.0036-.0088	.0028-.0080	.0012-.0064	
ECC 32	.0060-.0120	.0060-.0120	.0060-.0120	.0060-.0120	.0060-.0120	.0056-.0120	.0060-.0120	.0060-.0120	.0052-.0110	.0043-.0102	.0028-.0088	.0012-.0072

Feed f may be increased by 50–75 % when using -M50Q and -27Q.

2.25xD

EcoCut Classic Size	Depth of Cut a_p in inch										
	0.039	0.079	0.098	0.118	0.138	0.157	0.177	0.197	0.217	0.236	0.276
	Feed rate f in inch/rev.										
ECC 08	.0024-.0048	.0016-.0040	.0008-.0032								
ECC 10	.0028-.0060	.0020-.0052	.0012-.0043	.0008-.0036							
ECC 12	.0032-.0064	.0032-.0064	.0024-.0056	.0016-.0048	.0008-.0040						
ECC 14	.0036-.0072	.0036-.0072	.0028-.0064	.0020-.0056	.0016-.0052	.0008-.0043					
ECC 16	.0040-.0080	.0040-.0080	.0036-.0076	.0028-.0066	.0020-.0060	.0012-.0052					
ECC 18	.0043-.0088	.0043-.0088	.0043-.0088	.0036-.0080	.0028-.0072	.0020-.0064	.0012-.0056				
ECC 20	.0048-.0096	.0048-.0096	.0048-.0096	.0048-.0096	.0040-.0088	.0032-.0080	.0024-.0072	.0016-.0064			
ECC 25	.0052-.0102	.0052-.0102	.0052-.0102	.0052-.0102	.0052-.0102	.0048-.0100	.0040-.0092	.0032-.0084	.0024-.0076	.0016-.0066	
ECC 32	.0060-.0120	.0060-.0120	.0060-.0120	.0060-.0120	.0060-.0120	.0060-.0120	.0056-.0114	.0048-.0106	.0040-.0100	.0032-.0092	.0020-.0080

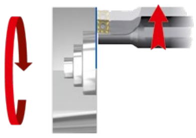
Feed f may be increased by 50–75 % when using -M50Q and -27Q.

3xD

EcoCut Classic Size	Depth of Cut a_p in inch								
	0.039	0.079	0.098	0.118	0.138	0.157	0.197	0.236	0.276
	Feed rate f in inch/rev.								
ECC 08	.0020-.0040	.0008-.0024							
ECC 10	.0024-.0043	.0012-.0028							
ECC 12	.0024-.0048	.0016-.0040	.0008-.0032						
ECC 14	.0028-.0052	.0020-.0043	.0008-.0036						
ECC 16	.0028-.0060	.0024-.0056	.0016-.0048	.0008-.0036					
ECC 18	.0032-.0064	.0032-.0064	.0024-.0056	.0016-.0048					
ECC 20	.0036-.0072	.0036-.0072	.0036-.0072	.0028-.0064	.0020-.0056	.0012-.0048			
ECC 25	.0040-.0076	.0040-.0076	.0040-.0076	.0032-.0066	.0024-.0060	.0012-.0052			
ECC 32	.0043-.0088	.0043-.0088	.0043-.0088	.0043-.0088	.0036-.0080	.0028-.0072	.0012-.0056		

Depth of Cut and Feedrate for EcoCut Classic

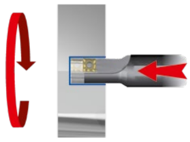
Face turning



EcoCut Classic Size	1.5xD		2.25xD		3xD	
	a_p inch	f in inch/rev.	a_p inch	f in inch/rev.	a_p inch	f in inch/rev.
ECC 08	0.079	.0020-.0040	0.075	.0016-.0036	0.043	.0016-.0028
ECC 10	0.098	.0024-.0048	0.087	.0020-.0040	0.047	.0016-.0036
ECC 12	0.118	.0028-.0056	0.102	.0024-.0048	0.055	.0020-.0044
ECC 14	0.138	.0032-.0064	0.118	.0028-.0056	0.063	.0024-.0048
ECC 16	0.157	.0036-.0072	0.134	.0032-.0064	0.075	.0024-.0052
ECC 18	0.177	.0040-.0080	0.150	.0036-.0072	0.079	.0028-.0056
ECC 20	0.197	.0044-.0088	0.165	.0040-.0080	0.087	.0032-.0060
ECC 25	0.236	.0048-.0094	0.197	.0044-.0088	0.102	.0036-.0072
ECC 32	0.315	.0052-.0106	0.236	.0048-.0100	0.118	.0040-.0080

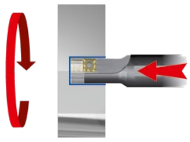
Drilling

Feed rate



EcoCut Classic Size	1.5xD	2.25xD	3xD
	f in inch/rev.	f in inch/rev.	f in inch/rev.
ECC 08	.0004-.0016	.0004-.0016	.0004-.0008
ECC 10	.0004-.0020	.0004-.0020	.0004-.0012
ECC 12	.0004-.0020	.0004-.0020	.0004-.0016
ECC 14	.0004-.0028	.0004-.0028	.0004-.0020
ECC 16	.0008-.0032	.0008-.0032	.0008-.0024
ECC 18	.0012-.0036	.0012-.0036	.0012-.0028
ECC 20	.0012-.0040	.0012-.0040	.0012-.0032
ECC 25	.0012-.0048	.0012-.0048	.0016-.0036
ECC 32	.0020-.0060	.0020-.0060	.0020-.0044

max. bore depth

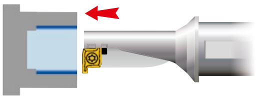


EcoCut Classic Size	1.5xD	2.25xD	3xD
	Max. hole depth in inch	Max. hole depth in inch	Max. hole depth in inch
ECC 08	0.472	0.709	0.945
ECC 10	0.591	0.886	1.181
ECC 12	0.709	1.063	1.417
ECC 14	0.827	1.240	1.654
ECC 16	0.945	1.417	1.890
ECC 18	1.063	1.594	2.126
ECC 20	1.181	1.772	2.362
ECC 25	1.476	2.224	2.953
ECC 32	1.890	2.835	3.780

Depth of Cut and Feedrate for EcoCut ProfileMaster 90°

Turning

1.5xD



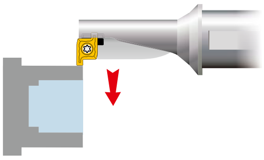
EcoCut ProfileMaster Size	Depth of Cut a_p in inch							
	0.039	0.079	0.118	0.157	0.197	0.236	0.276	0.315
	Feed rate f in inch/rev.							
EC PM 10	.0028-.0080	.0020-.0068	.0008-.0048					
EC PM 12	.0028-.0080	.0020-.0068	.0008-.0048					
EC PM 16	.0040-.0100	.0028-.0092	.0020-.0084	.0008-.0068				
EC PM 20	.0048-.0108	.0040-.0104	.0027-.0096	.0020-.0080	.0008-.0056			
EC PM 25	.0060-.0118	.0060-.0118	.0052-.0110	.0040-.0104	.0020-.0088	.0008-.0072		
EC PM 32	.0060-.0118	.0060-.0118	.0060-.0118	.0060-.0118	.0040-.0108	.0028-.0096	.0020-.0084	.0008-.0060

2.25xD

EcoCut ProfileMaster Size	Depth of Cut a_p in inch							
	0.039	0.079	0.118	0.157	0.197	0.236	0.276	0.315
	Feed rate f in inch/rev.							
EC PM 10	.0028-.0076	.0008-.0052						
EC PM 12	.0028-.0076	.0008-.0052						
EC PM 16	.0040-.0100	.0028-.0084	.0008-.0052					
EC PM 20	.0048-.0108	.0028-.0096	.0020-.0076					
EC PM 25	.0060-.0118	.0040-.0108	.0028-.0092	.0008-.0060				
EC PM 32	.0060-.0118	.0060-.0118	.0040-.0108	.0028-.0092	.0008-.0060			

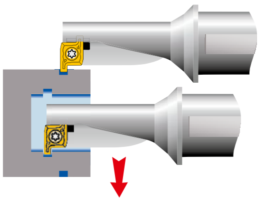
Face turning

1.5xD and 2.25xD



EcoCut ProfileMaster Size	Depth of Cut a_p in inch					
	0.039	0.059	0.079	0.098	0.118	0.138
	Feed rate f in inch/rev.					
EC PM 10	.0008-.0060	.0008-.0060				
EC PM 12	.0008-.0060	.0008-.0060				
EC PM 16	.0020-.0080	.0020-.0080	.0020-.0080			
EC PM 20	.0032-.0088	.0032-.0088	.0032-.0088	.0032-.0088		
EC PM 25	.0040-.0100	.0040-.0100	.0040-.0100	.0040-.0100	.0040-.0100	
EC PM 32	.0040-.0100	.0040-.0100	.0040-.0100	.0040-.0100	.0040-.0100	.0040-.0100

Internal + external – radial grooving

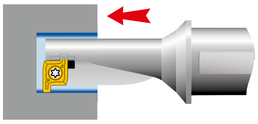


EcoCut ProfileMaster Size	1.5xD
	f in inch/rev.
EC PM 10	.0004-.0032
EC PM 12	.0008-.0040
EC PM 16	.0016-.0060
EC PM 20	.0016-.0064
EC PM 25	.0028-.0080
EC PM 32	.0032-.0088

EcoCut ProfileMaster Size	2.25xD
	f in inch/rev.
EC PM 10	.0004-.0032
EC PM 12	.0008-.0040
EC PM 16	.0016-.0060
EC PM 20	.0016-.0064
EC PM 25	.0028-.0080
EC PM 32	.0032-.0088

Drilling

Feed and max. hole depth



EcoCut ProfileMaster Size	1.5xD	
	f in inch/rev.	Max. hole depth in inch
EC PM 10	.0004-.0020	0.59
EC PM 12	.0004-.0024	0.71
EC PM 16	.0008-.0036	0.94
EC PM 20	.0012-.0040	1.18
EC PM 25	.0016-.0048	1.48
EC PM 32	.0016-.0056	1.89

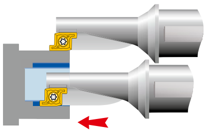
EcoCut ProfileMaster Size	2.25xD	
	f in inch/rev.	Max. hole depth in inch
EC PM 10	.0004-.0020	0.89
EC PM 12	.0004-.0024	1.06
EC PM 16	.0008-.0036	1.42
EC PM 20	.0012-.0040	1.77
EC PM 25	.0016-.0048	2.22
EC PM 32	.0016-.0056	2.83

Depth of Cut and Feedrate for EcoCut ProfileMaster 0°

EcoCut ProfileMaster Sizes 10 and 12 can not be used as 0° version.

Turning

1.5xD



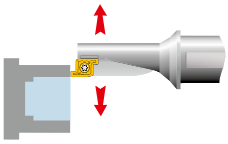
EcoCut ProfileMaster Size	Depth of cut a_p in inch					
	0.039	0.059	0.079	0.098	0.118	0.138
	Feed rate f in inch/rev.					
EC PM 16	.0016-.0080	.0016-.0080	.0016-.0080			
EC PM 20	.0024-.0088	.0024-.0088	.0024-.0088	.0024-.0088		
EC PM 25	.0032-.0100	.0032-.0100	.0032-.0100	.0032-.0100	.0032-.0100	
EC PM 32	.0040-.0112	.0040-.0112	.0040-.0112	.0040-.0112	.0040-.0112	.0040-.0112

2.25xD

EcoCut ProfileMaster Size	Depth of cut a_p in inch					
	0.039	0.059	0.079	0.098	0.118	0.138
	Feed rate f in inch/rev.					
EC PM 16	.0016-.0080	.0016-.0080	.0016-.0080			
EC PM 20	.0024-.0088	.0024-.0088	.0024-.0088	.0024-.0088		
EC PM 25	.0032-.0100	.0032-.0100	.0032-.0100	.0032-.0100	.0032-.0100	
EC PM 32	.0040-.0112	.0040-.0112	.0040-.0112	.0040-.0112	.0040-.0112	.0040-.0112

Face turning

1.5xD

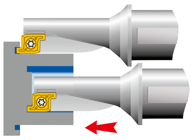


EcoCut ProfileMaster Size	Depth of cut a_p in inch						
	0.039	0.059	0.079	0.098	0.118	0.138	0.157
	Feed rate f in inch/rev.						
EC PM 16	.0020-.0080	.0020-.0080	.0020-.0080				
EC PM 20	.0020-.0080	.0020-.0080	.0020-.0080	.0020-.0080			
EC PM 25	.0040-.0100	.0040-.0100	.0040-.0100	.0040-.0100	.0040-.0100		
EC PM 32	.0040-.0100	.0040-.0100	.0040-.0100	.0040-.0100	.0040-.0100	.0040-.0100	.0040-.0100

2.25xD

EcoCut ProfileMaster Size	Depth of cut a_p in inch						
	0.039	0.059	0.079	0.098	0.118	0.138	0.157
	Feed rate f in inch/rev.						
EC PM 16	.0020-.0080	.0020-.0080	.0020-.0080				
EC PM 20	.0020-.0080	.0020-.0080	.0020-.0080	.0020-.0080			
EC PM 25	.0040-.0100	.0040-.0100	.0040-.0100	.0040-.0100	.0040-.0100		
EC PM 32	.0040-.0100	.0040-.0100	.0040-.0100	.0040-.0100	.0040-.0100	.0040-.0100	.0040-.0100

Axial grooving external + internal



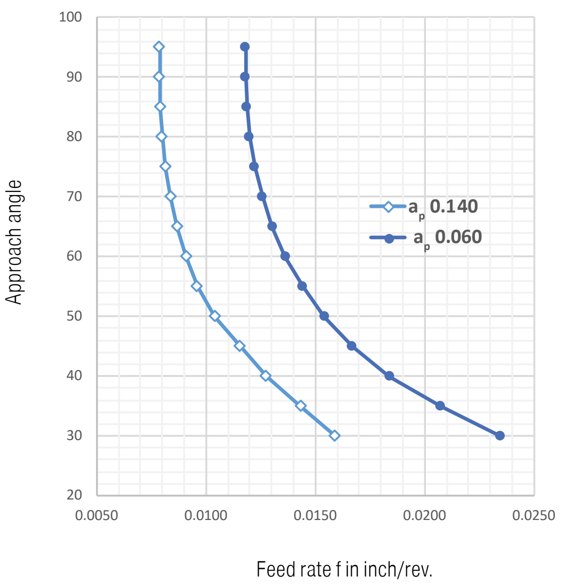
EcoCut ProfileMaster Size	1.5xD
	Feed rate f in inch/rev.
EC PM 16	.0008-.0048
EC PM 20	.0016-.0056
EC PM 25	.0024-.0072
EC PM 32	.0032-.0080

EcoCut ProfileMaster Size	2.25xD
	Feed rate f in inch/rev.
EC PM 16	.0008-.0048
EC PM 20	.0016-.0056
EC PM 25	.0024-.0072
EC PM 32	.0032-.0080

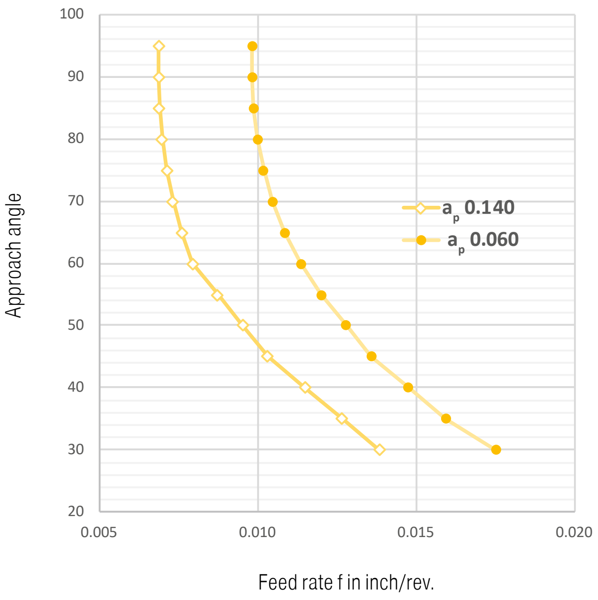
Initial curves for FreeTurn

	Material				Inserts		v_c in ft/min	Cooling
Steel	1.7225	42CrMo4	1010 N/mm^2	P.2.3	FT1x M 80xxxxR08 -M	CTCP125	660	Emulsion
Stainless steel	1.4301	X5CrNi18-10	610 N/mm^2	M.1.1	FT1x M 80xxxxR08 -M	CTPM125	600	Emulsion
Non-ferrous metals	3.2341	G-AlSi 5 Mg	200 N/mm^2	N.2.2	FT1x G 35xxxxR08-28P	H210T	1320	Emulsion

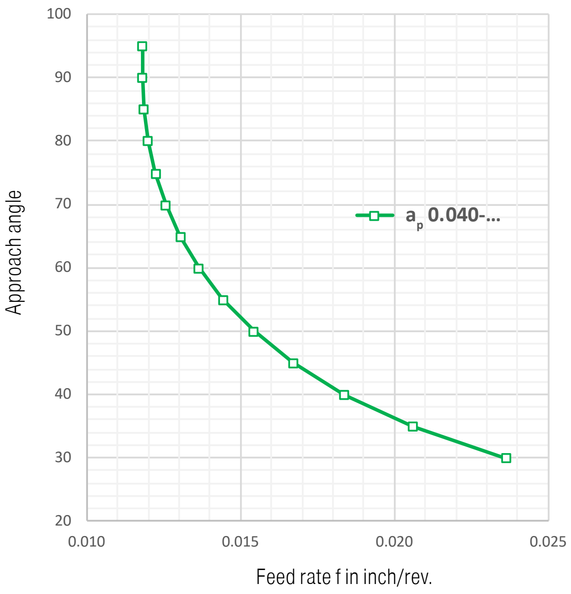
Steel



Stainless steel

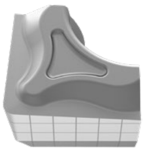
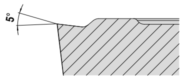
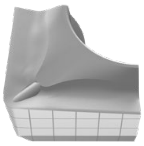
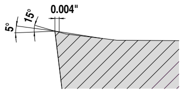
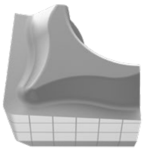
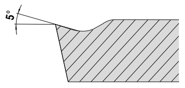
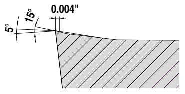


Non-ferrous metals

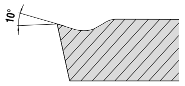


Chip Breakers Overview

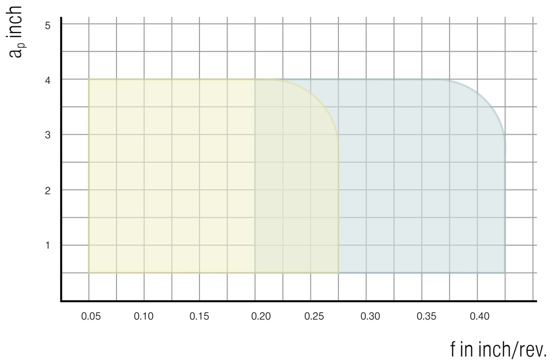
EcoCut Classic

	Model	Smooth cut ○	Irregular cutting depth ◐	Interrupted cut ◌	Sectional illustration f inch
-EN ▲ Universal geometry ▲ Excellent chip breakage ▲ Positive cutting edge ▲ Low to medium feeds		**CTCP425**	**CTCP435 / CTPP430**	**CTPP430 / CTCP435**	
		CTCP425 / CTPP430	**CTPP430**	**CTPP430**	
		CTCP425	CTCP435 / CTPP430	CTCP435	
		CTPP430	CTPP430	CTPP430	
		CTCP435 / CTPP430	CTCP435 / CTPP430	CTCP435	
					0.002“ - 0.011“
		CTCP435 / CTPP430	CTCP435 / CTPP430	CTCP435	
-M50Q ▲ With wiper geometry ▲ Excellent surface qualities ▲ Good chip formation ▲ Medium to high feeds		**CTCP425**	**CTCP425**		
		CTCP425			
		CTCP425	CTCP425		
					0.008“ - 0.017“
-27P ▲ Positive cutting edge ▲ Periphery ground ▲ Polished rake face ▲ First choice for non-ferrous metals					
		H216T	**H216T**	**H216T**	
		H216T	**H216T**	**H216T**	
		H216T	H216T		
					0.004“ - 0.016“
		H216T	H216T		
-27Q ▲ With wiper geometry ▲ Extremely positive geometry ▲ Periphery ground ▲ Low adhesion					
		H210T	H210T		
		H210T	**H210T**		
		H210T	**H210T**		
					0.008“ - 0.020“
		H210T	H210T		

EcoCut ProfileMaster

-M20 ▲ Positive geometry ▲ Universal application ▲ Low to medium feeds		**CTPP430**	**CTPP430**	**CTPP430**	
		CTPP430	**CTPP430**	**CTPP430**	
		CTPP430	CTPP430	CTPP430	
		CTPP430	CTPP430	CTPP430	
		CTPP430	**CTPP430**		
					0.002“ - 0.010“
		CTPP430	CTPP430	CTPP430	

Application area of -EN and -M50Q chip breakers



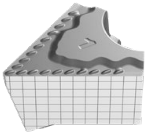
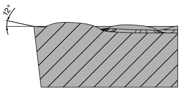
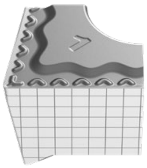
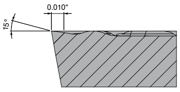
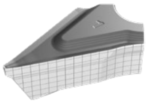
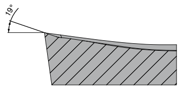
EcoCut Classic 2.25xD – ECC16 – XCNT 080304

🟦 = -M50Q

🟨 = Standard

Chip Breakers Overview

FreeTurn

	Model	Smooth cut ○	Irregular cutting depth ◐	Interrupted cut ◌	Sectional illustration f inch
-F ▲ Traditional finishing geometry ▲ High surface quality ▲ First choice for finishing steel		**CTCP125**	**CTCP125**		
		CTCP125	CTCP125		
					0 - 0.236“
-M ▲ Average to rough machining ▲ Aggressive chip breaker		CTPM125	CTPM125		
		CTPM125	**CTPM125**		
					0 - 0.236“
-28P ▲ Traditional finishing geometry ▲ Sharp cutting edge ▲ First choice for aluminium					
		H216T	H216T	H216T	
		H216T	**H216T**	**H216T**	
					0 - 0.070“
		H216T	H216T		

6

EcoCut Classic – Application as the most stable boring tool

EcoCut can not only be used as a multifunction tool, but it can be used strictly as a traditional boring tool.

Example: machining bores, 0.629" diameter by 1.420" depth

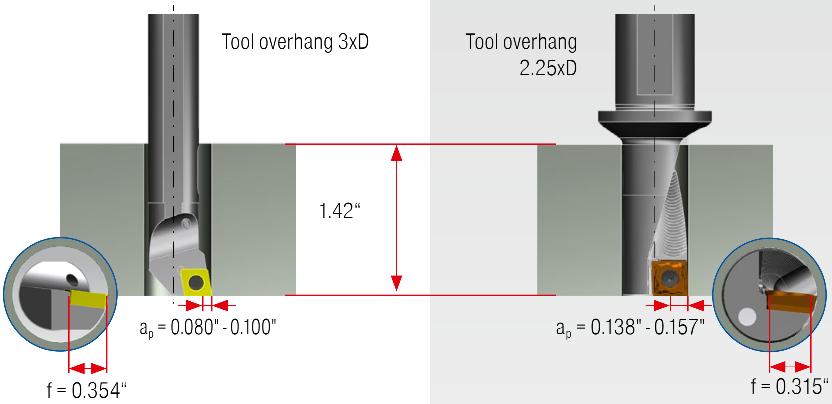
Differences in the tool

Boring Bar

A12K SCFCR 06

EcoCut Classic

ECC 16R-2.25D 08



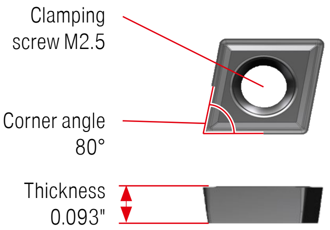
Your Advantages

Large, stable toolholder
- ▲ Absorption of high cutting forces
- ▲ Low vibration
- ▲ Chip Booster for perfect cooling and chip evacuation

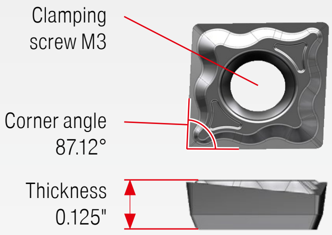
Benefits
- ▲ High surface quality
- ▲ Perfect chip control
- ▲ Max. process security

Differences in the insert

CCMT 060204



XCNT 080304

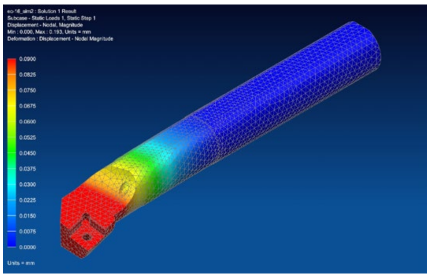


Large and stable insert
- ▲ Increased process security
- ▲ Enables large depths of cut
- ▲ Higher cutting data
- ▲ Higher tool life

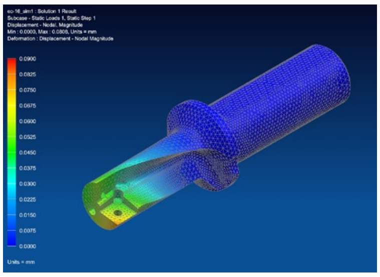
Benefits
- ▲ Reduction in machining time
- ▲ Increased productivity
- ▲ Reduced tooling costs

Stability Comparison

Calculation using FEM
A load of 1000 N on the insert seat corresponds to an approx. a_p of 0.080" and f 0.008"



Deflection 0.007"

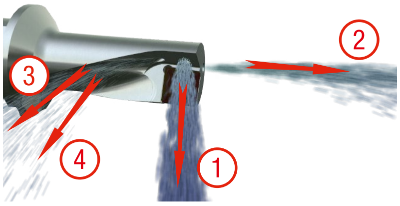


Deflection 0.003"

Practical experience shows:

- ▲ Reduced machining time by up to **75 %**
- ▲ Increase in tool life by **400 %** possible

Innovative chip removal – Chip-Booster



EcoCut tools are equipped with a unique coolant and chip removal system.

① Cooling of the indexable insert

② General coolant stream

③ Chip booster for improved chip transport

④ Chip booster prevents chips from getting stuck between tool and workpiece

For maximum chip transport efficiency when drilling, coolant pressure must be 3–6 bar minimum (optimal 7–10 bar).

Application Tips

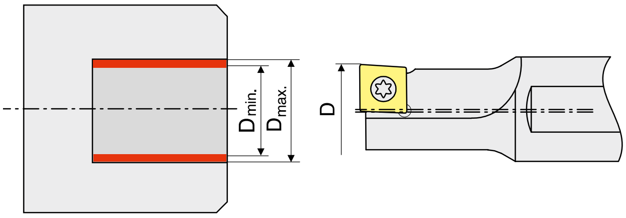
Drilling off-center

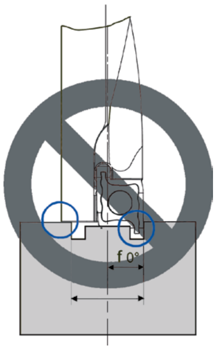
Due to the special construction of the EcoCut tool and insert, off-center drilling is possible.
Deviations from the tool nominal Ø, can be achieved (see adjacent table).

EcoCut Mini	Tool nominal-Ø	Work piece bore Ø	
	D in inch	$D_{min.}$ in inch	$D_{max.}$ in inch
ECM 02 L/R - ...D	0.079	0.077	0.083
ECM 02.5 L/R - ...D	0.098	0.096	0.102
ECM 03 L/R - ...D	0.118	0.116	0.124
ECM 03.5 L/R - ...D	0.138	0.136	0.144
ECM 04 R/L - ...D	0.157	0.154	0.165
ECM 05 R/L - ...D	0.197	0.193	0.205
ECM 06 R/L - ...D	0.236	0.232	0.244
ECM 07 R/L - ...D	0.276	0.272	0.283
ECM 08 R/L - ...D	0.315	0.311	0.323

EcoCut Classic	Tool nominal-Ø	Work piece bore Ø	
	D in inch	$D_{min.}$ in inch	$D_{max.}$ in inch
ECC 08 R/L - ... 04	0.315	0.309	0.327
ECC 10 R/L - ... 05	0.394	0.388	0.413
ECC 12 R/L - ... 06	0.472	0.467	0.492
ECC 14 R/L - ... 07	0.551	0.545	0.571
ECC 16 R/L - ... 08	0.630	0.624	0.650
ECC 18 R/L - ... 09	0.709	0.703	0.728
ECC 20 R/L - ... 10	0.787	0.780	0.807
ECC 25 R/L - ... 13	0.984	0.976	1.016
ECC 32 R/L - ... 17	1.260	1.252	1.299

EcoCut ProfileMaster	Tool nominal-Ø	Work piece bore Ø	
	D in inch	$D_{min.}$ in inch	$D_{max.}$ in inch
PM 10R/L ...	0.394	0.388	0.472
PM 12R/L ...	0.472	0.467	0.591
PM 16R/L ...	0.630	0.624	0.748
PM 20R/L ...	0.787	0.780	0.945
PM 25R/L ...	0.984	0.976	1.142
PM 32R/L ...	1.260	1.252	1.496



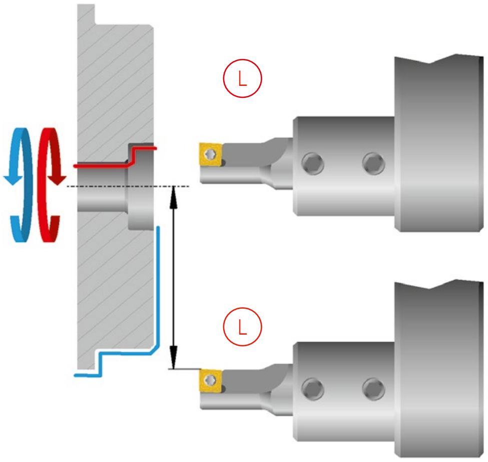


ProfileMaster 0°
Not suitable for drilling!

Machining over center

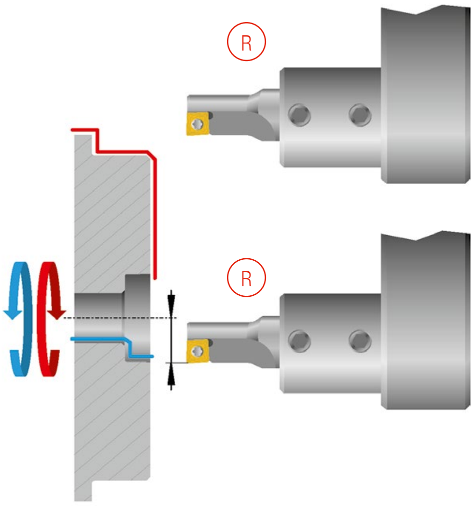
Problem

In case of insufficient movement of the machine across the center line, the external diameter can not be machined with the same tool.



Solution

Use a right hand EcoCut tool.

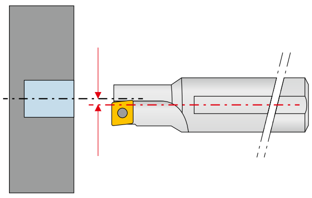


Application Tips

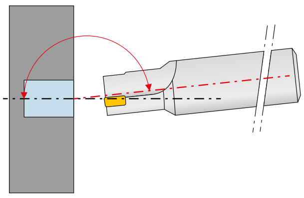
With axial displacement there is the danger of collision!

Problems

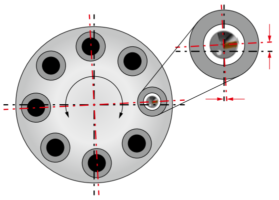
Displacement in x-direction:



Angular error:



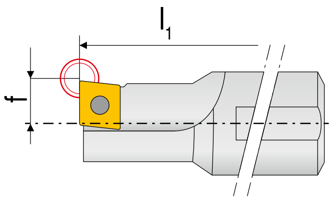
Turret position error:



Remedy

When pre-setting the tool:

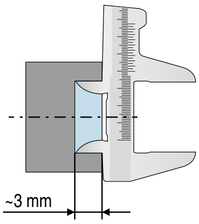
- Definition as an internal turning tool for programming



- Enter the tool nominal Ø as bore target Ø

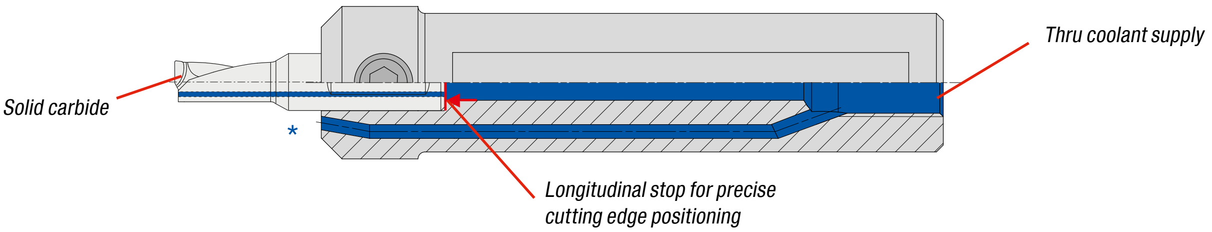
At the machine:

- Make measuring cut, approx. 0.120" deep
- Measure drilled diameter produced



- If necessary correct drilling Ø
- Start machining

EcoCut Mini adapter – Design

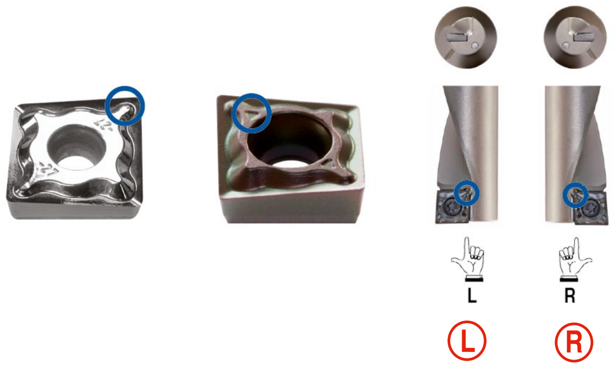


* Cross-section rotated by 90° for clarity

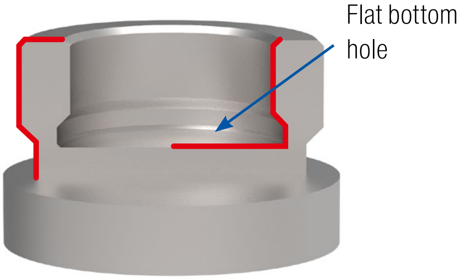
Mounting of the insert for EcoCut Classic

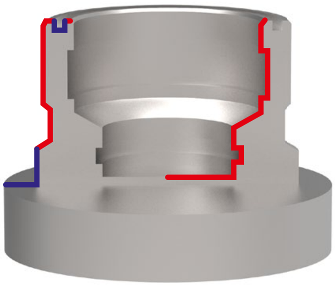
For tools up to Ø 0.315" right and left handed inserts are required.
From Ø 0.394"–1.260"neutral inserts are used.

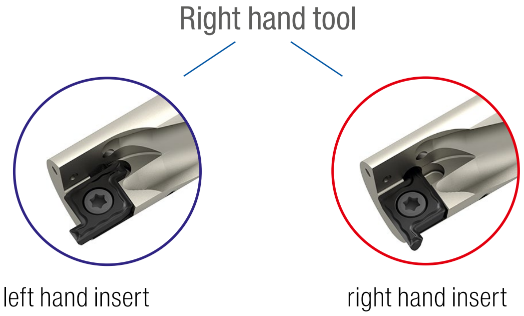
Note!
Ensure correct installation position.

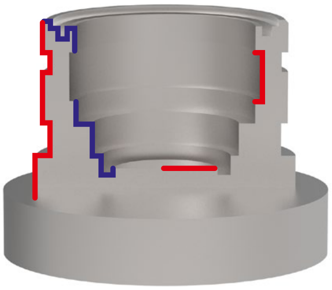


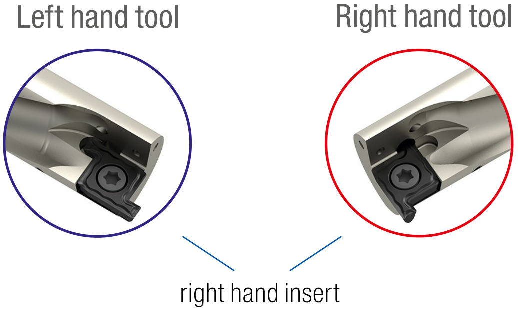
EcoCut ProfileMaster – the highlight with regard to efficiency



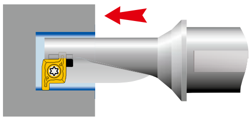






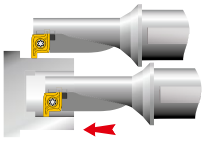


Version 90°



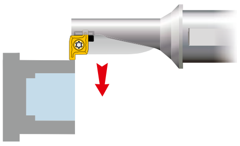
Drilling into solid material with flat bottom hole

Boring

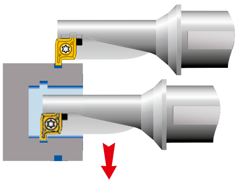


Turning External Diameters

Turning Internal Diameters



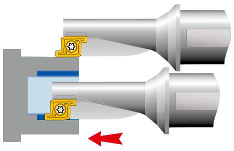
Turning Profiles



External radial grooving

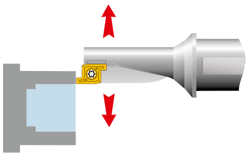
Internal radial grooving

Version 0°

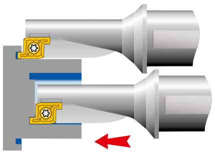


Turning External Diameters

Turning Internal Diameters



Turning Profiles



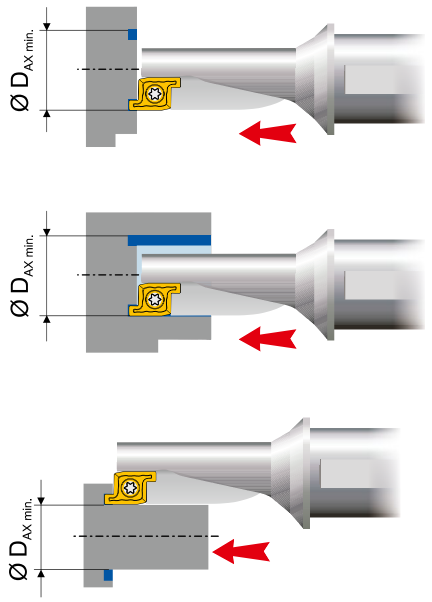
Axial grooving external

Axial grooving internal

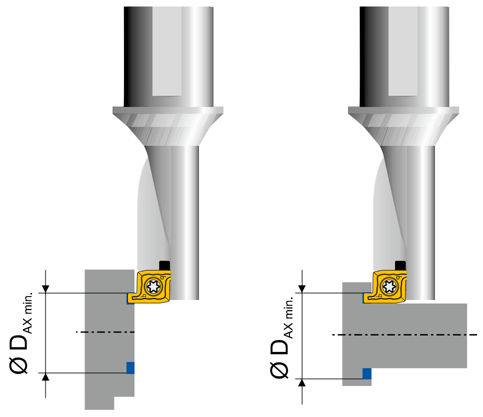
For maximum chip transport efficiency when drilling, coolant pressure must be 3 – 6 bar minimum (optimal 7 – 10 bar).

EcoCut ProfileMaster – Axial Grooving

0° (from Ø .629“)

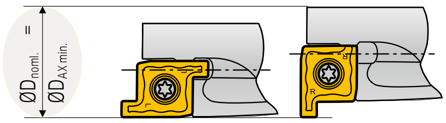


90°



EcoCut ProfileMaster	$\varnothing D_{\text{noml.}}$ inch	$\varnothing D_{\text{AX min.}}$ inch	$\varnothing D_{\text{AX max.}}$ inch
PM 10R/L 1.5D	0.394	0.394	> 0.394
PM 10R/L 2.25D	0.394	0.394	> 0.394
PM 12R/L 1.5D	0.472	0.472	> 0.472
PM 12R/L 2.25D	0.472	0.472	> 0.472
PM 16R/L 1.5D	0.630	0.630	> 0.630
PM 16R/L 2.25D	0.630	0.630	> 0.630
PM 20R/L 1.5D	0.787	0.787	> 0.787
PM 20R/L 2.25D	0.787	0.787	> 0.787
PM 25R/L 1.5D	0.984	0.984	> 0.984
PM 25R/L 2.25D	0.984	0.984	> 0.984
PM 32R/L 1.5D	1.260	1.260	> 1.260
PM 32R/L 2.25D	1.260	1.260	> 1.260

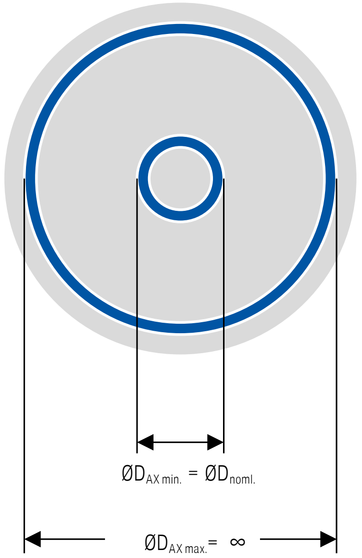
$\varnothing D_{\text{AX min.}} = \varnothing D_{\text{noml.}}$



$\varnothing D_{\text{noml.}}$ = Nominal tool diameter

$\varnothing D_{\text{AX min.}}$ = smallest diameter for axial grooving

$\varnothing D_{\text{AX max.}}$ = largest diameter for axial grooving



Application Tips

Recommendation for Optimum Results

Type of problem										
Type of wear				Work piece problems		Swarf control				
Edge breakage	Built-up edge	Wear on clearance face	Plastic deformation	Vibration	Surface quality	Chip too long (snarl chip)	Chip too short (fragmented chip)	Remedy measures		
	▲	▼	▼	↓	↑	↓			Cutting data	Cutting speed
▼		~	↓	↑	▼	▲	▼			Feed rate
▲		▲	▲	↓	↑				Insert selection	Corner radius larger ↑ ↓ smaller
▼		▲	▲							Tool Material Wear resistance ↑ ↓ toughness
~				~	~				General criteria	Tool clamping
~				~	~					Work piece clamping
~				~	↓					Overhang
~		~		~	~					Tip height
	●	●	●		●	●				Cooling lubricant

▲ raise, increase large influence

↑ raise, increase small influence

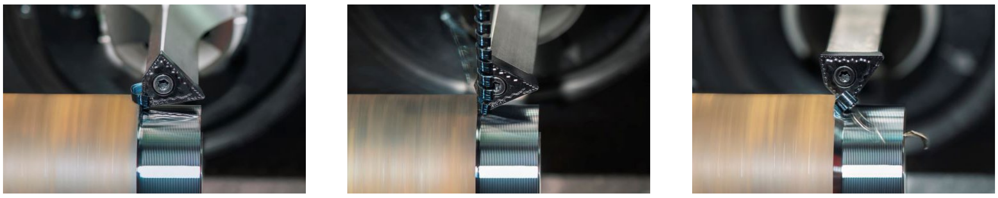
▼ avoid, reduce large influence

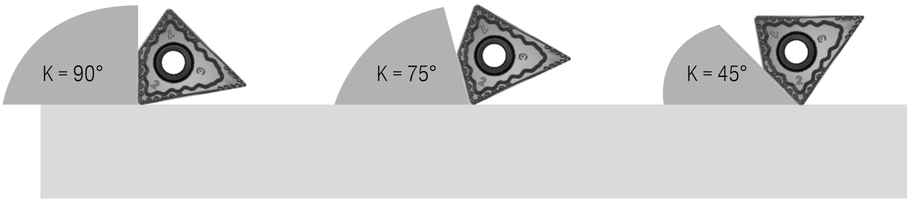
↓ avoid, reduce small influence

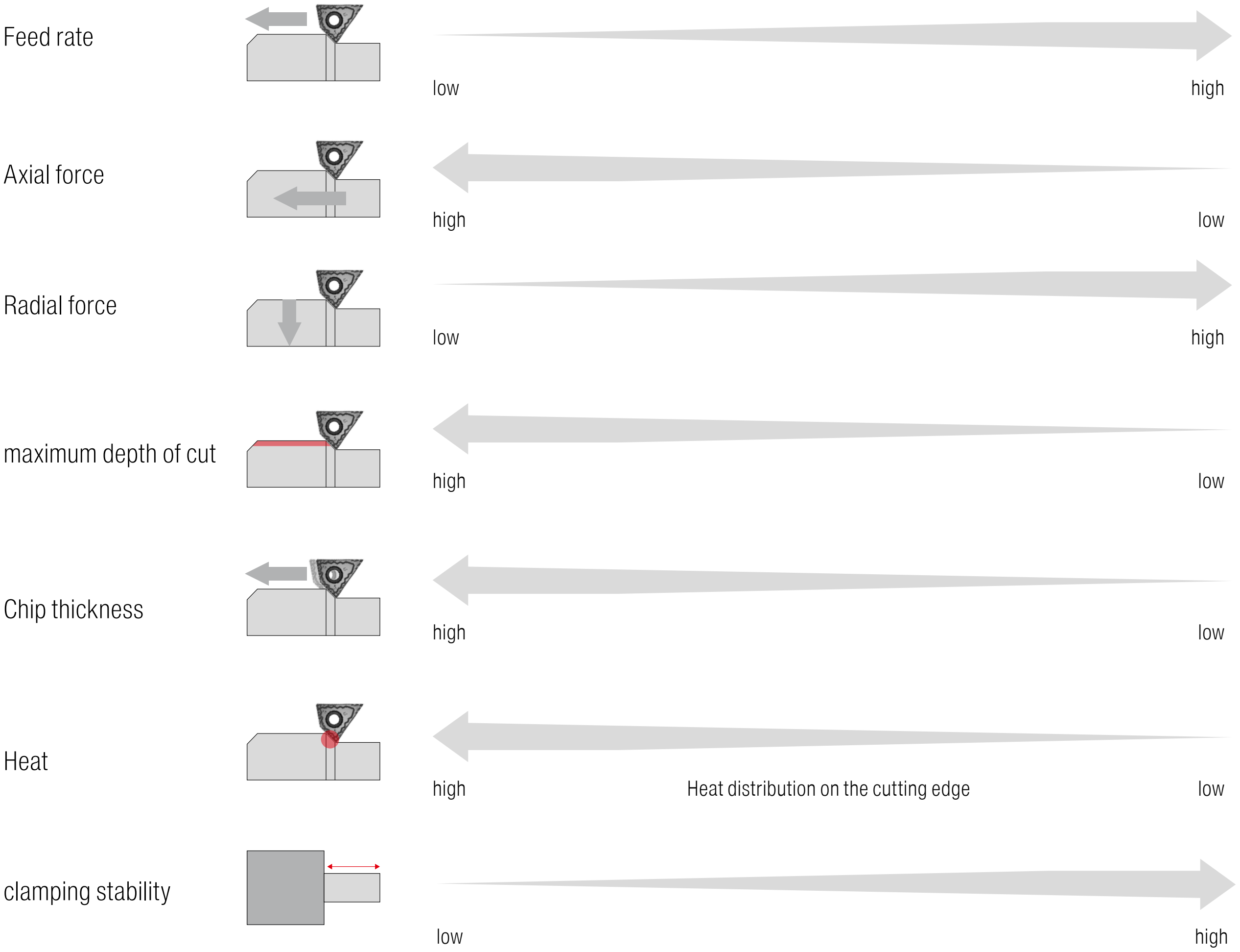
~ control, optimize

● use

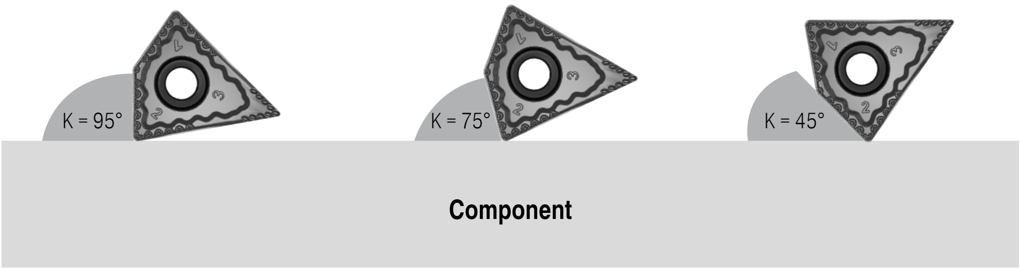
Factors influencing the selection of the correct cutting angle





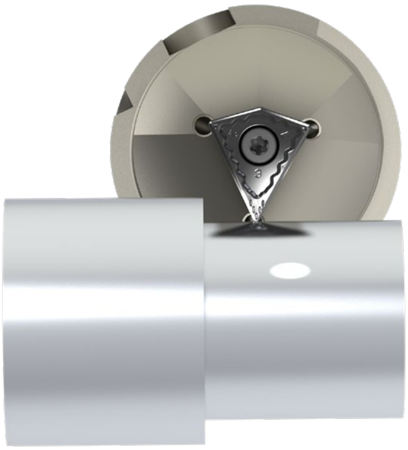


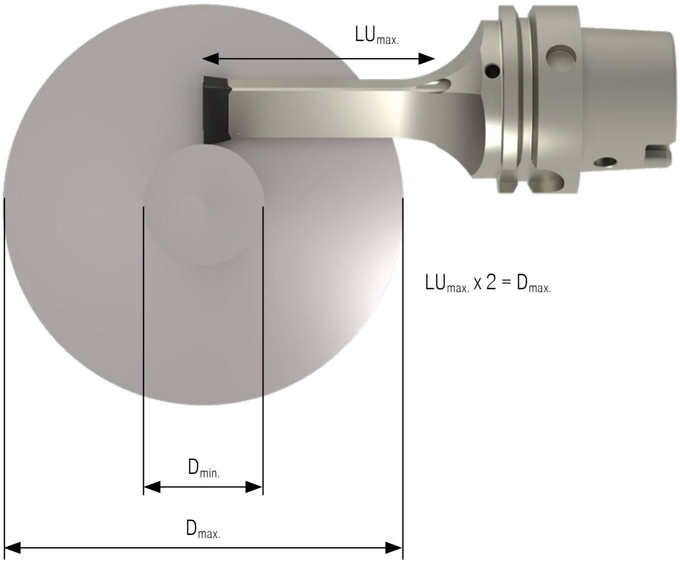
Approach angle



The approach angle always works from the edge of the component to the main cutting edge (tool).

Tool / workpiece length ratio



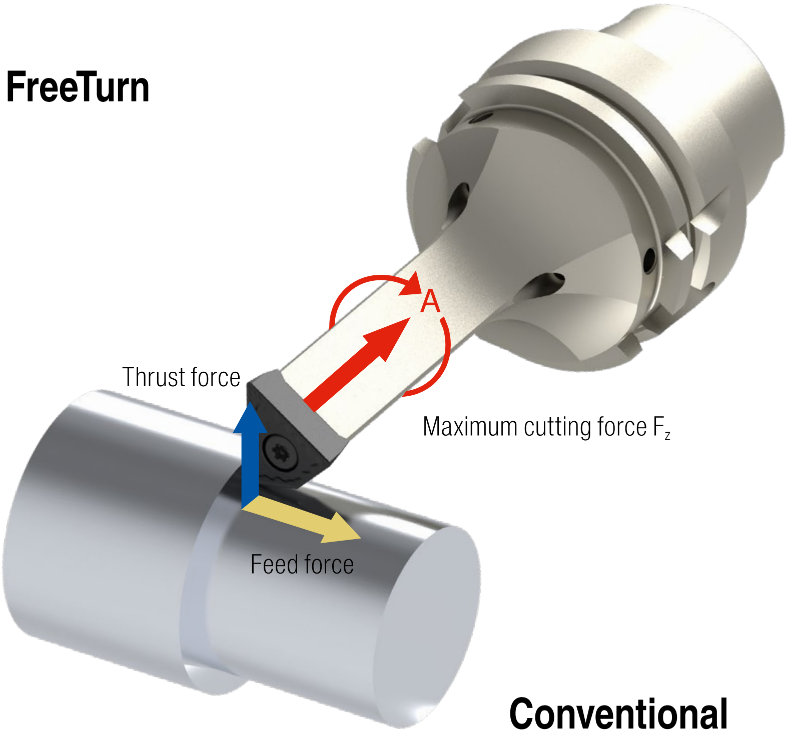


This table shows the diameter ranges you can work in with the different tool lengths.

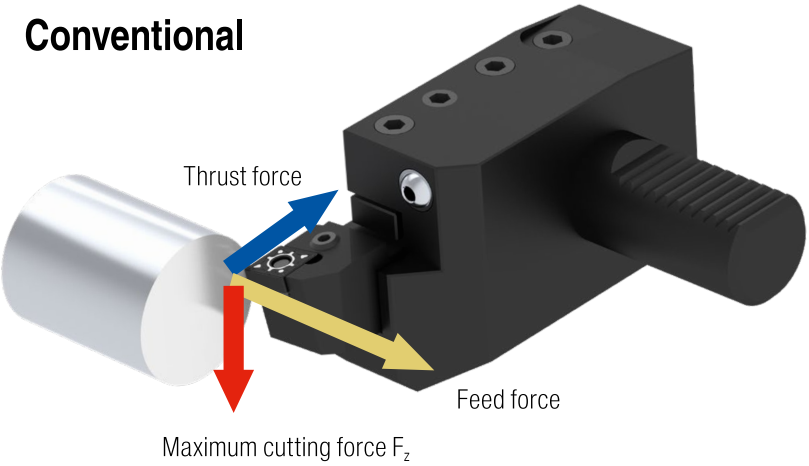
Tool	$D_{max.}$ in inch	**7.87**	**7.48**	**7.09**	**6.69**	**6.30**	**5.91**	**5.51**	**5.12**	**4.72**	**4.33**	**3.94**	**3.54**	**3.15**
PSC-63-**100**-FT 808055	$D_{min.}$ in inch					5.00	4.53	4.02	3.46	2.87	2.20	1.34	0.00	0.00
PSC-63-**125**-FT 808055	$D_{min.}$ in inch	5.43	4.92	4.33	3.54	2.76	1.65	0.00	0.00	0.00	0.00	0.00	0.00	0.00

Force data from the process

FreeTurn



Conventional



Practical test	
Steel machining	Cutting data:
shaft Ø 2.36"	v_c = 575 ft./min.
4140 material	f = 0.012 "/rev.
R_m 850 Nm	a_p = 0.120"
	K = 95°

FreeTurn		**Conventional**
2136 N	F XYZ	2206 N
920 N	F XY (feed force)	2143 N
1928 N	Maximum cutting force F_z	526 N

Grades Overview

EcoCut Classic

CTCP425	Carbide, $Ti+Al_2O_3$-coated ISO | **P25** | K30 | M20 The wear-resistant choice for steel and cast iron materials under stable conditions and at high cutting speeds
CTCP435	Carbide, $Ti+Al_2O_3$-coated ISO | **P35** | M30 | K40 The reliable choice for steel and cast iron materials under unstable conditions
CTPP430	Carbide. TiAlN-coated ISO | **P30** | **M25** | K30 | N25 | S25 | O25 The universal high-performance grade for steel, austenitic steel and heat-resistant alloys
H210T	Carbide, uncoated ISO | K10 | **N10** | **S10** | O10 The wear-resistant carbide grade for machining aluminium and other non-ferrous metals
H216T	Carbide, uncoated ISO | **K15** | **N15** | S15 | O15 The uncoated carbide grade for machining aluminium and other non-ferrous metals. Also highly suitable for HSC machining.

FreeTurn

CTCP125	Carbide, $TiCN-Al_2O_3$-coated ISO | **P25** | K25 The first choice for universal machining of steels
CTPM125	ISO | P35 | **M25** The universal carbide grade with maximum toughness, without affecting the necessary hot hardness and wear resistance for stainless machining
H216T	Carbide, uncoated ISO | K15 | **N15** | S15 | O15 The uncoated carbide grade for machining aluminium and other non-ferrous metals. Also highly suitable for HSC machining.

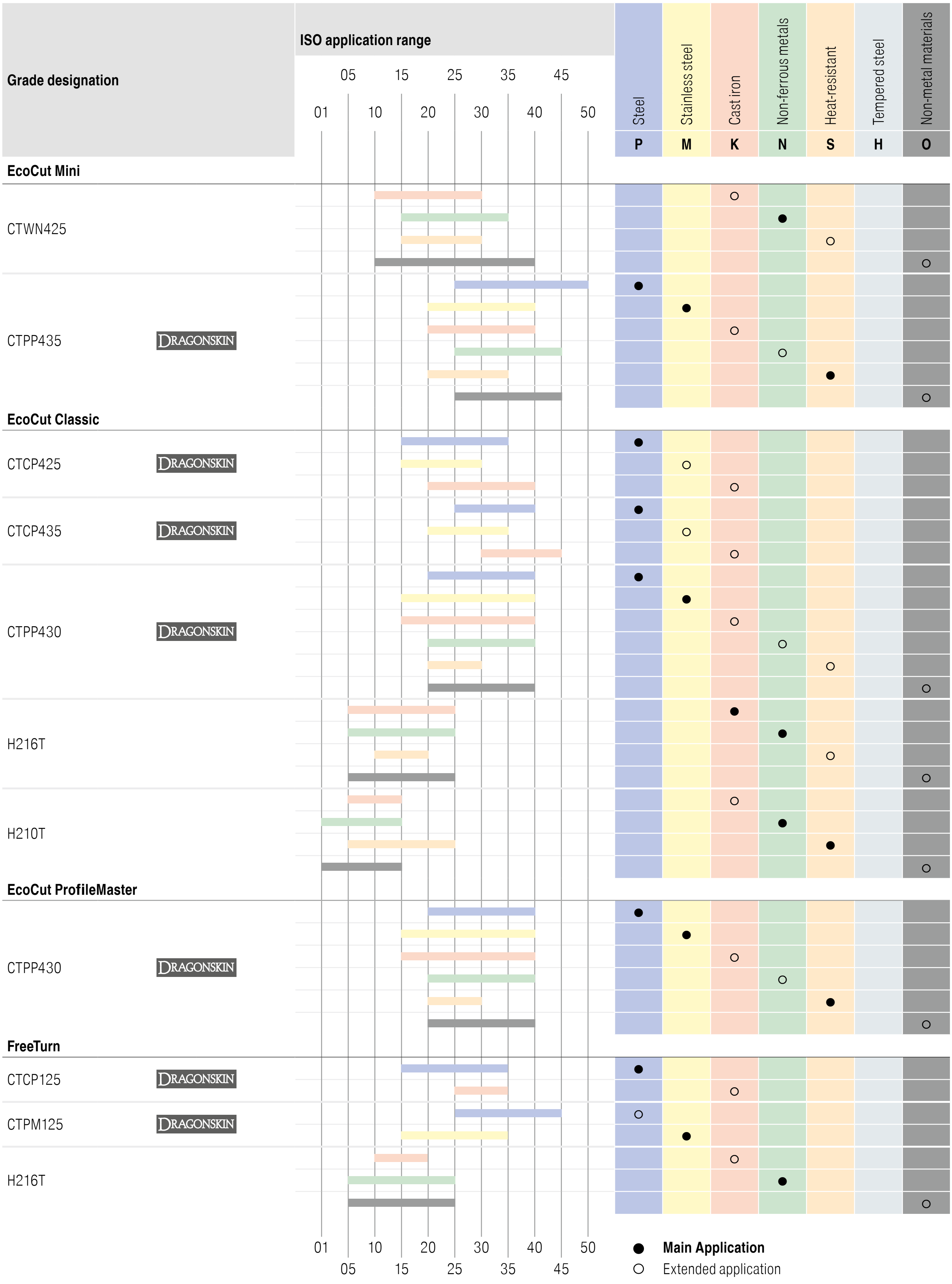
EcoCut Mini

CTPP435	Carbide, TiAlN-coated ISO | **P35** | **M30** | K30 | N30 | **S30** | O30 The universal high-performance grade for steel, austenitic steel and heat-resistant alloys
CTWN425	Carbide, uncoated ISO | K20 | **N25** | S25 | O25 The uncoated carbide grade for machining aluminium and other non-ferrous metals

EcoCut ProfileMaster

CTPP430	Carbide. TiAlN-coated ISO | **P30** | **M25** | K30 | N25 | **S25** | O25 The universal high-performance grade for steel, austenitic steel and heat-resistant alloys

Application



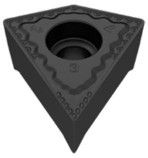
Grade designation		ISO application range	P Steel	M Stainless steel	K Cast iron	N Non-ferrous metals	S Heat-resistant	H Tempered steel	O Non-metal materials
EcoCut Mini									
CTWN425		10–30			○				
		15–35				●			
		15–30					○		
		10–40							○
CTPP435	DRAGONSKIN	25–50	●						
		20–40		●					
		20–40			○				
		25–45				○			
		20–35					●		
		25–45							○
EcoCut Classic									
CTCP425	DRAGONSKIN	15–35	●						
		15–30		○					
		20–40			○				
CTCP435	DRAGONSKIN	25–40	●						
		20–35		○					
		30–45			○				
CTPP430	DRAGONSKIN	20–40	●						
		15–40		●					
		15–40			○				
		20–40				○			
		20–30					○		
		20–40							○
H216T		05–25			●				
		05–25				●			
		10–20					○		
		05–25							○
H210T		05–15			○				
		01–15				●			
		05–25					●		
		01–15							○
EcoCut ProfileMaster									
CTPP430	DRAGONSKIN	20–40	●						
		15–40		●					
		15–40			○				
		20–40				○			
		20–30					●		
		20–40							○
FreeTurn									
CTCP125	DRAGONSKIN	15–35	●						
		25–35			○				
CTPM125	DRAGONSKIN	25–45	○						
		15–35		●					
H216T		10–20			○				
		05–25				●			
		05–25							○

● **Main Application**
○ Extended application

wear-resistant v_c+ ○ ⟷ v_c- tough

Designation System

FreeTurn – indexable insert designation



$$\underbrace{\text{FT}}_{\boxed{1}}\underbrace{\text{15}}_{\boxed{2}}\ \underbrace{\text{M/G}}_{\boxed{3}}\ \underbrace{\text{80}}_{\boxed{4}}\underbrace{\text{80}}_{\boxed{5}}\underbrace{\text{55}}_{\boxed{6}}\underbrace{\text{R08}}_{\boxed{7}}\underbrace{\text{08}}_{\boxed{8}}\underbrace{\text{04}}_{\boxed{9}}\ \underbrace{\text{Q}}_{\boxed{10}}\ \underbrace{\text{MMF}}_{\boxed{11}}\ \underbrace{\text{CTCP125}}_{\boxed{12}}$$

1 FreeTurn
2 Nominal diameter in mm
3 ISO tolerance (M = sintered, G = polished)
4 Cutter angle 1 in degrees
5 Cutter angle 2 in degrees
6 Cutter angle 3 in degrees
7 Corner radius 1 in mm
8 Corner radius 2 in mm
9 Corner radius 3 in mm
10 Masterfinish – wiper geometry
11 Chip breaker (M = medium, F = fine)
12 Carbide Grade

FreeTurn – holder designation

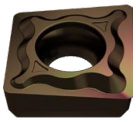
$$\underbrace{\text{HSK}}_{\boxed{1}}\ \text{-}\ \underbrace{\text{T63}}_{\boxed{2}}\ \text{-}\ \underbrace{\text{100}}_{\boxed{3}}\ \text{-}\ \underbrace{\text{FT}}_{\boxed{4}}\underbrace{\text{15}}_{\boxed{5}}\ \underbrace{\text{80}}_{\boxed{6}}\underbrace{\text{80}}_{\boxed{7}}\underbrace{\text{55}}_{\boxed{8}}$$

1 System
2 Size
3 Overhang length
4 FreeTurn
5 Nominal diameter in mm
6 Cutter angle 1 in degrees
7 Cutter angle 2 in degrees
8 Cutter angle 3 in degrees

Designation System

EcoCut – indexable insert designation

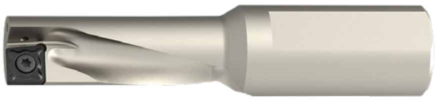
X	C	E	T	17	05	08	F	N -	27P
1	2	3	4	5	6	7	8	9	10



1 Insert shape
2 Clearance angle
3 Tolerances
4 Characteristics
5 Cutting length
6 Insert thickness
7 Corner radius
8 Cutting edge
9 Direction of cut
10 Chip groove

EcoCut – holder designation

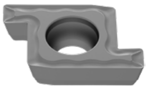
ECC	32	R -	3.0D	17	H -	E
1	2	3	4	5	6	7



1 System
2 Nominal diameter in mm
3 Direction of cut
4 maximum hole depth
5 insert size
6 Tool holder version in Densimet
7 Inch size shank

EcoCut ProfileMaster – indexable insert designation

PM	25	R	G	35	30	04 -	M20
1	2	3	4	5	6	7	8

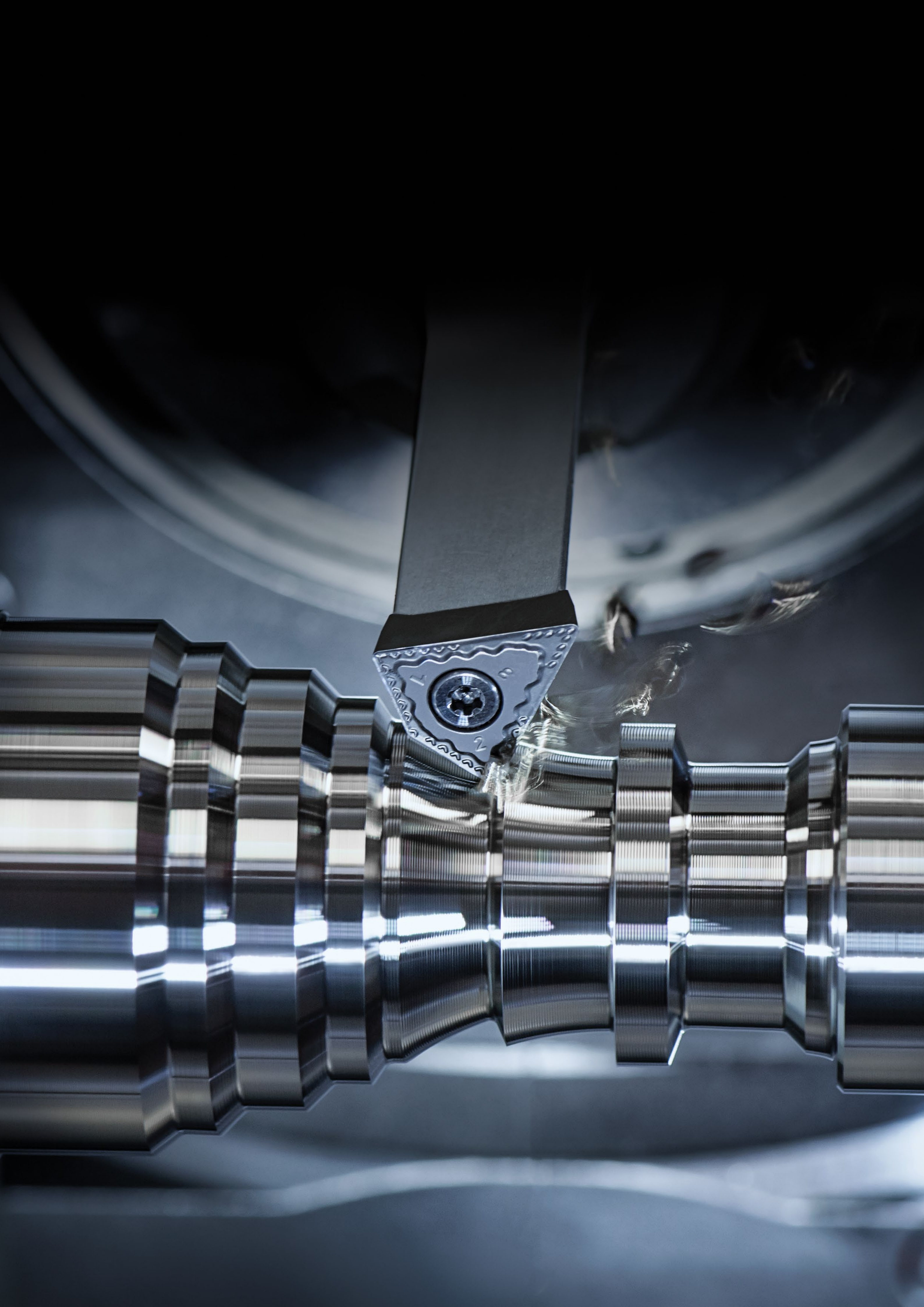


1 ProfileMaster
2 Nominal diameter in mm
3 Direction of cut
4 Version
5 Groove width in mm/10
6 Groove depth in mm/10
7 Corner radius
8 Chip groove

EcoCut ProfileMaster – holder designation

PMC	25	R -	2.25D -	E
1	2	3	4	5

1 ProfileMaster
2 Nominal diameter in mm
3 Direction of cut
4 maximum hole depth
5 Inch size shank



New products for machining technicians

NEW

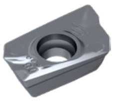
MaxiMill 271-12

23+24

New system size for more economy

NEW

MaxiMill 211-20



56–58

Indexable insert product extension

NEW

CTCM245

New high-performance grade for machining high-alloy steels

Table of contents

CERATIZIT \ Performance

Premium quality tools for high performance.

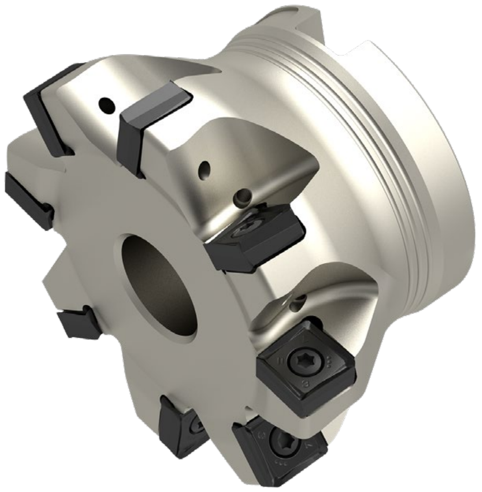
The premium quality tools from the **CERATIZIT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

Symbol explanation

central internal coolant

lateral internal coolant

κ = 43° Cutting edge angle



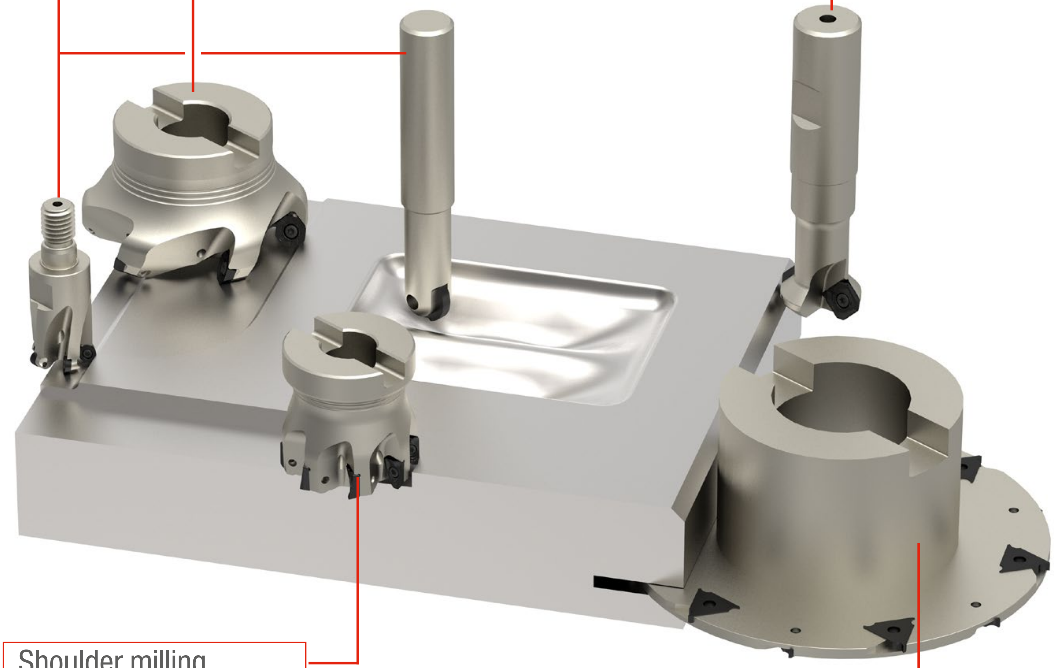
ZNF = Number of flutes
● = **Main Application**
○ = Extended application

Application symbols

- Face milling
- Angled ramping
- Circular drill milling
- plunge milling
- Slot milling
- Shoulder milling
- Slot milling (45°)
- Chamfer milling
- Free form milling

metric Additional metric items are available in our Online-Shop at cuttingtools.ceratizit.com and in the metric main catalog.

Toolfinder – Application Selection Guide



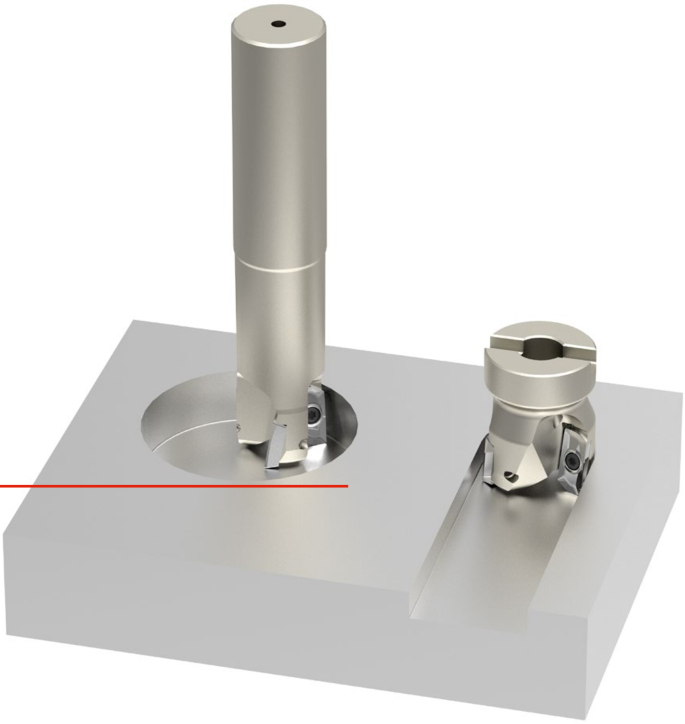
Form milling
→ System Selection:
8+9

Face milling
→ System Selection:
4+5

Chamfer/Angle milling cutters
→ System Selection:
10

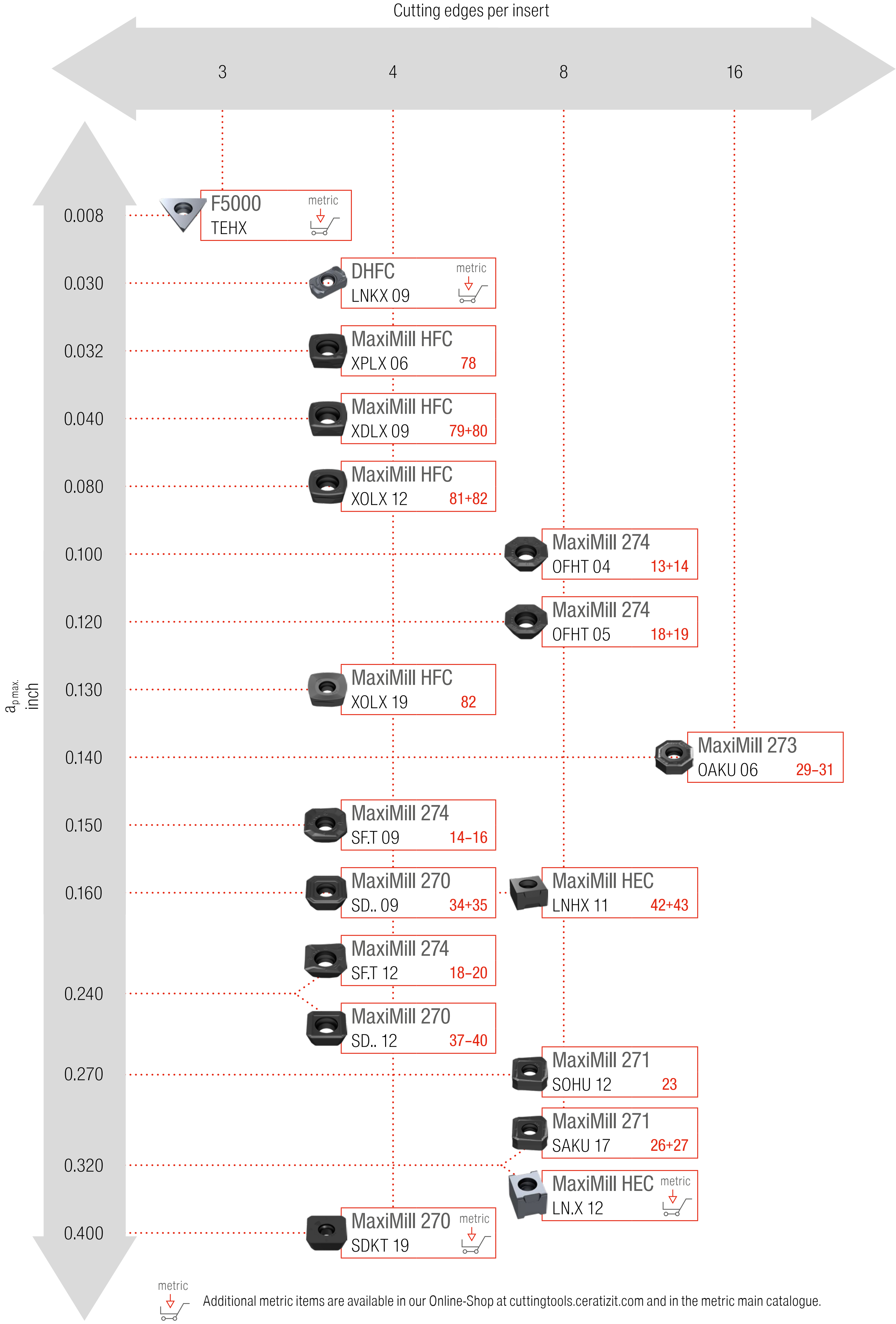
Shoulder milling
→ System Selection:
6+7

Slot milling
and saws
metric



High Speed Cutting (HSC) /
High Performance Cutting (HPC)
→ System Selection:
6+7

Toolfinder – Face Milling Cutters



Cutting edges per insert

$a_{p\,max.}$ inch

0.008	3	F5000	TEHX	metric
0.030	4	DHFC	LNKX 09	metric
0.032	4	MaxiMill HFC	XPLX 06	78
0.040	4	MaxiMill HFC	XDLX 09	79+80
0.080	4	MaxiMill HFC	XOLX 12	81+82
0.100	8	MaxiMill 274	OFHT 04	13+14
0.120	8	MaxiMill 274	OFHT 05	18+19
0.130	4	MaxiMill HFC	XOLX 19	82
0.140	16	MaxiMill 273	OAKU 06	29–31
0.150	4	MaxiMill 274	SF.T 09	14–16
0.160	4	MaxiMill 270	SD.. 09	34+35
0.160	8	MaxiMill HEC	LNHX 11	42+43
0.240	4	MaxiMill 274	SF.T 12	18–20
0.240	4	MaxiMill 270	SD.. 12	37–40
0.270	8	MaxiMill 271	SOHU 12	23
0.320	8	MaxiMill 271	SAKU 17	26+27
0.320	8	MaxiMill HEC	LN.X 12	metric
0.400	4	MaxiMill 270	SDKT 19	metric

metric

Additional metric items are available in our Online-Shop at cuttingtools.ceratizit.com and in the metric main catalogue.

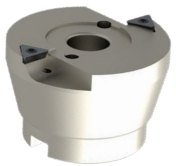
Overview – Face Milling Cutters

System	Inserts	Cutting edges per insert	$a_{p\,max.}$ inch	Ø-range inch			Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials	Page No.
MaxiMill 274	**OFH.** 04.. / 05.. | **SF.T** 09.. / 12..	8 | 4	0.100 – 0.240"		 Ø 1.000–1.250"	 Ø 1.500–6.000"	●	●	●	●	●		○	12–20
MaxiMill 271	**SOHU** 1204.. | **SAKU** 1706..	8	0.270 – 0.330"		 Ø 1.250–1.500"	 Ø 1.500–10.000"	●	●	●		●			21–27
MaxiMill 273	**OAKU** 0605..	16	0.137"		 Ø 1.500–1.500"	 Ø 2.000–10.000"	●	●	●		●			28–31
MaxiMill 270	**SD..** 0903.. / 1204.. / 19..	4	0.160 – 0.400"		 Ø 0.500–1.500"	 Ø 2.000–6.000"	●	●	●	●	●		○	32–40
MaxiMill HEC	**LNHX** 1106..	8	0.160 – 0.320"			 Ø 2.000–8.000"	●		●			○		41–43
MaxiMill HFC	**X..X** 06.. / 09.. / 12.. / 19..	4	0.032 – 0.129"	 Ø 0.625–1.250"	 Ø 0.625–1.500"	 Ø 1.500–5.000"	●	●	●		●			76–82

Additional diameters are available upon request.

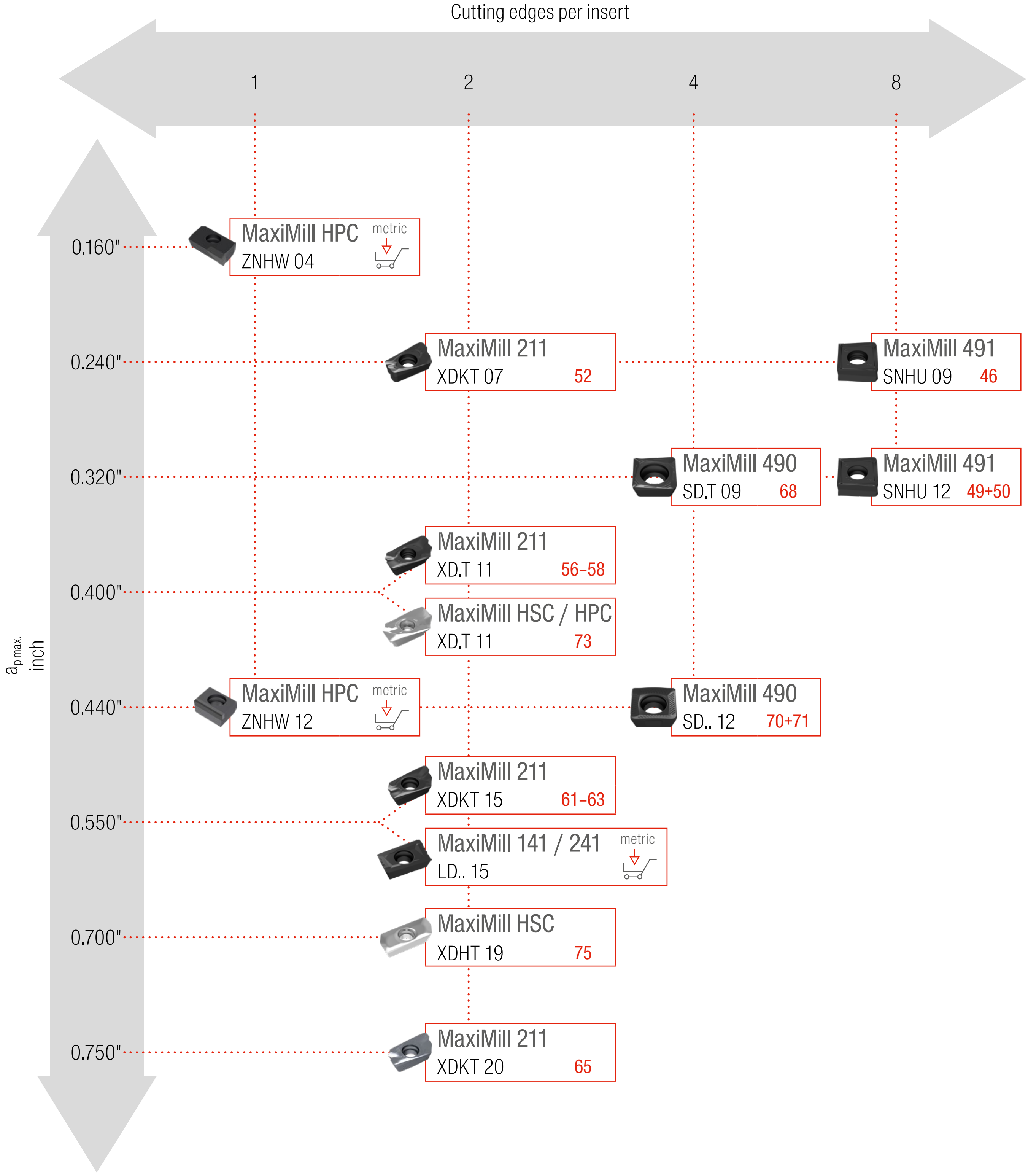
metric

Additional metric items are available in our Online-Shop at cuttingtools.ceratizit.com and in the metric main catalog.


F 5000


DHFC

Toolfinder – shoulder milling



metric Additional metric items are available in our Online-Shop at cuttingtools.ceratizit.com and in the metric main catalogue.

Overview – Shoulder Milling Cutters

System	Inserts	Cutting edges per insert	$a_{p\,max.}$ inch	Ø-range inch			Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials	Page No.
MaxiMill 491	**SNHU** 09T3.. / 1204..	8	0.240 – 0.320"		 Ø 1.000–1.250"	 Ø 1.500–6.000"	●	●	●	●	●		○	44–50
MaxiMill 211	**XD.T** 0703.. / 11T3.. / 1505.. / 2007..	2	0.240 – 0.750"	 Ø 0.625–1.250"	 Ø 0.375–1.500"	 Ø 1.500–6.000"	●	●	●	●	●	○		51–65
MaxiMill 211KN	**XD.T** 11T3.. / 1505.. / 2007..	2	1.00 – 3.00"		 Ø 1.000–1.500"	 Ø 2.000–3.000"	●	●	●	●	●			55+60
MaxiMill 490	**SD..** 09T3.. / 1205..	4	0.320 – 0.430"	 Ø 1.000–1.250"	 Ø 1.000–1.250"	 Ø 1.500–6.000"	●	●	●	●	●			66–71
MaxiMill HSC	**XD..** 11T3.. / 1904..	2	0.400 – 0.700"		 Ø 0.625–1.500"	 Ø 1.500–6.000"			○	●			○	72–75

Additional diameters are available upon request.

metric

Additional metric items are available in our Online-Shop at cuttingtools.ceratizit.com and in the metric main catalog.

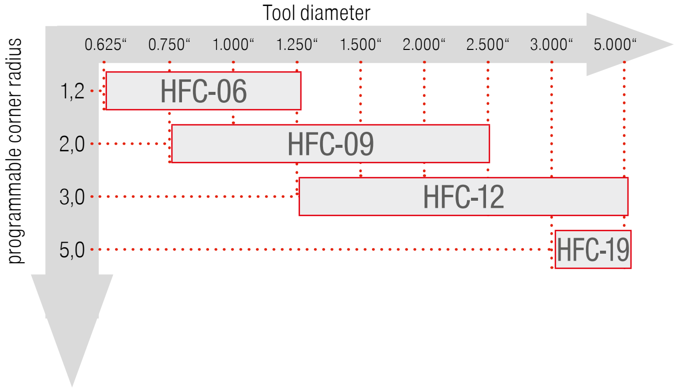
MaxiMill 209 / 210

MaxiMill HPC

Toolfinder – form milling

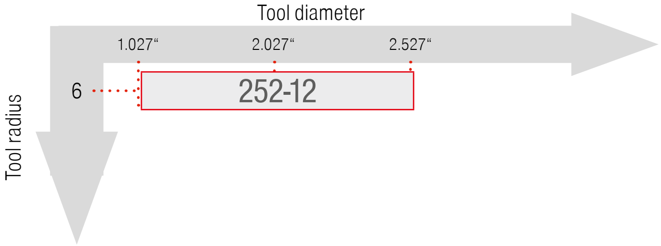
MaxiMill HFC

→ Page 76–82



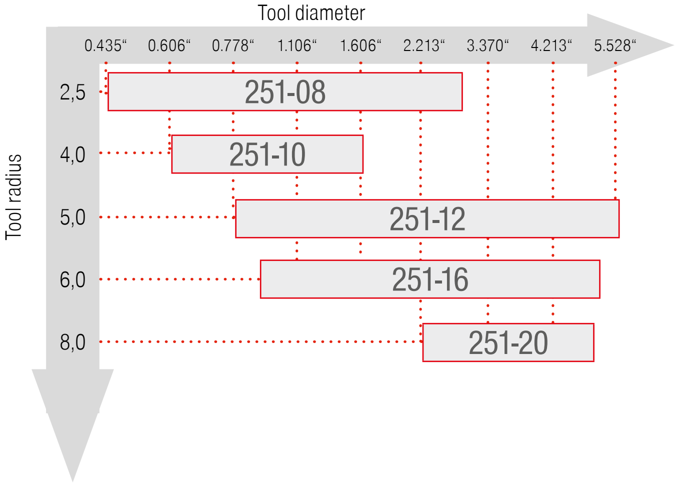
MaxiMill 252

→ Page 91+92



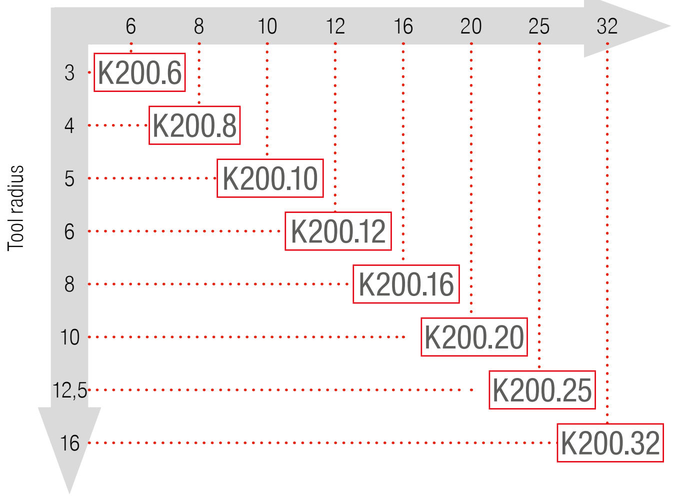
MaxiMill 251 RS

→ Page 83–90



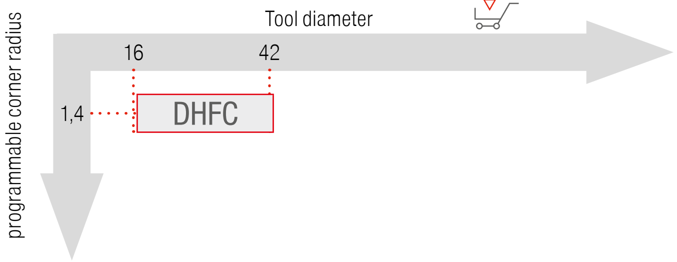
K200. Ball Nosed

metric



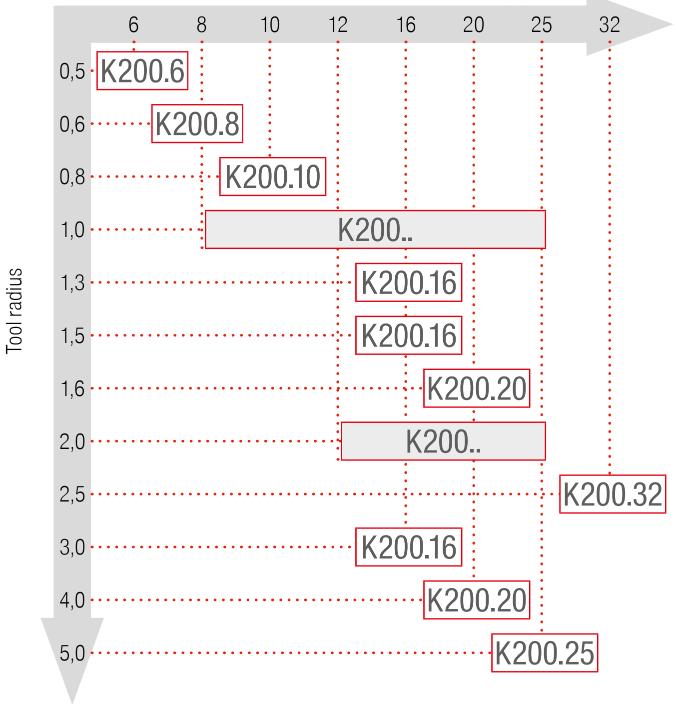
DHFC

metric



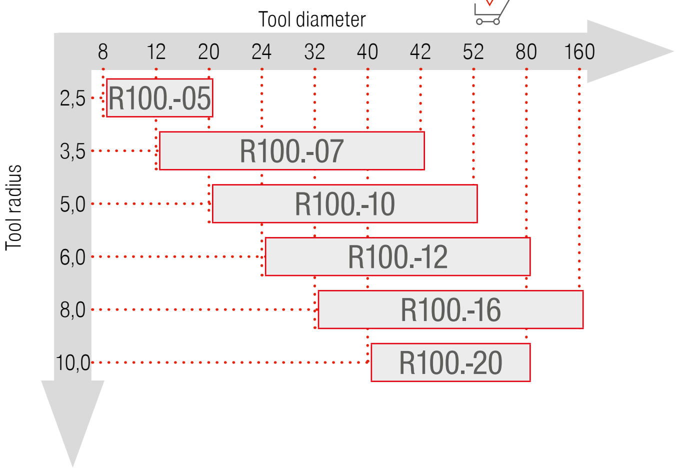
K200. Torus

metric



R100.

metric



▨	Application range
☐	Tool diameter

metric

Additional metric items are available in our Online-Shop at cuttingtools.ceratizit.com and in the metric main catalog.

Overview – form milling

System	Inserts	Cutting edges per insert	$a_{p\,max.}$ inch	Ø-range inch			Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials	Page No.
MaxiMill HFC	**X.LX** 06.. / 09.. / 12.. / 19..	4	0.032–0.130"	 Ø 0.625–1.250"	 Ø 0.625–1.500"	 Ø 1.500–5.000"	●	●	●		●			76–82
MaxiMill 251 RS	**R..X** 05.. / 08.. / 10.. / 12.. / 16.. / 20..	8	0.100–0.400"	 Ø 0.606–1.106"	 Ø 0.435–1.106"	 Ø 1.185–5.213"	●	●	●	●	●	●	○	83–90
MaxiMill 252	**RNHU** 10.. / 12..	8	0.120"			 Ø 1.027–2.527"	●	●	○		●			91+92

Additional diameters are available upon request.

R100.

DHFC

K200. Ball Nosed

metric

Additional metric items are available in our Online-Shop at cuttingtools.ceratizit.com and in the metric main catalog.

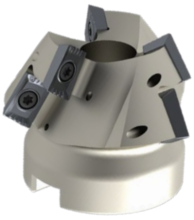
K200. Torus

7

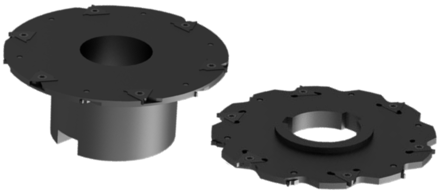
Overview – Chamfer / Angle Milling Cutters

System	Inserts	Cutting edges per insert	$a_{p\ max.}$ inch	Ø-range inch	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials	Page No.
MaxiMill 272	**SD..** 0903..	4	0.160"	 Ø 0.500"	●	●	○	●	●			33–35
Insert countersink 90°	**TOHX** 090204 / 140305	2		 Ø 0.748–1.457"	●	●	●	●	●	○	●	95+96

Additional diameters are available upon request.



MaxiMill 242



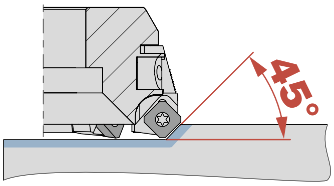
TX

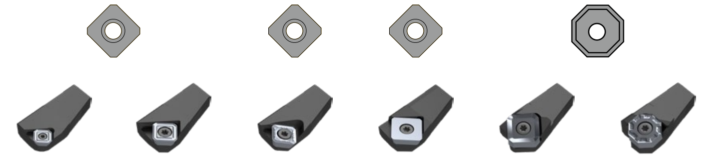
metric

Additional metric items are available in our Online-Shop at cuttingtools.ceratizit.com and in the metric main catalogue.

Overview – Combi Milling Cutters

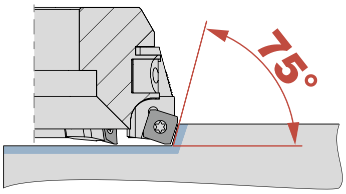
System	Cutting edges per insert	a_p max. mm	Ø-range inch	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials	Page No.
MaxiMill 260	2–16	0.032 – 1.30"	 Ø 3.000–10.000	●	●	●	●	●	●		93

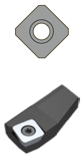




Cartridge no.	041	031	029	032	058	057
	SD.. 0903..	**SD..** 1204.. **XD..** 1204..	**SE..** 1204..	**SD..** 1504..	**SA..** 1706..	**OA..** 0605.. **XA..** 0605..

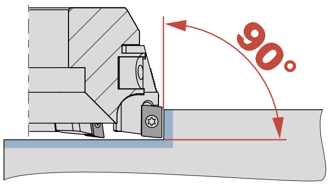
94

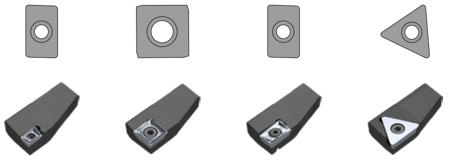




Cartridge no.	018
	SP.. 1204..

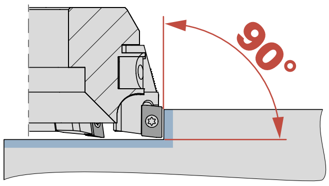
94

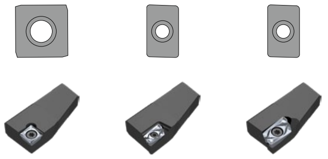




Cartridge no.	042	039	051	025
	AP.. 1003..	**SD..** 1205..	**LD..** 1504..	**TP..** 2204..

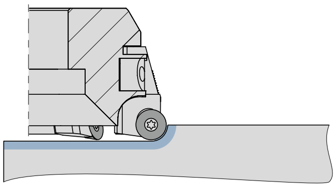
94

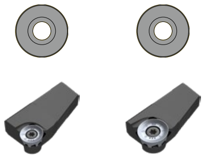




Cartridge no.	055	054	056
	SD.. 09T3	**XD..** 11T3	**XD..** 1505

94



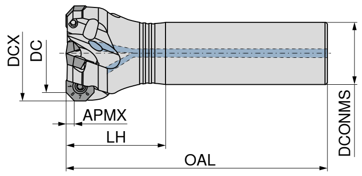


Cartridge no.	052	053
	RP.X 1204..	**RP.X** 1604..

94

MaxiMill – End milling cutter C 274-04/-09

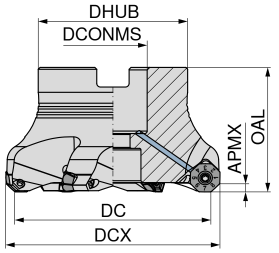
κ = 43°



Designation	DC inch	DCX inch	ZNF	OAL inch	LH inch	DCONMS inch	torque moment Nm	Insert	B 58 743 ...	A 58 743 ...
C274.100.R.04-09-A075-125-EF	1.000	1.228	4	3.350	1.250	0.750	1,2	OF.. 0403 / SF.. 0903		**10004**
C274.100.R.04-09-B075-125-EF	1.000	1.228	4	3.350	1.250	0.750	1,2	OF.. 0403 / SF.. 0903	**30004**	
C274.125.R.05-09-A100-150-EF	1.250	1.479	5	3.900	1.500	1.000	1,2	OF.. 0403 / SF.. 0903		**12505**
C274.125.R.05-09-B100-150-EF	1.250	1.479	5	3.900	1.500	1.000	1,2	OF.. 0403 / SF.. 0903	**32505**	

MaxiMill – Shell mill A 274-04/-09

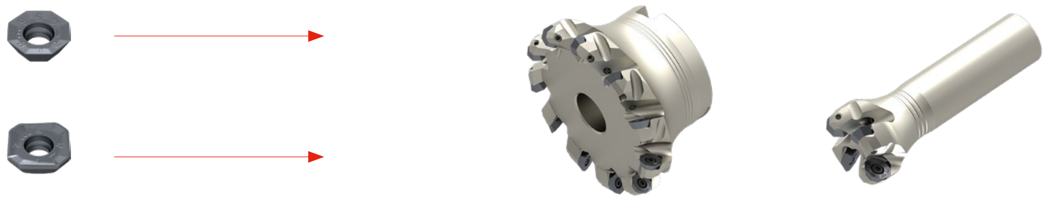
κ = 43°



Designation	DC inch	DCX inch	ZNF	APMX inch	OAL inch	DHUB inch	DCONMS $_{H6}$ inch	torque moment Nm	Insert	58 744 ...
A274.150.R.05-09-A050-175-EF	1.500	1.740	5	0.098	1.420	1.420	0.500	1,2	OF.. 0403 / SF.. 0903	**15005**
A274.200.R.07-09-A075-175-EF	2.000	2.230	7	0.098	1.750	1.750	0.750	1,2	OF.. 0403 / SF.. 0903	**20007**
A274.300.R.09-09-A100-200-EF	3.000	3.230	9	0.098	2.250	2.250	1.000	1,2	OF.. 0403 / SF.. 0903	**30009**
A274.400.R.11-09-B125-200-EF	4.000	4.230	11	0.098	2.750	2.750	1.250	1,2	OF.. 0403 / SF.. 0903	**40011**

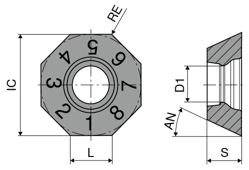
Spare parts **DC**	Screwdriver 80 950 ...	Molykote 70 950 ...	Clamping screw 70 950 ...
1.500	**039**	**303**	**133**
2.000	**039**	**303**	**133**
3.000	**039**	**303**	**133**
4.000	**039**	**303**	**133**

Two insert types – ONE Cutter

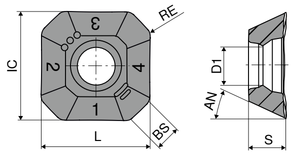


OFHT / OFHW / SFHT / SFKT

Designation	IC inch	D1 inch	L inch	BS inch	S inch	AN °
OFH. 0403..	0.375	0.132	0.155	-	0.125	25
SF.T 0903..	0.386	0.132	0.354	0.089	0.138	25

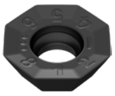
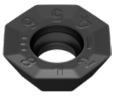


OF..

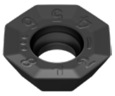


SF.T

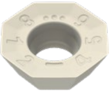
OFHT

		-F50 CTCP220	**-F50** CTPP225	**-F50** CTCP230	**-M50** CTCP230	**-F50** CTPP235	**-M50** CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		OFHT	OFHT	OFHT	OFHT	OFHT	OFHT
		51 002 ...	**51 002 ...**	**51 002 ...**	**51 003 ...**	**51 002 ...**	**51 003 ...**
ISO	RE inch						
040305SN	0.020	**255**	**055**	**005**	**005**	**105**	**105**
P		●	●	●	●	●	●
M						○	○
K				○	○	○	○
N							
S							
H							
O							

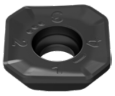
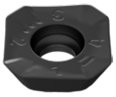
OFHT / OFHW

		-F50 CTPM225	**-F50** CTCM235	**-F50** CTPM240	**-M50** CTPM240	**-F50** CTPM245	CTPM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		OFHT	OFHT	OFHT	OFHT	OFHT	OFHW
		51 002 ...	**51 002 ...**	**51 002 ...**	**51 003 ...**	**51 002 ...**	**51 105 ...**
ISO	RE inch						
040302EN	0.008						**452**
040305SN	0.020	**205**	**305**	**405**	**405**	**455**	
P		●	●	○	○	●	●
M		●	●	●	●	●	●
K							
N							
S							
H							
O							

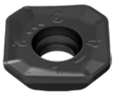
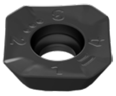
OFHT / OFHW

		NEW	NEW					
		-F50 CTCM245	CTCM245	-M50 CTCK215	-F10 CTWN215	-F50 CTC5240	CTC5240	-F50 CTCS245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		OFHT 51 002 ...	OFHW 51 105 ...	OFHT 51 003 ...	OFHT 50 459 ...	OFHT 51 002 ...	OFHW 50 457 ...	OFHT 51 002 ...
ISO	RE inch							
040302EN	0.008		**90201**				**504**	
040305FN	0.020				**505**			
040305SN	0.020	**90501**		**505**		**15500**		**555**
P		●	●					
M		●	●					
K				●	○			
N					●			
S		○	○			●	●	●
H								
O					○			

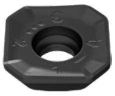
SFHT / SFKT

		-F50 CTCP220	-M50 CTCP220	-F50 CTPP225	-M50 CTPP225
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		SFHT 51 012 ...	SFKT 51 013 ...	SFHT 51 012 ...	SFKT 51 013 ...
ISO	RE inch				
0903AFSR	0.039	**270**	**270**	**070**	**070**
P		●	●	●	●
M					
K					
N					
S					
H					
O					

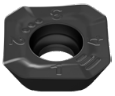
SFHT / SFKT

		-F50 CTCP230	**-M50** CTCP230	**-F50** CTPP235	**-M50** CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		SFHT	SFKT	SFHT	SFKT
		51 012 ...	**51 013 ...**	**51 012 ...**	**51 013 ...**
ISO	RE inch				
0903AFSR	0.039	**020**	**020**	**120**	**120**
P		●	●	●	●
M				○	○
K		○	○	○	○
N					
S					
H					
O					

SFHT / SFKT

								NEW
		-F50 CTPM225	**-M50** CTPM225	**-F50** CTCM235	**-F50** CTPM240	**-M50** CTPM240	**-F50** CTPM245	**-F50** CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		SFHT	SFKT	SFHT	SFHT	SFKT	SFHT	SFHT
		51 012 ...	**51 013 ...**	**51 012 ...**	**51 012 ...**	**51 013 ...**	**51 012 ...**	**51 012 ...**
ISO	RE inch							
0903AFSR	0.039	**220**	**220**	**320**	**420**	**42000**	**470**	**92001**
P		●	●	●	○	○	●	●
M		●	●	●	●	●	●	●
K								
N								
S								○
H								
O								

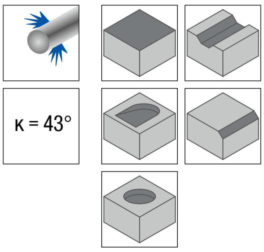
SFKT / SFHT

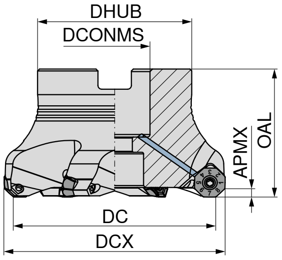
		-R50 CTCK215 DRAGONSKIN  SFKT 51 065 ...	-R50 CTPK220 DRAGONSKIN  SFKT 51 065 ...	-F10 CTWN215  SFHT 50 514 ...	-F40 CTC5240 DRAGONSKIN  SFHT 50 514 ...
ISO	RE inch				
0903AFFR	0.039			505	
0903AFSR	0.039	520	620		504
P					
M					
K		●	●	○	
N				●	
S					●
H					
O				○	

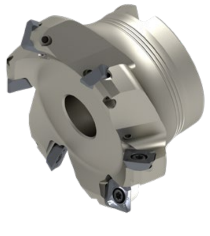
Milling guide

Cutting data standard values	→ 97–100	Machining strategy	→ 101
Starting Parameter	→ 102	Technical Information	→ 132–136
Chip groove description and overview	→ 137–139	Grade description and overview	→ 140–142

MaxiMill – Shell mill A 274-05/-12



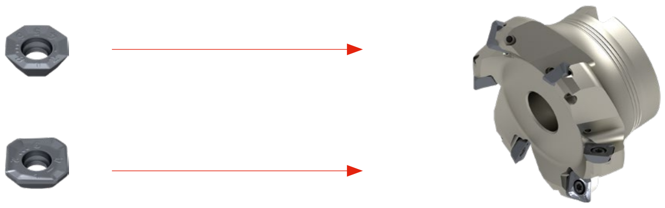




Designation	DC inch	DCX inch	ZNF	APMX inch	OAL inch	DHUB inch	DCONMS $_{H6}$ inch	torque moment Nm	Insert	**58 772 ...**
A274.200.R.04-12-A075-175-EF	2.000	2.320	4	0.126	1.750	1.750	0.750	3,2	OFHT 0504 / SFKT 1204	**20004**
A274.250.R.05-12-A100-200-EF	2.500	2.820	5	0.126	2.190	2.190	1.000	3,2	OFHT 0504 / SFKT 1204	**25005**
A274.300.R.06-12-A100-200-EF	3.000	3.320	6	0.126	2.190	2.190	1.000	3,2	OFHT 0504 / SFKT 1204	**30006**
A274.400.R.07-12-A125-200-EF	4.000	4.320	7	0.126	2.750	2.750	1.250	3,2	OFHT 0504 / SFKT 1204	**40007**
A274.500.R.08-12-B150-200-EF	5.000	5.320	8	0.126	3.810	3.810	1.500	3,2	OFHT 0504 / SFKT 1204	**50008**
A274.600.R.10-12-B200-200-EF	6.000	6.320	10	0.126	4.880	4.880	2.000	3,2	OFHT 0504 / SFKT 1204	**60010**

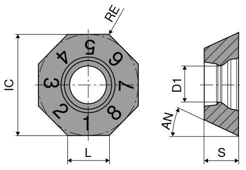
Spare parts **DC**	 Screwdriver **80 950 ...**	 Molykote **70 950 ...**	 Clamping screw **70 950 ...**
2.000 - 6.000	**120**	**303**	**340**

Two insert types – ONE Cutter

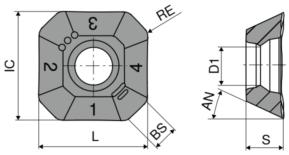


OFHT / SFHT / SFKT

Designation	IC inch	D1 inch	L inch	BS inch	S inch	AN °
OFHT 0504..	0.500	0.189	0.177	-	0.187	25
SF.T 1204..	0.500	0.189	0.500	0.056	0.187	25



OF..



SF.T

OFHT

		-F50 CTCP230	**-M50** CTCP230	**-F50** CTPP235	**-M50** CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		OFHT **51 002 ...**	OFHT **51 003 ...**	OFHT **51 002 ...**	OFHT **51 003 ...**
ISO	RE inch				
050410SN	0.039	**010**	**01000**	**110**	**11000**
P		●	●	●	●
M				○	○
K		○	○	○	○
N					
S					
H					
O					

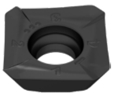
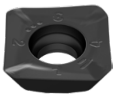
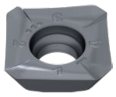
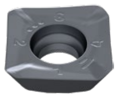
OFHT

		-F50 CTPM225	**-M50** CTPM225	**-F50** CTCM235	**-F50** CTPM240	**-M50** CTPM240	**-F50** CTPM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		OFHT **51 002 ...**	OFHT **51 003 ...**	OFHT **51 002 ...**	OFHT **51 002 ...**	OFHT **51 003 ...**	OFHT **51 002 ...**
ISO	RE inch						
050410SN	0.039	**210**	**210**	**310**	**410**	**41000**	**460**
P		●	●	●	○	○	●
M		●	●	●	●	●	●
K							
N							
S							
H							
O							

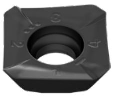
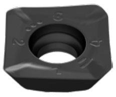
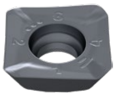
OFHT

ISO	RE inch	NEW **-F50** CTCM245 DRAGONSKIN  OFHT **51 002 ...**	**-F10** CTWN215  OFHT **51 122 ...**	**-F50** CTC5240 DRAGONSKIN  OFHT **51 002 ...**
050410FN	0.039		**36000**	
050410SN	0.039	**91001**		**16000**
P		●		
M		●		
K			○	
N			●	
S		○		●
H				
O			○	

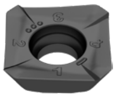
SFHT / SFKT

ISO	RE inch	**-F50** CTCP230 DRAGONSKIN  SFHT **51 012 ...**	**-M50** CTCP230 DRAGONSKIN  SFKT **51 013 ...**	**-F50** CTPP235 DRAGONSKIN  SFHT **51 012 ...**	**-M50** CTPP235 DRAGONSKIN  SFKT **51 013 ...**
1204AFSR	0.039	**02500**	**025**	**12500**	**125**
P		●	●	●	●
M				○	○
K		○	○	○	○
N					
S					
H					
O					

SFHT / SFKT

		-F50 CTPM225	**-M50** CTPM225	**-F50** CTCM235	**-M50** CTCM235	**-F50** CTPM240	**-M50** CTPM240
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		SFHT	SFKT	SFHT	SFKT	SFHT	SFKT
		51 012 ...	**51 013 ...**	**51 012 ...**	**51 013 ...**	**51 012 ...**	**51 013 ...**
ISO	RE inch						
1204AFSR	0.039	**225**	**225**	**325**	**325**	**42500**	**425**
P		●	●	●	●	○	○
M		●	●	●	●	●	●
K							
N							
S							
H							
O							

SFHT

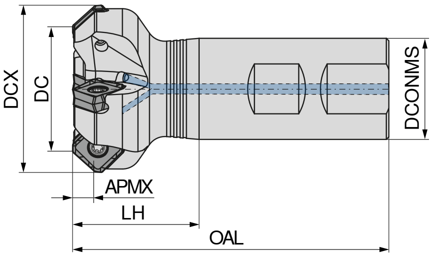
			NEW		
		-F50 CTPM245	**-F50** CTCM245	**-F10** CTWN215	**-F40** CTC5240
		DRAGONSKIN	DRAGONSKIN		DRAGONSKIN
					
		SFHT	SFHT	SFHT	SFHT
		51 012 ...	**51 012 ...**	**51 123 ...**	**50 514 ...**
ISO	RE inch				
1204AFER	0.039				**50900**
1204AFFR	0.039			**37000**	
1204AFSR	0.039	**47500**	**92501**		
P		●	●		
M		●	●		
K				○	
N				●	
S			○		●
H					
O				○	

Milling guide

Cutting data standard values	→ 97–100	Machining strategy	→ 103
Starting Parameter	→ 104	Technical Information	→ 132–136
Chip groove description and overview	→ 137–139	Grade description and overview	→ 140–142

MaxiMill – End milling cutter C 271-12

κ = 47°



NEW

B

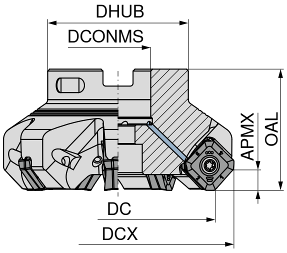
Designation	DC inch	DCX inch	ZNF	APMX inch	OAL inch	LH inch	DCONMS h6 inch	Insert	58 786 ...
C271.0125.R.03-12-B-150-EF	1.250	1.763	3	0.267	4.000	1.500	1.250	SOHU 1204.. / XOHU 1204..	**01203**
C271.0150.R.04-12-B125-150-EF	1.500	2.013	4	0.267	4.000	1.500	1.250	SOHU 1204.. / XOHU 1204..	**01504**

Spare parts **DC**	 Screwdriver 80 950 ...	 Molykote 70 950 ...	 Clamping screw 70 950 ...
1.250 - 1.500	**128**	**303**	**859**

MaxiMill – A 271-12 Face mill

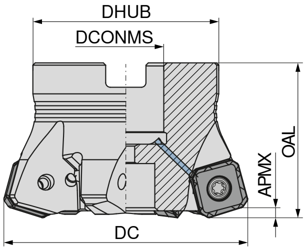
▲ 8 cutting edges per insert

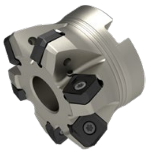
κ = 47°



Designation	DC inch	DCX inch	ZNF	APMX inch	OAL inch	DHUB inch	DCONMS inch	RPMX 1/min.	torque moment Nm	Insert	NEW 58 787 ...	NEW 58 787 ...
A271.150.R.04-12-A050-175-EF	1.500	2.013	4	0.267	1.750	1.421	0.500	18500	3,2	SOHU 1204.. / XOHU 1204..		15004
A271.200.R.05-12-A075-175-EF	2.000	2.512	5	0.267	1.750	1.750	0.750	15100	3,2	SOHU 1204.. / XOHU 1204..		20005
A271.250.R.07-12-A100-200-EF	2.500	3.011	7	0.267	2.000	2.250	1.000	13000	3,2	SOHU 1204.. / XOHU 1204..		25007
A271.300.R.06-12-A100-200-EF	3.000	3.511	6	0.267	2.000	2.250	1.000	11600	3,2	SOHU 1204.. / XOHU 1204..	30006	
A271.300.R.08-12-A100-200-EF	3.000	3.511	8	0.267	2.000	2.250	1.000	9800	3,2	SOHU 1204.. / XOHU 1204..		30008
A271.400.R.07-12-A125-200-EF	4.000	4.510	7	0.267	2.000	2.750	1.250	9800	3,2	SOHU 1204.. / XOHU 1204..	40007	
A271.400.R.10-12-A125-200-EF	4.000	4.510	10	0.267	2.000	2.750	1.250	9800	3,2	SOHU 1204.. / XOHU 1204..		40010
A271.500.R.08-12-B150-200-EF	5.000	5.509	8	0.267	2.000	3.750	1.500	8700	3,2	SOHU 1204.. / XOHU 1204..	50008	
A271.500.R.12-12-B150-200-EF	5.000	5.509	12	0.267	2.000	3.750	1.500	8700	3,2	SOHU 1204.. / XOHU 1204..		50012
A271.600.R.09-12-B150-200-EF	6.000	6.509	9	0.267	2.000	3.750	1.500	7800	3,2	SOHU 1204.. / XOHU 1204..	60009	
A271.600.R.14-12-B150-200-EF	6.000	6.509	14	0.267	2.000	3.750	1.500	7800	3,2	SOHU 1204.. / XOHU 1204..		60014
A271.800.R.11-12-C250-250-EF	8.000	8.509	11	0.267	2.500	5.200	2.500	6700	3,2	SOHU 1204.. / XOHU 1204..	80011	
A271.800.R.11-12-C250-250-EF	8.000	8.509	17	0.267	2.500	5.200	2.500	6700	3,2	SOHU 1204.. / XOHU 1204..		80017
A271.1000.R.13-12-C250-250-EF	10.000	10.509	13	0.267	2.500	5.200	2.500	6000	3,2	SOHU 1204.. / XOHU 1204..	10013	
A271.1000.R.21-12-C250-250-EF	10.000	10.509	21	0.267	2.500	5.200	2.500	6000	3,2	SOHU 1204.. / XOHU 1204..		10021

MaxiMill – A 271-12 HFC Face mill



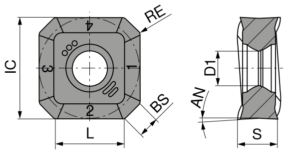


Designation	DC inch	DCX inch	ZNF	APMX inch	OAL inch	DHUB inch	DCONMS inch	RPMX 1/min.	torque moment Nm	Insert	NEW 58 787 ...
A271.200.R.04-12-A075-175-HFC-EF	2.000	2.513	4	0.102	1.750	1.750	0.750	15100	3,2	SOHU 1204..	20004
A271.250.R.06-12-A100-200-HFC-EF	2.500	3.013	6	0.102	2.000	2.250	1.000	13000	3,2	SOHU 1204..	25006
A271.300.R.07-12-A100-200-HFC-EF	3.000	3.513	7	0.102	2.000	2.250	1.000	11600	3,2	SOHU 1204..	30007

Spare parts DC	Screwdriver 80 950 ...	Molykote 70 950 ...	Clamping screw 70 950 ...
1.500 - 10.000	128	303	859

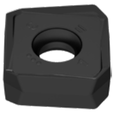
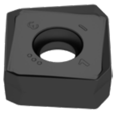
SOHU

Designation	IC inch	D1 inch	L inch	BS inch	S inch	AN °
SOHU 1204..	0.526	0.173	0.346	0.067	0.197	7.4

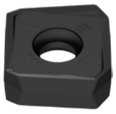
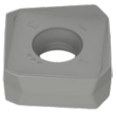


SOHU

SOHU

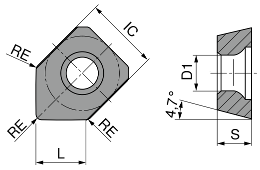
		NEW	NEW	NEW	NEW	NEW	NEW
		-M50 CTCP230	**-M50** CTPP235	**-M50** CTCM235	**-M50** CTPM240	**-F50** CTPM245	**-F50** CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		SOHU	SOHU	SOHU	SOHU	SOHU	SOHU
		51 138 ...	**51 138 ...**	**51 138 ...**	**51 138 ...**	**51 140 ...**	**51 140 ...**
ISO	RE inch						
1204ABSR	0.031	**02000**	**12000**	**32000**	**42000**	**47000**	**92001**
P		●	●	●	○	●	●
M			○	●	●	●	●
K		○	○				
N							
S							○
H							
O							

SOHU

		NEW	NEW	NEW	NEW
		-R50 CTCK215	**-R50** CTPK220	**-F40** CTC5240	**-F50** CTC5240
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		SOHU	SOHU	SOHU	SOHU
		51 139 ...	**51 139 ...**	**51 148 ...**	**51 140 ...**
ISO	RE inch				
1204ABSR	0.031	**52000**	**62000**	**12001**	**17000**
P					
M					
K		●	●		
N					
S				●	●
H					
O					

XOHU

Designation	IC inch	D1 inch	L inch	BS inch	S inch
XOHU 1204..	0.526	0.173	0.346	0.072	0.197



XOHU

XOHU

NEW

-M50
CTPP235

DRAGONSKIN

XOHU

ISO	RE inch	51 141 ...
1204ABSR	0.031	**12000**

P	●
M	○
K	○
N	
S	
H	
O	

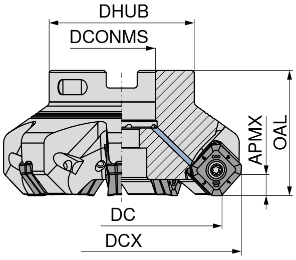
Milling guide

Cutting data standard values	→ 97–100	Starting Parameter	→ 105
Technical Information	→ 132–136	Chip groove description and overview	→ 137–139
Grade description and overview	→ 140–142		

MaxiMill – A 271-17 Face mill

▲ 8 cutting edges per insert

κ = 47°



Designation	DC inch	DCX inch	ZNF	APMX inch	OAL inch	DCONMS inch	DHUB inch	torque moment Nm	Insert	58 767 ...
A271.200.R.04-17-A075-175-EF	2.000	2.660	4	0.330	1.750	0.750	1.750	5	SAKU 1706	**20004**
A271.250.R.06-17-A100-200-EF	2.500	3.160	6	0.330	2.250	1.000	2.250	5	SAKU 1706	**25006**
A271.300.R.07-17-A100-200-EF	3.000	3.660	7	0.330	2.250	1.000	2.250	5	SAKU 1706	**30007**
A271.400.R.08-17-B125-200-EF	4.000	4.660	8	0.330	2.750	1.250	2.750	5	SAKU 1706	**40008**
A271.500.R.10-17-B150-200-EF	5.000	5.660	10	0.330	3.750	1.500	3.750	5	SAKU 1706	**50010**
A271-600.R.11-17-B200-250-EF	5.000	6.660	11	0.334	2.500	2.000	3.750	5	SAKU 1706	**60011**
A271.650.R.12-17-C250-250-EF	6.500	7.160	12	0.330	5.120	2.500	5.120	5	SAKU 1706	**65012**


Screwdriver

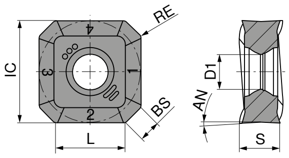

Molykote


Clamping screw

Spare parts **DC**	80 950 ...	70 950 ...	70 950 ...
2.000 - 6.500	**106**	**303**	**302**

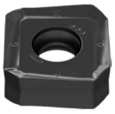
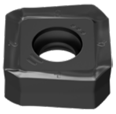
SAKU

Designation	IC inch	D1 inch	L inch	BS inch	S inch	AN °
SAKU 1706..	0.669	0.228	0.467	0.146	0.250	3

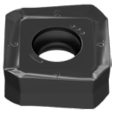
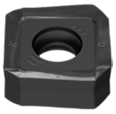
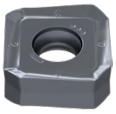


SAKU

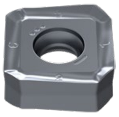
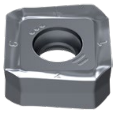
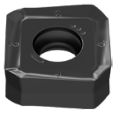
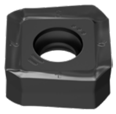
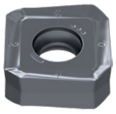
SAKU

ISO	RE inch	-F50 CTCP220 DRAGONSKIN  SAKU 51 004 ...	-M50 CTCP220 DRAGONSKIN  SAKU 51 005 ...	-F50 CTPP225 DRAGONSKIN  SAKU 51 004 ...	-M50 CTPP225 DRAGONSKIN  SAKU 51 005 ...
1706ABSR	0.031	**270**	**270**	**070**	**070**
P		●	●	●	●
M					
K					
N					
S					
H					
O					

SAKU

ISO	RE inch	-F50 CTCP230 DRAGONSKIN  SAKU 51 004 ...	-M50 CTCP230 DRAGONSKIN  SAKU 51 005 ...	-F50 CTPP235 DRAGONSKIN  SAKU 51 004 ...	-M50 CTPP235 DRAGONSKIN  SAKU 51 005 ...
1706ABSR	0.031	**020**	**020**	**120**	**120**
P		●	●	●	●
M				○	○
K		○	○	○	○
N					
S					
H					
O					

SAKU

		-F50 CTPM225	-M50 CTPM225	-F50 CTCM235	-M50 CTCM235	-F50 CTPM240	-M50 CTPM240	-F50 CTPM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
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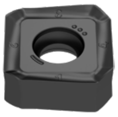
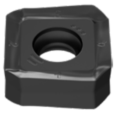
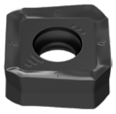
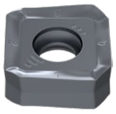
ISO	RE inch							
1706ABSR	0.031	**220**	**220**	**320**	**320**	**420**	**420**	**470**
P		●	●	●	●	○	○	●
M		●	●	●	●	●	●	●
K								
N								
S								
H								
O								

SAKU

		NEW -F50 CTCM245	-M50 CTCK215	-R50 CTCK215	-M50 CTPK220	-R50 CTPK220	-F50 CTC5240	-F50 CTCS245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		SAKU 51 004 ...	SAKU 51 005 ...	SAKU 51 058 ...	SAKU 51 005 ...	SAKU 51 058 ...	SAKU 50 306 ...	SAKU 51 004 ...
ISO	RE inch							
1706ABSR	0.031	**92001**	**520**	**520**	**620**	**620**	**520**	**570**
Steel		●	○	○	○	○		
Stainless steel		●						
Cast iron			●	●	●	●		
Non ferrous metals								
Heat resistant alloys		●					●	●
Hardened materials								

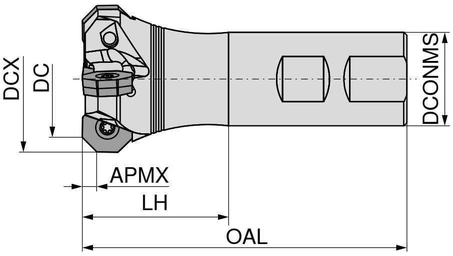
Milling guide

Cutting data standard values	→ 97–100	Starting Parameter	→ 105
Technical Information	→ 132–136	Chip groove description and overview	→ 137–139
Grade description and overview	→ 140–142		

MaxiMill – End milling cutter C 273

▲ 16 cutting edges per insert

κ = 45°

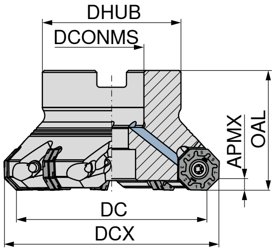


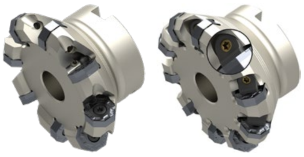
Designation	DC inch	DCX inch	ZNF	APMX inch	DCONMS h6 inch	LH inch	OAL inch	torque moment Nm	Insert	58 762 ...
C273.150.R.04-06-B125-125-EF	1.500	1.911	4	0.138	1.250	1.250	3.600	5	OAKU / XAHT 0605	15004
C273.200.R.05-06-B150-125-EF	2.000	2.421	5	0.138	1.500	1.250	4.500	5	OAKU / XAHT 0605	20005

MaxiMill – Shell mill A 273

▲ 16 cutting edges per insert

κ = 45°





Designation	DC inch	ZNF	APMX inch	OAL inch	DCONMS H6 inch	DHUB inch	torque moment Nm	Insert	58 741 ...	58 741 ...
A273.200.R.05-06-A075-175-EF	2.000	5	0.138	1.750	0.750	1.750	5	OAKU / XAHT 0605	20005	
A273.250.R.07-06-A100-200-EF	2.500	7	0.138	2.250	1.000	2.250	5	OAKU / XAHT 0605	25007	
A273.300.R.08-06-A100-200-EF	3.000	8	0.138	2.250	1.000	2.250	5	OAKU / XAHT 0605	30008	
A273.400.R.10-06-B125-200-EF - IC	4.000	10	0.138	2.750	1.250	2.750	5	OAKU / XAHT 0605	40010	
A273.500.R.12-06-B150-200-EF	5.000	12	0.138	3.750	1.500	3.750	5	OAKU / XAHT 0605	50012	
A273.600.R.13-06-B150-250-EF	6.000	13	0.138	3.750	1.500	3.750	5	OAKU / XAHT 0605	60013	
A273.800.R.25-06-C250-250-EF	8.000	25	0.138	6.500	2.500	6.500	5	OAKU / XAHT 0605		80025
A273.1000.R.31-06-C250-250-EF	10.000	31	0.138	6.500	2.500	6.500	5	OAKU / XAHT 0605		10031


Clamping wedge screw


Clamping wedge Face mill


Screwdriver

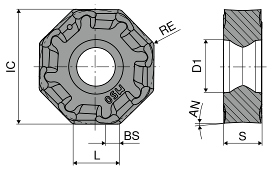

Molykote


Clamping screw

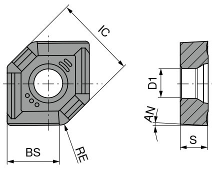
Spare parts DC	70 950 ...	70 950 ...	80 950 ...	70 950 ...	70 950 ...
1.500 - 6.000			106	303	302
8.000 - 10.000	844	845	105	303	

OAKU / XAHT

Designation	IC inch	D1 inch	L inch	BS inch	S inch	AN °
OAKU 0605..	0.673	0.228	0.236	0.079	0.223	3
XAHT 0605..	0.672	0.236	-	0.470	0.219	3

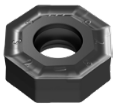
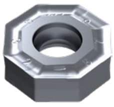


OAKU

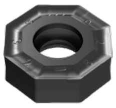
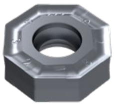


XAHT

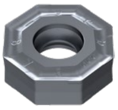
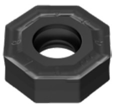
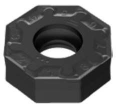
OAKU

ISO	RE inch	**-F50** CTCP220 DRAGONSKIN  OAKU **51 000 ...**	**-M50** CTCP220 DRAGONSKIN  OAKU **51 001 ...**	**-F50** CTPP225 DRAGONSKIN  OAKU **51 000 ...**	**-M50** CTPP225 DRAGONSKIN  OAKU **51 001 ...**
060508SR	0.031	**258**	**258**	**058**	**058**
P		●	●	●	●
M					
K					
N					
S					
H					
O					

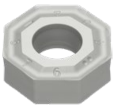
OAKU

ISO	RE inch	**-F50** CTCP230 DRAGONSKIN  OAKU **51 000 ...**	**-M50** CTCP230 DRAGONSKIN  OAKU **51 001 ...**	**-F50** CTPP235 DRAGONSKIN  OAKU **51 000 ...**	**-M50** CTPP235 DRAGONSKIN  OAKU **51 001 ...**
060508SL	0.031				**10900**
060508SR	0.031	**008**	**008**	**108**	**108**
P		●	●	●	●
M				○	○
K		○	○	○	○
N					
S					
H					
O					

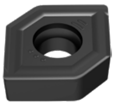
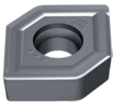
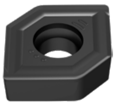
OAKU

ISO	RE inch	-F50 CTPM225 DRAGONSKIN  OAKU 51 000 ...	-M50 CTPM225 DRAGONSKIN  OAKU 51 001 ...	-F50 CTCM235 DRAGONSKIN  OAKU 51 000 ...	-M50 CTCM235 DRAGONSKIN  OAKU 51 001 ...	-F50 CTPM240 DRAGONSKIN  OAKU 51 000 ...	-M50 CTPM240 DRAGONSKIN  OAKU 51 001 ...	-F40 CTPM245 DRAGONSKIN  OAKU 51 104 ...
060508ER	0.031							**458**
060508SR	0.031	**208**	**208**	**308**	**308**	**408**	**408**	
P		●	●	●	●	○	○	●
M		●	●	●	●	●	●	●
K								
N								
S								
H								
O								

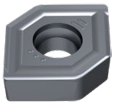
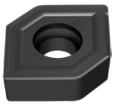
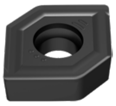
OAKU

ISO	RE inch	NEW -F40 CTCM245 DRAGONSKIN  OAKU 51 104 ...	-M50 CTCK215 DRAGONSKIN  OAKU 51 001 ...	-R50 CTCK215 DRAGONSKIN  OAKU 51 027 ...	-M50 CTPK220 DRAGONSKIN  OAKU 51 001 ...	-R50 CTPK220 DRAGONSKIN  OAKU 51 027 ...	-F40 CTC5240 DRAGONSKIN  OAKU 50 446 ...	-F40 CTCS245 DRAGONSKIN  OAKU 51 104 ...
060508ER	0.031	**90801**					**550**	**50801**
060508SL	0.031		**50900**		**60900**			
060508SR	0.031		**508**	**508**	**608**	**608**		
P		●						
M		●						
K			●	●	●	●		
N								
S		○					●	●
H								
O								

XAHT

ISO	RE inch	-M50 CTCP220 DRAGONSKIN  XAHT 51 014 ...	-M50 CTPP225 DRAGONSKIN  XAHT 51 014 ...	-M50 CTCP230 DRAGONSKIN  XAHT 51 014 ...	-M50 CTPP235 DRAGONSKIN  XAHT 51 014 ...
060525SR	0.098	**275**	**075**	**025**	**125**
P		●	●	●	●
M					○
K				○	○
N					
S					
H					
O					

XAHT

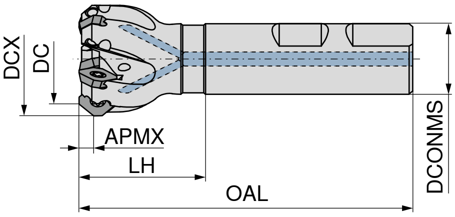
ISO	RE inch	-M50 CTPM225 DRAGONSKIN  XAHT 51 014 ...	-M50 CTCM235 DRAGONSKIN  XAHT 51 014 ...	-M50 CTPM240 DRAGONSKIN  XAHT 51 014 ...	-M50 CTCK215 DRAGONSKIN  XAHT 51 014 ...	-M50 CTPK220 DRAGONSKIN  XAHT 51 014 ...
060525SL	0.098				**52600**	
060525SR	0.098	**225**	**325**	**425**	**525**	**625**
P		●	●	○		
M		●	●	●		
K					●	●
N						
S						
H						
O						

Milling guide

Cutting data standard values	→ 97–100	Starting Parameter	→ 106
Technical Information	→ 132–136	Chip groove description and overview	→ 137–139
Grade description and overview	→ 140–142		

MaxiMill – End milling cutter 45° C 270-09

κ = 45°



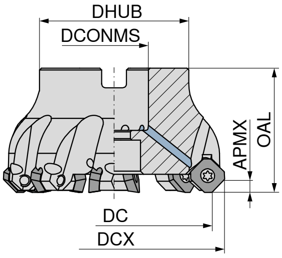
B

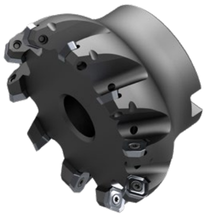
58 666 ...

Designation	DC inch	DCX inch	ZNF	APMX inch	OAL inch	LH inch	DCONMS inch	torque moment Nm	Insert	58 666 ...
C270.0500.R.01-09-B0625-125-EF	0.500	0.830	1	0.157	3.250	1.250	0.625	1,2	SD.. 0903..	**05001**
C270.0500.R.01-09-B075-125-EF	0.500	0.830	1	0.157	3.250	1.250	0.750	1,2	SD.. 0903..	**05101**
C270.0750.R.03-09-B075-150-EF	0.750	1.080	3	0.157	3.500	1.500	0.750	1,8	SD.. 0903..	**07503**
C270.0750.R.03-09-B100-150-EF	0.750	1.080	3	0.157	3.500	1.500	1.000	1,8	SD.. 0903..	**07603**
C270.100.R.04-09-B075-150-EF	1.000	1.330	4	0.157	3.500	1.500	0.750	1,8	SD.. 0903..	**10004**
C270.100.R.04-09-B100-150-EF	1.000	1.330	4	0.157	3.500	1.500	1.000	1,8	SD.. 0903..	**10104**
C270.125.R.05-09-B075-175-EF	1.250	1.580	5	0.157	3.750	1.750	0.750	1,8	SD.. 0903..	**12505**
C270.125.R.05-09-B100-175-EF	1.250	1.580	5	0.157	3.750	1.750	1.000	1,8	SD.. 0903..	**12605**
C270.150.R.05-09-B075-200-EF	1.500	1.830	5	0.157	4.000	2.000	0.750	1,8	SD.. 0903..	**15005**
C270.150.R.05-09-B100-200-EF	1.500	1.830	5	0.157	4.000	2.000	1.000	1,8	SD.. 0903..	**15105**

MaxiMill – Shell mill 45° A 270-09

κ = 45°





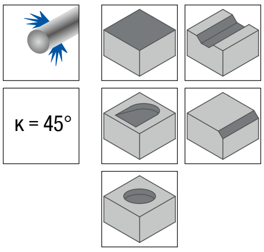
right

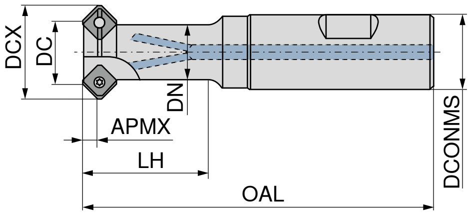
58 705 ...

Designation	DC inch	DCX inch	ZNF	APMX inch	OAL inch	DHUB inch	DCONMS $_{H6}$ inch	torque moment Nm	Insert	58 705 ...
A270.200.R.06-09-A075-175-EF	2.000	2.330	6	0.157	1.750	1.750	0.750	1,8	SD.. 0903..	**20006**
A270.250.R.08-09-A100-200-EF	2.500	2.830	8	0.157	2.250	2.250	1.000	1,8	SD.. 0903..	**25008**
A270.300.R.10-09-A100-200-EF	3.000	3.330	10	0.157	2.250	2.250	1.000	1,8	SD.. 0903..	**30010**

MaxiMill – Chamfer milling cutter C 272-09

▲ Usable on front and rear cutting edges





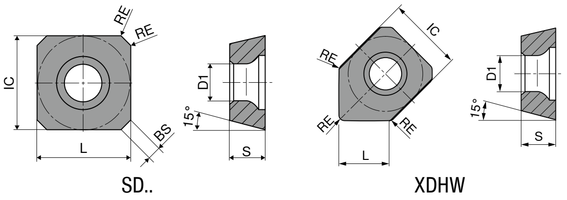
Designation	DC inch	DCX inch	ZNF	APMX inch	OAL inch	LH inch	DCONMS inch	torque moment Nm	Insert	B 58 669 ...
C272.0500.R.01-09-B-100-EF	0.500	0.830	1	0.157	3.250	1.000	0.625	1,2	SD.. 0903..	**05001**



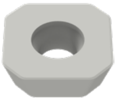
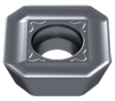
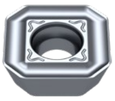
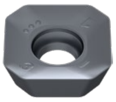
Spare parts **DC**	Screwdriver 80 950 ...	Molykote 70 950 ...	Clamping screw 70 950 ...
0.500	**102**	**303**	**365**

SDHW / SDNT / SDHT / XDHW

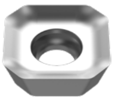
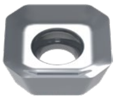
Designation	IC inch	D1 inch	L inch	BS inch	S inch
SD.. 0903..	0.375	0.134	0.375	0.066	0.125
XDHW 0903..	0.375	0.134	0.217	0.066	0.125



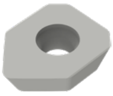
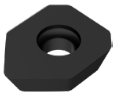
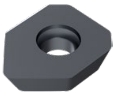
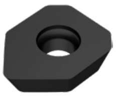
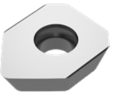
SDHW / SDNT / SDHT

ISO	RE inch	TCM10	-29 CTCP230	-29 CTPP235	-33 CTPM240	-33P CTPM240	-F50 CTPM245	NEW -F50 CTCM245
			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		CERMET SDHW	SDNT	SDNT	SDHT	SDHT	SDHT	SDHT
		50 428 ...	**51 011 ...**	**51 011 ...**	**51 028 ...**	**51 086 ...**	**51 109 ...**	**51 109 ...**
0903AESN	0.039	**898**	**020**	**120**	**420**	**420**	**470**	**92001**
P		●	●	●	○	○	●	●
M				○	●	●	●	●
K		○	○	○				
N								
S								○
H								
O								

SDNT / SDHT

ISO	RE inch	-31 CTCK215	-27P H216T	-27P AMZ	-M31 CTC5240	-F50 CTCS245
		DRAGONSKIN			DRAGONSKIN	DRAGONSKIN
						
		SDNT	SDHT	SDHT	SDHT	SDHT
		51 029 ...	**50 426 ...**	**50 426 ...**	**50 421 ...**	**51 109 ...**
0903AEFN	0.039		**548**	**848**		
0903AESN	0.039	**520**			**509**	**57100**
P						
M						
K		●	○	○		
N			●	●		
S					●	●
H						
O			○	○		

XDHW

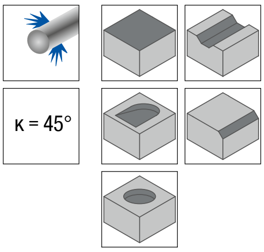
ISO	RE inch	TCM10	CTCP230	CTPP235	CTCK215	H216T
			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
						
		CERMET XDHW	XDHW	XDHW	XDHW	XDHW
		50 449 ...	**51 015 ...**	**51 015 ...**	**51 015 ...**	**50 449 ...**
0903AEEN	0.039				**520**	
0903AEFN	0.039					**548**
0903AESN	0.039	**898**	**020**	**120**		
P		●	●	●		
M				○		
K		○	○	○	●	○
N						●
S						
H						
O						○

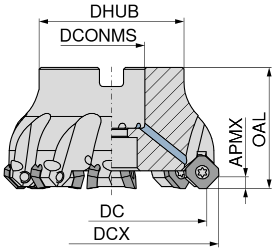
Milling guide

Cutting data standard values	→ 97–100	Machining strategy	→ 107
Technical Information	→ 132–136	Chip groove description and overview	→ 137–139
Grade description and overview	→ 140–142		

MaxiMill – Shell mill 45° A 270-12

▲ 50 705 ... Normal pitch for a broad spectrum of use on aluminum alloys, non-ferrous metals, up to soft steel materials
▲ 50 706 ... Predominantly fine pitch for highest feed rates, use on steel and cast materials





Designation	DC inch	DCX inch	ZNF	APMX inch	DCONMS H6 inch	OAL inch	DHUB inch	torque moment Nm	Insert	58 705 ...
A270.200.R.04-12-A075-175-EF	2.000	2.550	4	0.236	0.750	1.750	1.750	5	SD.. 1204..	**20104**
A270.250.R.05-12-A100-200-EF	2.500	3.050	5	0.236	1.000	2.250	2.250	5	SD.. 1204..	**25105**
A270.300.R.06-12-A100-200-EF	3.000	3.550	6	0.236	1.000	2.250	2.250	5	SD.. 1204..	**30106**
A270.400.R.06-12-B125-200-EF	4.000	4.550	6	0.236	1.250	2.750	2.750	5	SD.. 1204..	**40106**
A270.500.R.07-12-B150-200-EF	5.000	5.550	7	0.236	1.500	3.750	3.750	5	SD.. 1204..	**50107**
A270.600.R.08-12-B150-200-EF	6.000	6.660	8	0.236	1.500	3.750	3.750	5	SD.. 1204..	**60108**

Screwdriver

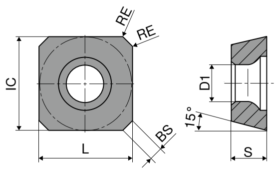
Molykote

Clamping screw

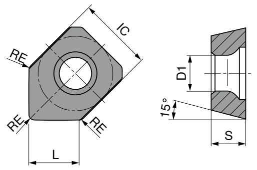
Spare parts DC	Screwdriver 80 950 ...	Molykote 70 950 ...	Clamping screw 70 950 ...
2.000 - 6.000	**106**	**303**	**01200**

SDHT / SDHW / SDMT / XDHW

Designation	IC inch	D1 inch	L inch	BS inch	S inch
SD.. 1204..	0.500	0.217	0.500	0.069	0.187
XDHW 1204..	0.500	0.217	0.295	0.069	0.187

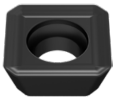


SD..

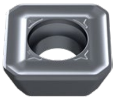


XDHW

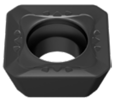
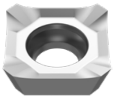
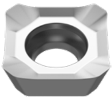
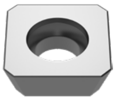
SDHT / SDHW / SDMT

		TCM10	**-R** TCM10	**-29R** CTCP230	**-R** CTCP230	CTCP230
				DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		CERMET SDHT	**CERMET** SDHW	SDMT	SDHT	SDHW
ISO	RE inch	**50 426 ...**	**50 428 ...**	**51 010 ...**	**51 006 ...**	**51 008 ...**
1204AESN	0.008	**900**				
1204AESN	0.039		**899**	**020**	**020**	**020**
P		●	●	●	●	●
M						
K		○	○	○	○	○
N						
S						
H						
O						

SDMT / SDHT / SDHW

							NEW
		-29R CTPP235	**-R** CTPP235	**-R** CTPP235	**-33** CTPM240	**-F50** CTPM245	**-F50** CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		SDMT	SDHT	SDHW	SDHT	SDHT	SDHT
ISO	RE inch	**51 010 ...**	**51 006 ...**	**51 008 ...**	**51 028 ...**	**51 109 ...**	**51 109 ...**
1204AESN	0.039	**120**	**120**	**120**	**425**	**475**	**92501**
P		●	●	●	○	●	●
M		○	○	○	●	●	●
K		○	○	○			
N							
S							○
H							
O							

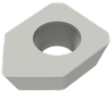
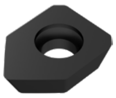
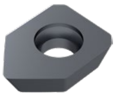
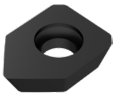
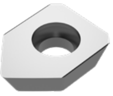
SDMT / SDHW / SDHT

		-31 CTCK215	-R CTCK215	-27 H216T	-27P H216T	H216T
		DRAGONSKIN	DRAGONSKIN			
						
		SDMT	SDHW	SDHT	SDHT	SDHW
		51 059 ...	51 008 ...	50 426 ...	50 426 ...	50 428 ...
ISO	RE inch					
1204AEEN	0.039	**520**	**520**			
1204AEFN	0.008			**504**		
1204AEFN	0.039				**554**	
1204AESN	0.008					**600**
P						
M						
K		●	●	○	○	○
N				●	●	●
S						
H						
O				○	○	○

SDHT

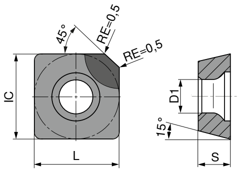
		-M31 CTC5240	-F50 CTCS245
		DRAGONSKIN	DRAGONSKIN
			
		SDHT	SDHT
		50 421 ...	51 109 ...
ISO	RE inch		
1204AESN	0.039	**512**	**57600**
P			
M			
K			
N			
S		●	●
H			
O			

XDHW

		TCM10	CTCP230	CTPP235	CTCK215	H216T
			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
						
		CERMET XDHW	XDHW	XDHW	XDHW	XDHW
		50 449 ...	**51 015 ...**	**51 015 ...**	**51 015 ...**	**50 449 ...**
ISO	RE inch					
1204AEEN	0.039				**525**	
1204AEFN	0.039					**600**
1204AESN	0.039	**900**	**025**	**125**		
P		●	●	●		
M				○		
K		○	○	○	●	○
N						●
S						
H						
O						○

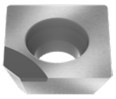
SDHW

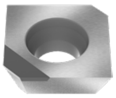
Designation	IC inch	D1 inch	L inch	S inch
SDHW 1204..	0.500	0.217	0.500	0.187



SDHW

SDHW





	CTDPS30 **DIAMOND** SDHW 51 900 ...	CTBS10U **CBN** SDHW 51 900 ...
ISO		
1204AEFN-2	**100** 1)	
1204AEFN-3	**102** 2)	
1204AETN-2		**300** 1)
P		
M		
K		●
N	●	
S		
H		○
O		

1) $a_{p\ max.}$ = 2.0 mm
2) $a_{p\ max.}$ = 3,5 mm

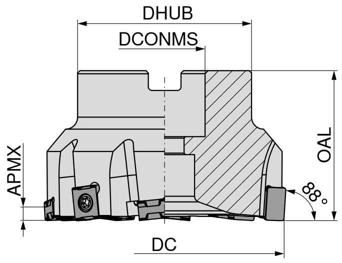
Milling guide

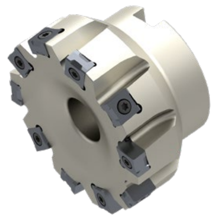
Cutting data standard values	→ 97–100	Machining strategy	→ 107
Technical Information	→ 132–136	Chip groove description and overview	→ 137–139
Grade description and overview	→ 140–142		

MaxiMill – Shell mill HEC 11

▲ not adjustable

κ = 88°



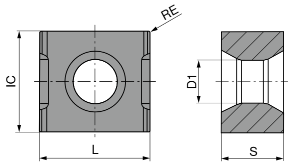


Designation	DC inch	ZNF	APMX inch	OAL inch	DHUB inch	DCONMS $_{H6}$ inch	RPMX 1/min.	torque moment Nm	58 725 ...
AHEC.200.R.06-11-A075-175-EF	2.000	6	0.157	1.750	1.750	0.750	12700	3,2	**20006**
AHEC.250.R.08-11-A100-175-EF	2.500	8	0.157	2.250	2.250	1.000	10100	3,2	**25008**
AHEC.300.R.10-11-A100-200-EF	3.000	10	0.157	2.250	2.250	1.000	8000	3,2	**30010**
AHEC.400.R.12-11-B150-200-EF	4.000	12	0.157	3.750	3.750	1.500	6400	3,2	**40012**
AHEC.500.R.16-11-B150-225-EF	5.000	16	0.157	3.750	3.750	1.500	5100	3,2	**50016**
AHEC.600.R.14-11-B150-250-EF	6.000	14	0.157	3.750	3.750	1.500	4000	3,2	**60014**
AHEC.600.R.20-11-A200-250-EF	6.000	20	0.157	2.500	4.882	2.000	4000	3,2	**60020**
AHEC.800.R.20-11-A250-250-EF	8.000	20	0.157	6.890	6.890	2.500	2600	3,2	**80020**

Spare parts **DC**	 TORX® blade **80 950 ...**	 Molykote **70 950 ...**	 Clamping screw **70 950 ...**	 Wedge **70 950 ...**	 Torque screw-driver **80 950 ...**
2.000 - 8.000	**036**	**303**	**113**	**199**	**193**

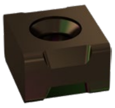
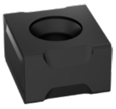
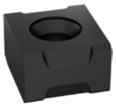
LNHX

Designation	IC inch	D1 inch	L inch	S inch
LNHX 1106..	0.394	0.168	0.433	0.250



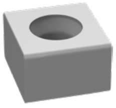
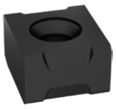
LNHX

LNHX

ISO	RE inch	CTEP210 DRAGONSKIN  **CERMET** LNHX **51 046 ...**	CTCK215 DRAGONSKIN  LNHX **51 046 ...**	**-R50** CTCK215 DRAGONSKIN  LNHX **51 024 ...**	**-Q** CTCK215 DRAGONSKIN  LNHX **51 045 ...**
1106PNER	0.020		**520**	**520**	
1106ZZER	0.020				**520** 1)
1106PNER	0.031	**820**			
110616EN	0.063		**51600**		
P		●			
M					
K		●	●	●	●
N					
S					
H					
O					

1) -Q = Wiper insert

LNHX

		CTPK220	**-R50** CTPK220	CTN3105	CTL3215	**-Q** CTL3215
		DRAGONSKIN	DRAGONSKIN			
						
		LNHX	LNHX	**CERAMIC** LNHX	**CBN** LNHX	**CBN** LNHX
		51 046 ...	**51 024 ...**	**50 500 ...**	**51 046 ...**	**51 045 ...**
ISO	RE inch					
110608EN	0.031		**608**			
1106PNER	0.020	**620**	**620**			
1106PNSR	0.020			**904**		
1106PNSR					**87200**	
1106ZZER						**87000**[1]
P						
M						
K		●	●	●	●	●
N						
S						
H					○	○
O						

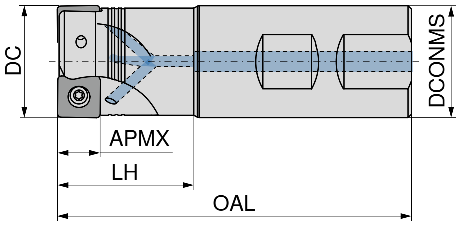
1) -Q = Wiper insert

Milling guide

Cutting data standard values	→ 97–100	Assembly instructions	→ 108
Technical Information	→ 132–136	Chip groove description and overview	→ 137–139
Grade description and overview	→ 140–142		

MaxiMill – End milling cutter C 491-09

κ = 90°



Designation	DC inch	ZNF	APMX inch	OAL inch	LH inch	DCONMS h6 inch	RPMX 1/min.	torque moment Nm	Insert	A 58 774 ...	B 58 774 ...
C491.100.R.03-09-B-125-EF	1.000	3	0.236	3.600	1.250	1.000	17125	2	SNHU 09T3		**30003**
C491.100.R.03-09-A-200-EF-800	1.000	3	0.236	8.000	2.000	1.000	17125	2	SNHU 09T3	**10003**	
C491.125.R.03-09-B-150-EF	1.250	3	0.236	4.000	1.500	1.250	13700	2	SNHU 09T3		**32503**
C491.125.R.04-09-B-150-EF	1.250	4	0.236	4.000	1.500	1.250	13700	2	SNHU 09T3		**32504**
C491.125.R.03-09-A-250-EF-1000	1.250	3	0.236	10.000	2.500	1.250	13700	2	SNHU 09T3	**12503**	
C491.125.R.04-09-A-250-EF-1000	1.250	4	0.236	10.000	2.500	1.250	13700	2	SNHU 09T3	**12504**	


Screwdriver

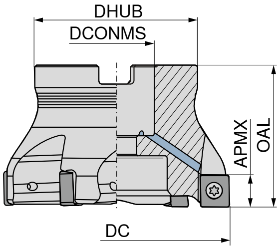

Molykote

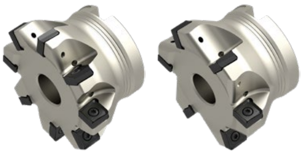

Clamping screw

Spare parts for Article no.	Screwdriver 80 950 ...	Molykote 70 950 ...	Clamping screw 70 950 ...
58 774 30003	**127**	**303**	**710**
58 774 10003	**127**	**303**	**710**
58 774 32503	**127**	**303**	**710**
58 774 32504	**127**	**303**	**710**
58 774 12503	**127**	**303**	**710**
58 774 12504	**127**	**303**	**710**

MaxiMill – Shell mill A 491-09

κ = 90°





Designation	DC inch	ZNF	APMX inch	OAL inch	DHUB inch	DCONMS $_{H6}$ inch	RPMX 1/min.	torque moment Nm	Insert	58 776 ...	58 775 ...
A491.150.R.03-09-A050-175-EF	1.500	3	0.236	1.750	1.421	0.500	11900	2	SNHU 09T3	15003	
A491.150.R.05-09-A050-175-EF	1.500	5	0.236	1.750	1.421	0.500	11900	2	SNHU 09T3		15005
A491.200.R.04.09-A075-175-EF	2.000	4	0.236	1.750	1.750	0.750	9700	2	SNHU 09T3	20004	
A491.200.R.06-09-A075-175-EF	2.000	6	0.236	1.750	1.750	0.750	9700	2	SNHU 09T3		20006
A491.250.R.05-09-A100-200-EF	2.500	5	0.236	2.000	2.250	1.000	8500	2	SNHU 09T3	25005	
A491.250.R.08-09-A100-200-EF	2.500	8	0.236	2.000	2.250	1.000	8500	2	SNHU 09T3		25008
A491.300.R.06-09-A100-200-EF	3.000	6	0.236	2.000	2.250	1.000	7600	2	SNHU 09T3	30006	
A491.300.R.10-09-A100-200-EF	3.000	10	0.236	2.000	2.250	1.000	7600	2	SNHU 09T3		30010
A491.400.R.07-09-A125-200-EF	4.000	7	0.236	2.000	2.750	1.250	6400	2	SNHU 09T3	40007	
A491.400.R.12-09-A125-200-EF	4.000	12	0.236	2.000	2.750	1.250	6400	2	SNHU 09T3		40012
A491.500.R.08-09-B150-200-EF	5.000	8	0.236	2.000	3.750	1.500	5700	2	SNHU 09T3	50008	
A491.500.R.15-09-B150-200-EF	5.000	15	0.236	2.000	3.750	1.500	5700	2	SNHU 09T3		50015


Screwdriver

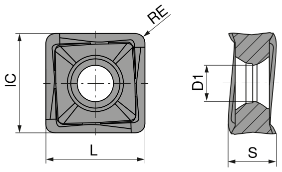

Molykote


Clamping screw

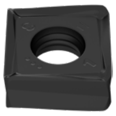
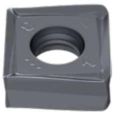
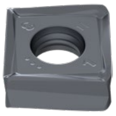
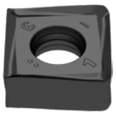
Spare parts DC	80 950 ...	70 950 ...	70 950 ...
1.500 - 5.000	119	303	710

SNHU

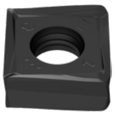
Designation	IC inch	L inch	S inch	D1 inch
SNHU 09T3..	0.360	0.360	0.146	0.152



SNHU

							NEW
		-M50 CTCP230	**-M50** CTPP235	**-F50** CTPM240	**-M50** CTPM240	**-F40** CTPM245	**-F40** CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		SNHU	SNHU	SNHU	SNHU	SNHU	SNHU
ISO	RE inch	**51 120 ...**	**51 120 ...**	**51 119 ...**	**51 120 ...**	**51 126 ...**	**51 126 ...**
09T308ER	0.031					**45800**	**90801**
09T308SR	0.031	**008**	**108**	**408**	**408**		
09T312SR	0.047	**01200**	**11200**	**41200**	**41200**		
09T316SR	0.063	**01600**	**11600**	**41600**	**41600**		
P		●	●	○	○	●	●
M			○	●	●	●	●
K		○	○				
N							
S							○
H							
O							

SNHU

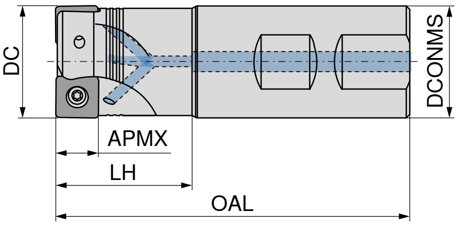
			NEW			
		-R50 CTCK215	**-R50** CTPK220	**-F10** CTWN215	**-F40** CTC5240	**-F40** CTCS245
		DRAGONSKIN			DRAGONSKIN	DRAGONSKIN
						
		SNHU	SNHU	SNHU	SNHU	SNHU
ISO	RE inch	**51 121 ...**	**51 121 ...**	**51 118 ...**	**51 126 ...**	**51 126 ...**
09T308ER	0.031				**15800**	**55800**
09T308FR	0.031			**358**		
09T308SR	0.031	**508**	**60800**			
09T312FR	0.047			**36200**		
09T312SR	0.047	**51200**				
09T316FR	0.063			**36600**		
09T316SR	0.063	**51600**				
P						
M						
K		●	●	○		
N				●		
S					●	●
H						
O				○		

Milling guide

Cutting data standard values	→ 97–100	Starting Parameter	→ 110
Technical Information	→ 132–136	Chip groove description and overview	→ 137–139
Grade description and overview	→ 140–142		

MaxiMill – End milling cutter C 491-12

κ = 90°

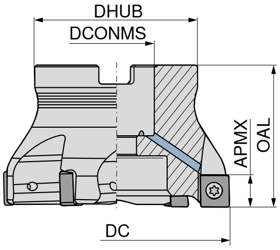


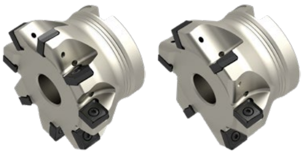
Designation	DC inch	ZNF	APMX inch	OAL inch	LH inch	DCONMS h6 inch	RPMX 1/min.	torque moment Nm	Insert	A 58 774 ...	B 58 774 ...
C491.125.R.02-12-B-150-EF	1.250	2	0.315	4.000	1.500	1.250	13700	3,2	SNHU 1204		**52502**
C491.125.R.02-12-A-250-EF-1000	1.250	2	0.315	10.000	2.500	1.250	13700	3,2	SNHU 1204	**42502**	

Spare parts for Article no.	 Screwdriver **80 950 ...**	 Molykote **70 950 ...**	 Clamping screw **70 950 ...**
58 774 52502	**128**	**303**	**859**
58 774 42502	**128**	**303**	**859**

MaxiMill – Shell mill A 491-12

κ = 90°



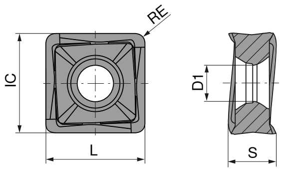


Designation	DC inch	ZNF	APMX inch	OAL inch	DHUB inch	DCONMS H6 inch	RPMX 1/min.	torque moment Nm	Insert	58 776 ...	58 775 ...
A491.150.R.03-12-A050-175-EF	1.500	3	0.315	1.420	1.420	0.500	11900	3,2	SNHU 1204	**15103**	
A491.200.R.04-12-A075-175-EF	2.000	4	0.315	1.750	1.750	0.750	9700	3,2	SNHU 1204	**20104**	
A491.200.R.05-12-A075-175-EF	2.000	5	0.315	1.750	1.750	0.750	9700	3,2	SNHU 1204		**20105**
A491.250.R.05-12-A100-200-EF	2.500	5	0.315	2.250	2.250	1.000	8500	3,2	SNHU 1204	**25105**	
A491.250.R.06-12-A100-200-EF	2.500	6	0.315	2.250	2.250	1.000	8500	3,2	SNHU 1204		**25106**
A491.300.R.06-12-A100-200-EF	3.000	6	0.315	2.250	2.250	1.000	7600	3,2	SNHU 1204	**30106**	
A491.300.R.08-12-A100-200-EF	3.000	8	0.315	2.250	2.250	1.000	7600	3,2	SNHU 1204		**30108**
A491.400.R.07-12-A125-200-EF	4.000	7	0.315	2.750	2.750	1.250	6400	3,2	SNHU 1204	**40107**	
A491.400.R.10-12-A125-200-EF	4.000	10	0.315	2.750	2.750	1.250	6400	3,2	SNHU 1204		**40110**
A491.500.R.08-12-B150-200-EF	5.000	8	0.315	3.750	3.750	1.500	5700	3,2	SNHU 1204	**50108**	
A491.500.R.12-12-B150-200-EF	5.000	12	0.315	3.750	3.750	1.500	5700	3,2	SNHU 1204		**50112**
A491.600.R.09-12-B150-200-EF	6.000	9	0.315	3.750	3.750	1.500	5100	3,2	SNHU 1204	**60109**	
A491.600.R.13-12-B150-200-EF	6.000	13	0.315	3.750	3.750	1.500	5100	3,2	SNHU 1204		**60113**

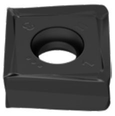
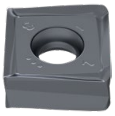
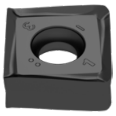
Spare parts **DC**	Screwdriver 80 950 ...	Molykote 70 950 ...	Clamping screw 70 950 ...
1.500 - 6.000	**128**	**303**	**859**

SNHU

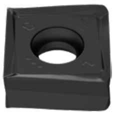
Designation	IC inch	L inch	S inch	D1 inch
SNHU 1204..	0.480	0.480	0.197	0.173



SNHU

		-M50 CTCP230	-M50 CTPP235	-F50 CTPM240	-M50 CTPM240	-F40 CTPM245	NEW -F40 CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		SNHU	SNHU	SNHU	SNHU	SNHU	SNHU
		51 100 ...	**51 100 ...**	**51 102 ...**	**51 100 ...**	**51 128 ...**	**51 128 ...**
ISO	RE inch						
120408ER	0.031					**45800**	**90801**
120408SR	0.031	**008**	**108**	**408**	**408**		
120412SR	0.047		**112**	**412**			
120416SR	0.063		**116**	**416**			
120420SR	0.079		**120**	**420**			
P		●	●	○	○	●	●
M			○	●	●	●	●
K		○	○				
N							
S							○
H							
O							

SNHU





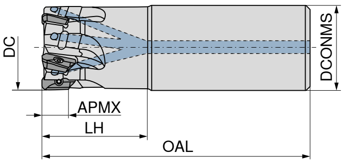
ISO	RE inch	**-R50** CTCK215 DRAGONSKIN SNHU **51 103 ...**	**-R50** CTPK220 DRAGONSKIN SNHU **51 103 ...**	**-F10** CTWN215 SNHU **51 101 ...**	**-F40** CTC5240 DRAGONSKIN SNHU **51 128 ...**	**-F40** CTCS245 DRAGONSKIN SNHU **51 128 ...**
120408ER	0.031				**15800**	**55800**
120408FR	0.031			**358**		
120408SR	0.031	**508**	**608**			
120412FR	0.047			**362**		
120412SR	0.047	**512**				
120416FR	0.063			**366**		
120416SR	0.063	**516**				
120420FR	0.079			**370**		
120420SR	0.079	**520**				
P						
M						
K		●	●	○		
N				●		
S					●	●
H						
O				○		

Milling guide

Cutting data standard values	→ 97–100	Starting Parameter	→ 110
Technical Information	→ 132–136	Chip groove description and overview	→ 137–139
Grade description and overview	→ 140–142		

MaxiMill – End milling cutter C 211-07

κ = 90°

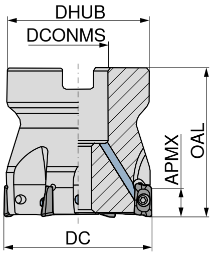


A

Designation	DC inch	ZNF	APMX inch	OAL inch	LH inch	DCONMS inch	RPMX 1/min.	torque moment Nm	Insert	58 752 ...
C211.0375.R.01-07-A-0750-EF	0.375	1	0.236	3.000	0.750	0.375	68000	1	XD.T 0703	**03701**
C211.0500.R.02-07-A-0750-EF	0.500	2	0.236	3.000	0.750	0.500	66600	1	XD.T 0703	**05002**
C211.0625.R.03-07-A-125-EF-650	0.625	3	0.236	6.500	1.250	0.625	17760	1	XD.T 0703	**06203**
C211.0750.R.04-07-A-150-EF-800	0.750	4	0.236	8.000	1.500	0.750	12600	1	XD.T 0703	**07504**
C211.100.R.06-07-A0875-125-EF	1.000	6	0.236	3.500	1.250	0.875	39840	1	XD.T 0703	**10006**
C211.125.R.08-07-A100-150-EF	1.250	8	0.236	3.500	1.500	1.000	36240	1	XD.T 0703	**12508**

MaxiMill – Shell mill A 211-07

κ = 90°

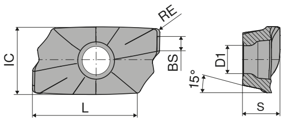


Designation	DC inch	ZNF	APMX inch	OAL inch	DCONMS H6 inch	DHUB inch	RPMX 1/min.	Insert	58 753 ...
A211.150.R.08-07-A050-175-EF	1.500	8	0.236	1.420	0.500	1.420	33240	XD.T 0703	**15008**
A211.200.R.10-07-A075-175-EF	2.000	10	0.236	1.750	0.750	1.750	30480	XD.T 0703	**20010**

Spare parts **DC**	 Screwdriver **80 950 ...**	 Molykote **70 950 ...**	 Clamping screw **70 950 ...**
0.375 - 2.000	**117**	**303**	**137**

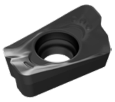
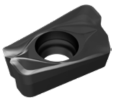
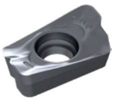
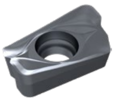
XDKT

Designation	IC inch	D1 inch	L inch	BS inch	S inch
XDKT 0703..	0.193	0.098	0.307	0.047	0.125

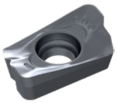
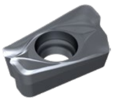
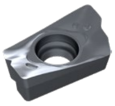
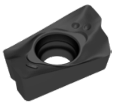


XDKT

XDKT

ISO	RE inch	**-F50** CTCP230	**-M50** CTCP230	**-F50** CTPP235	**-M50** CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		XDKT **51 033 ...**	XDKT **51 036 ...**	XDKT **51 033 ...**	XDKT **51 036 ...**
070304SR	0.016	**004**	**004**	**104**	**104**
070308SR	0.031	**008**	**008**	**108**	**108**
P		●	●	●	●
M				○	○
K		○	○	○	○
N					
S					
H					
O					

XDKT

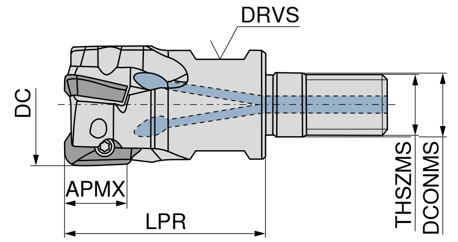
ISO	RE inch	**-F50** CTPM240	**-M50** CTPM240	**-F40** CTPM245	NEW **-F40** CTCM245	**-F20** CTWN215	**-F40** CTC5240	**-F40** CTCS245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN		DRAGONSKIN	DRAGONSKIN
								
		XDKT **51 033 ...**	XDKT **51 036 ...**	XDKT **51 112 ...**	XDKT **51 112 ...**	XDKT **50 507 ...**	XDKT **50 498 ...**	XDKT **51 112 ...**
070304ER	0.016			**454**	**90401**		**544**	
070304FR	0.016					**504**		
070304SR	0.016	**404**	**404**					
070308ER	0.031			**458**	**90801**		**548**	**558**
070308FR	0.031					**508**		
070308SR	0.031	**408**	**408**					
P		○	○	●	●			
M		●	●	●	●			
K						○		
N						●		
S					○		●	●
H								
O						○		

Milling guide

Cutting data standard values	→ 97–100	Machining strategy	→ 111
Starting Parameter	→ 111	Technical Information	→ 132–136
Chip groove description and overview	→ 137–139	Grade description and overview	→ 140–142

MaxiMill – Screw in cutter G 211-11

κ = 90°

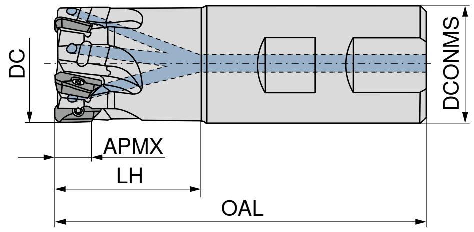


Designation	DC inch	ZNF	APMX inch	LPR inch	DCONMS inch	THSZMS inch	RPMX 1/min.	torque moment Nm	Insert	58 736 ...
G211.0625.R.02-11-125-F	0.625	2	0.394	1.250	0.335	M8	42000	1,6	XD.T 11T3	06202
G211.0750.R.03-11-118-F	0.750	3	0.394	1.118	0.492	M12	36900	1,6	XD.T 11T3	07503
G211.100.R.04-11-150-F	1.000	4	0.394	1.500	0.492	M12	33200	1,6	XD.T 11T3	10004
G211.125.R.05-11-150-F	1.250	5	0.394	1.500	0.669	M16	30200	1,6	XD.T 11T3	12505

MaxiMill – End milling cutter C 211-11

▲ Insert radius > 0.063": Modify cutter body

κ = 90°



Designation	DC inch	ZNF	APMX inch	OAL inch	LH inch	DCONMS $_{h6}$ inch	RPMX 1/min.	torque moment Nm	Insert	A 58 737 ...	B 58 737 ...
C211.0625.R.02-11-B-100-EF	0.625	2	0.394	3.250	1.000	0.625	42000	1,6	XD.T 11T3		26202
C211.0625.R.02-11-A-125-EF-650	0.625	2	0.394	6.500	1.250	0.625	14800	1,6	XD.T 11T3	06202	
C211.0750.R.03-11-B-100-EF	0.750	3	0.394	3.500	1.000	0.750	36900	1,6	XD.T 11T3		27503
C211.0750.R.03-11-A-125-EF-650	0.750	3	0.394	6.500	1.250	0.750	15800	1,6	XD.T 11T3	07503	
C211.100.R.04-11-B-125-EF	1.000	4	0.394	3.500	1.250	1.000	33200	1,6	XD.T 11T3		30004
C211.100.R.04-11-A-150-EF-650	1.000	4	0.394	6.500	1.500	1.000	19900	1,6	XD.T 11T3	10004	
C211.125.R.05-11-B100-150-EF	1.250	5	0.394	3.750	1.500	1.000	30200	1,6	XD.T 11T3		32505
C211.125.R.05-11-A100-200-EF-650	1.250	5	0.394	6.500	2.000	1.000	20900	1,6	XD.T 11T3	12505	
C211.150.R.06-11-B-200-EF	1.500	6	0.394	4.000	2.000	1.250	27700	1,6	XD.T 11T3		35006


Screwdriver


Molykote

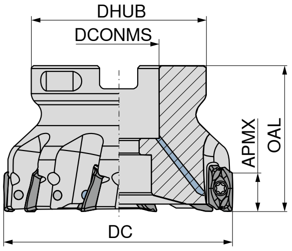

Clamping screw

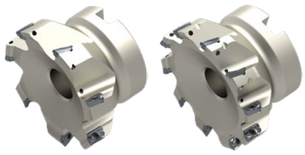
Spare parts DC	Screwdriver 80 950 ...	Molykote 70 950 ...	Clamping screw 70 950 ...
0.625 - 1.250	039	303	128
1.500	039	303	131

MaxiMill – Shell mill A 211-11

▲ Insert radius > 0.063": Modify cutter body

κ = 90°





Designation	DC inch	ZNF	APMX inch	OAL inch	DCONMS $_{H6}$ inch	DHUB inch	RPMX 1/min.	torque moment Nm	Insert	58 738 ...	58 739 ...
A211.150.R.04-11-A050-175-EF	1.500	4	0.394	1.420	0.500	1.420	27700	1,6	XD.T 11T3	**15004**	
A211.150.R.06-11-A050-175-EF	1.500	6	0.394	1.420	0.500	1.420	27700	1,6	XD.T 11T3		**15006**
A211.200.R.05-11-A075-175-EF	2.000	5	0.394	1.750	0.750	1.750	25400	1,6	XD.T 11T3	**20005**	
A211.200.R.08-11-A075-175-EF	2.000	8	0.394	1.750	0.750	1.750	25400	1,6	XD.T 11T3		**20008**
A211.250.R.06-11-A100-200-EF	2.500	6	0.394	2.250	1.000	2.250	23300	1,6	XD.T 11T3	**25006**	
A211.250.R.10-11-A100-200-EF	2.500	10	0.394	2.250	1.000	2.250	23300	1,6	XD.T 11T3		**25010**
A211.300.R.07-11-A100-200-EF	3.000	7	0.394	2.250	1.000	2.250	21300	1,6	XD.T 11T3	**30007**	
A211.300.R.12-11-A100-200-EF	3.000	12	0.394	2.250	1.000	2.250	21300	1,6	XD.T 11T3		**30012**
A211.400.R.08-11-B125-200-EF	4.000	8	0.394	2.750	1.250	2.750	19600	1,6	XD.T 11T3	**40008**	
A211.400.R.14-11-B125-200-EF	4.000	14	0.394	2.750	1.250	2.750	19600	1,6	XD.T 11T3		**40014**
A211.500.R.10-11-B150-200-EF	5.000	10	0.394	3.750	1.500	3.750	17900	1,6	XD.T 11T3	**50010**	
A211.600.R.12-11-B150-200-EF	6.000	12	0.394	3.750	1.500	3.750	16500	1,6	XD.T 11T3	**60012**	

Screwdriver

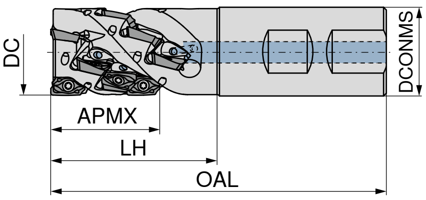
Molykote

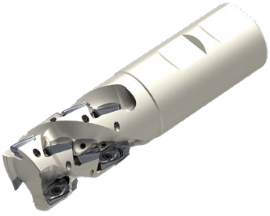
Clamping screw

Spare parts **DC**	80 950 ...	70 950 ...	70 950 ...
0.625 - 1.250	**039**	**303**	**128**
1.500 - 6.000	**039**	**303**	**131**

MaxiMill – Extended flute cutter C 211-11K

- ▲ ZEFP = Number of inserts
- ▲ ZNP = Number of teeth



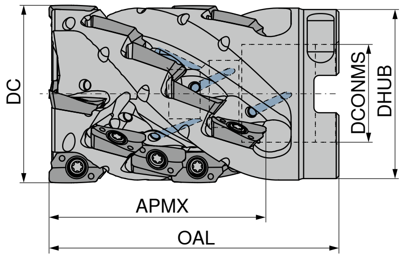


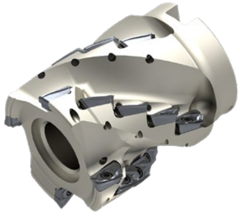
Designation	DC inch	ZNF	APMX inch	OAL inch	LH inch	DCONMS inch	ZEFP	ZNP	torque moment Nm	58 758 ...
C211.100.R.02K3-11-B-150-EF	1.000	2	1.060	3.750	1.500	1.000	6	3	1,6	**10002**
C211.125.R.02K4-11-B-200-EF	1.250	2	1.430	4.500	2.000	1.250	8	4	1,6	**12502**
C211.150.R.03K4-11-A-225-EF	1.500	3	1.420	5.100	2.250	1.500	12	4	1,6	**15003** 1)

1) DIN 1835 A Shank

MaxiMill – Extended flute cutter A 211-11K

- ▲ ZEFP = Number of inserts
- ▲ ZNP = Number of teeth





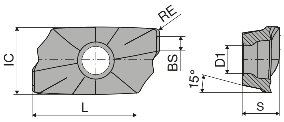
Designation	DC inch	ZNF	APMX inch	ZEFP	ZNP	OAL inch	DCONMS H6 inch	DHUB inch	torque moment Nm	Insert	58 757 ...
A211.200.R.04K5-11-A075-EF	2.000	4	1.800	20	5	1.750	0.750	1.750	1,6	XD.T 11T3	**20004**
A211.250.R.05K7-11-A100-EF	2.500	5	2.500	35	7	2.250	1.000	2.250	1,6	XD.T 11T3	**25005**
A211.300.R.06K9-11-A125-EF	3.000	6	3.200	54	9	2.750	1.250	2.750	1,6	XD.T 11T3	**30006**




Spare parts for Article no.	Cylindrical screw **70 950 ...**	Screwdriver **80 950 ...**	Molykote **70 950 ...**	Clamping screw **70 950 ...**
58 757 20004	**002**	**039**	**303**	**131**
58 757 25005	**003**	**039**	**303**	**131**
58 757 30006	**004**	**039**	**303**	**131**
58 758 10002 / 58 758 12502		**039**	**303**	**131**
58 758 15003		**039**	**303**	**131**

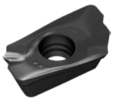
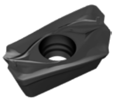
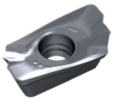
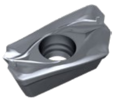
XDKT / XDHT

Designation	IC inch	D1 inch	L inch	BS inch	S inch
XD.T 11T302..	0.268	0.110	0.417	0.079	0.150
XD.T 11T304..	0.268	0.110	0.417	0.071	0.150
XD.T 11T308..	0.268	0.110	0.417	0.055	0.150
XD.T 11T312..	0.268	0.110	0.417	0.055	0.150
XD.T 11T316..	0.268	0.110	0.417	0.055	0.150
XD.T 11T320..	0.268	0.110	0.417	0.055	0.150
XD.T 11T325..	0.268	0.110	0.417	0.055	0.150
XD.T 11T332..	0.268	0.110	0.417	0.031	0.150
XD.T 11T340..	0.268	0.110	0.417	-	0.150
XDHT 11T350..	0.268	0.110	0.417	-	0.150
XDKT 11T332..	0.268	0.110	0.417	0.055	0.150
XDKT 11T332..	0.268	0.110	0.417	-	0.150

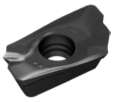
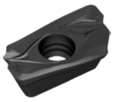
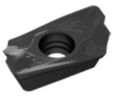
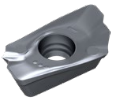
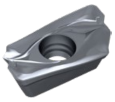
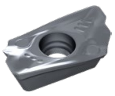


XDKT

XDKT

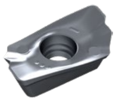
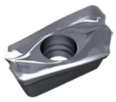
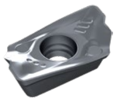
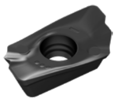
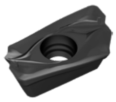
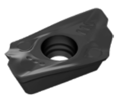
		-F50 CTCP220	**-M50** CTCP220	**-F50** CTPP225	**-M50** CTPP225
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
		XDKT	XDKT	XDKT	XDKT
		51 034 ...	**51 037 ...**	**51 034 ...**	**51 037 ...**
ISO	RE inch				
11T308SR	0.031	**258**	**258**	**058**	**058**
P		●	●	●	●
M					
K					
N					
S					
H					
O					

XDKT

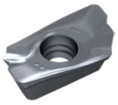
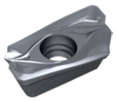
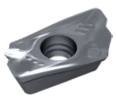
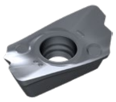
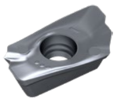
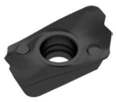
		-F50 CTCP230	**-M50** CTCP230	**-R50** CTCP230	**-F50** CTPP235	**-M50** CTPP235	**-R50** CTPP235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		XDKT	XDKT	XDKT	XDKT	XDKT	XDKT
		51 034 ...	**51 037 ...**	**51 039 ...**	**51 034 ...**	**51 037 ...**	**51 039 ...**
ISO	RE inch						
11T304SR	0.016	**004**	**004**	**004**	**104**	**104**	**104**
11T308SR	0.031	**008**	**008**	**008**	**108**	**108**	**108**
11T312SR	0.047		**012**			**112**	
11T320SR	0.079	**020** 1)	**020** 1)	**020** 1)	**120** 1)	**120** 1)	**120** 1)
11T325SR	0.098	**025** 1)	**025** 1)	**025** 1)	**125** 1)	**125** 1)	**125** 1)
11T332SR	0.126				**13200** 1)		
11T340SR	0.157				**14000** 1)		
P		●	●	●	●	●	●
M					○	○	○
K		○	○	○	○	○	○
N							
S							
H							
O							

1) Insert radius > 0.063": Modify cutter body

XDKT

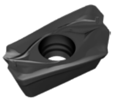
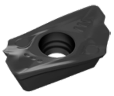
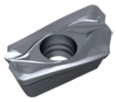
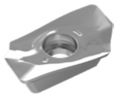
		-F50 CTPM225	**-M50** CTPM225	**-R50** CTPM225	**-F50** CTCM235	**-M50** CTCM235	**-R50** CTCM235
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		XDKT **51 034 ...**	XDKT **51 037 ...**	XDKT **51 039 ...**	XDKT **51 034 ...**	XDKT **51 037 ...**	XDKT **51 039 ...**
ISO	RE inch						
11T308SR	0.031	**208**	**208**	**208**	**308**	**308**	**308**
P		●	●	●	●	●	●
M		●	●	●	●	●	●
K							
N							
S							
H							
O							

XDKT

							NEW	**NEW**
		-F50 CTPM240	**-M50** CTPM240	**-R50** CTPM240	**-F40** CTPM245	**-F50** CTPM245	**-F40** CTCM245	**-F50** CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		XDKT **51 034 ...**	XDKT **51 037 ...**	XDKT **51 039 ...**	XDKT **51 113 ...**	XDKT **51 034 ...**	XDKT **51 113 ...**	XDKT **51 034 ...**
ISO	RE inch							
11T304ER	0.016				**454**		**90401**	
11T304SR	0.016		**404**					
11T308ER	0.031				**458**		**90801**	
11T308SR	0.031	**408**	**408**	**408**		**458**		**90801**
11T312ER	0.047				**462**		**91201**	
11T312SR	0.047	**412**	**412**	**412**				
11T316ER	0.063				**466**		**91601**	
11T320ER	0.079				**470** 1)		**92001** 1)	
11T320SR	0.079	**420** 1)	**420** 1)	**420** 1)				
11T325ER	0.098				**475** 1)		**92501** 1)	
11T332ER	0.126				**482** 1)		**93201** 1)	
11T332SR	0.126	**432** 1)	**432** 1)	**432** 1)				
11T340ER	0.157				**490** 1)		**94001** 1)	
P		○	○	○	●	●	●	●
M		●	●	●	●	●	●	●
K								
N								
S							○	○
H								
O								

1) Insert radius > 0.063": Modify cutter body

XDKT / XDHT

ISO	RE inch	-M50 CTCK215 DRAGONSKIN  XDKT 51 037 ...	-R50 CTCK215 DRAGONSKIN  XDKT 51 039 ...	-M50 CTPK220 DRAGONSKIN  XDKT 51 037 ...	-F20 CTWN215  XDKT 50 478 ...	-27P H216T  XDHT 50 477 ...
11T302FR	0.008				502	502
11T304FR	0.016				504	504
11T304SR	0.016	504				
11T308FR	0.031				508	508
11T308SR	0.031	508	508	608		
11T312FR	0.047					512
11T316FR	0.063					516
11T320FR	0.079				520 1)	520 1)
11T325FR	0.098				525 1)	525 1)
11T332FR	0.126					532 1)
11T340FR	0.157					540 1)
11T350FR	0.197					550 1)
P						
M						
K		●	●	●	○	○
N					●	●
S						
H						
O					○	○

1) Insert radius > 0.063": Modify cutter body

XDKT

ISO	RE inch	-F40 CTC5240 DRAGONSKIN  XDKT 50 463 ...	-F40 CTCS245 DRAGONSKIN  XDKT 51 113 ...	-R60 CTP6215  XDKT 50 464 ...
11T304ER	0.016	504		
11T308ER	0.031	500	558	
11T308SR	0.031			300
11T312ER	0.047	512	562	
11T316ER	0.063	516	566	
11T320ER	0.079	520 1)	570	
11T325ER	0.098	525 1)	57500 1)	
11T332ER	0.126	532 1)	582	
11T340ER	0.157	540 1)	59000 1)	
P				
M				
K				●
N				
S		●	●	
H				●
O				

1) Insert radius > 0.063": Modify cutter body

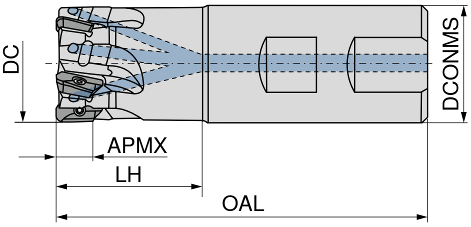
Milling guide

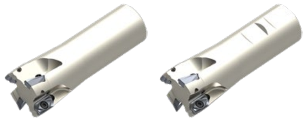
Cutting data standard values	→ 97–100	Machining strategy	→ 112
Starting Parameter	→ 112	Technical Information	→ 132–136
Chip groove description and overview	→ 137–139	Grade description and overview	→ 140–142

MaxiMill – End milling cutter C 211-15

▲ Insert radius > 0.098": Modify cutter body

κ = 90°



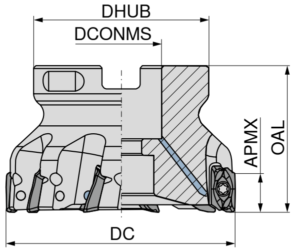


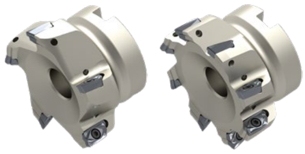
Designation	DC inch	ZNF	APMX inch	OAL inch	LH inch	DCONMS inch	RPMX 1/min.	torque moment Nm	Insert	A 58 747 ...	B 58 747 ...
C211.100.R.02-15-A-200-EF-800	1.000	2	0.551	8.000	2.000	1.000	7520	3,2	XD.T 1505	10002	
C211.125.R.03-15-B-150-EF-400	1.250	3	0.551	4.000	1.500	1.250	24160	3,2	XD.T 1505		32503
C211.125.R.03-15-A-250-EF-1000	1.250	3	0.551	10.000	2.500	1.250	6800	3,2	XD.T 1505	12503	
C211.150.R.03-15-B125-200-EF-450	1.500	3	0.551	4.500	2.000	1.250	22160	3,2	XD.T 1505		35003
C211.150.R.04-15-B125-200-EF-450	1.500	4	0.551	4.500	2.000	1.250	22160	3,2	XD.T 1505		35004
C211.150.R.03-15-A125-300-EF-1000	1.500	3	0.551	10.000	3.000	1.250	6120	3,2	XD.T 1505	15003	

MaxiMill – Shell mill A 211-15

▲ Insert radius > 0.098": Modify cutter body

κ = 90°



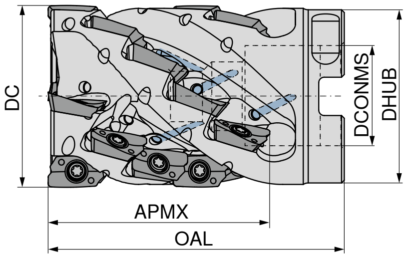


Designation	DC inch	ZNF	APMX inch	OAL inch	DCONMS H6 inch	DHUB inch	RPMX 1/min.	torque moment Nm	Insert	58 748 ...	58 749 ...
A211.150.R.03-15-A050-175-EF	1.500	3	0.551	1.420	0.500	1.420	22160	3,2	XD.T 1505	15003	
A211.200.R.05-15-A075-175-EF	2.000	5	0.551	1.750	0.750	1.750	20320	3,2	XD.T 1505	20005	
A211.250.R.06-15-A100-200-EF	2.500	6	0.551	2.250	1.000	2.250	18640	3,2	XD.T 1505	25006	
A211.300.R.05-15-A100-200-EF	3.000	5	0.551	2.250	1.000	2.250	17040	3,2	XD.T 1505	30005	
A211.300.R.08-15-A100-200-EF	3.000	8	0.551	2.250	1.000	2.250	17040	3,2	XD.T 1505		30008
A211.400.R.06-15-A125-200-EF	4.000	6	0.551	2.750	1.250	2.750	16000	3,2	XD.T 1505	40006	
A211.400.R.09-15-A125-200-EF	4.000	9	0.551	2.750	1.250	2.750	16000	3,2	XD.T 1505		40009
A211.500.R.10-15-B150-250-EF	5.000	10	0.551	3.750	1.500	3.750	14320	3,2	XD.T 1505	50010	
A211.600.R.08-15-B150-250-EF	6.000	8	0.551	2.500	1.500	3.750	13200	3,2	XD.T 1505	60008	
A211.600.R.10-15-B150-250-EF	6.000	10	0.551	3.750	1.500	3.750	13200	3,2	XD.T 1505		60010

Spare parts DC	 Screwdriver 80 950 ...	 Molykote 70 950 ...	 Clamping screw 70 950 ...
1.000 - 6.000	120	303	839

MaxiMill – Extended flute cutter A 211-15K

- ▲ ZEFP = Number of Inserts
- ▲ ZNP = Number of rows

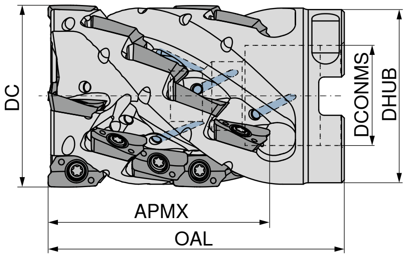


Designation	DC inch	ZNF	APMX inch	ZEFP	ZNP	OAL inch	DCONMS $_{H6}$ inch	DHUB inch	torque moment Nm	Insert	58 759 ...
A211.200.R.03K4-15-A075-EF	2.000	3	2.000	12	4	1.750	0.750	1.750	3,2	XD.T 1505	**20003**
A211.250.R.04K5-15-A100-EF	2.500	4	2.500	20	5	2.250	1.000	2.250	3,2	XD.T 1505	**25004**
A211.300.R.04K6-15-A100-EF	3.000	4	3.000	24	6	2.250	1.000	2.250	3,2	XD.T 1505	**30004**
A211.300.R.04K6-15-A125-EF	3.000	4	3.000	24	6	2.750	1.250	2.750	3,2	XD.T 1505	**30104**

Spare parts **DC**	Cylindrical screw **70 950 ...**	Screwdriver **80 950 ...**	Molykote **70 950 ...**	Clamping screw **70 950 ...**
2.000	**002**	**120**	**303**	**839**
2.500 - 3.000	**003**	**120**	**303**	**839**

MaxiMill – Extended flute cutter A 211-15K

- ▲ ZEFP = Number of Inserts
- ▲ ZNP = Number of rows

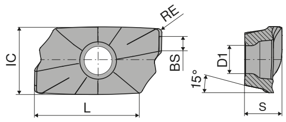


Designation	DC inch	ZNF	APMX inch	ZEFP	ZNP	OAL inch	DCONMS $_{H6}$ inch	DHUB inch	torque moment Nm	Insert	58 759 ...
A211.400.R.05KN6-15-A150-EF	4.000	5	3.090	30	6	4.250	1.500	3.750	3,2	XD.T 1505	**40005**

Spare parts **for Article no.**	Cylindrical screw **70 950 ...**	Screwdriver **80 950 ...**	Molykote **70 950 ...**	Clamping screw **70 950 ...**
58 759 40005	**004**	**128**	**303**	**20500**

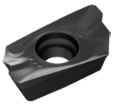
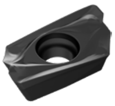
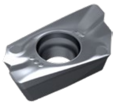
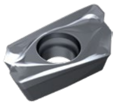
XDKT

Designation	IC inch	D1 inch	L inch	BS inch	S inch
XDKT 150508..	0.366	0.173	0.583	0.063	0.219
XDKT 150512..	0.366	0.173	0.583	0.063	0.219
XDKT 150516..	0.366	0.173	0.583	0.063	0.219
XDKT 150520..	0.366	0.173	0.583	0.063	0.219
XDKT 150525..	0.366	0.173	0.583	0.063	0.219
XDKT 150530..	0.366	0.173	0.583	0.063	0.219
XDKT 150532..	0.366	0.173	0.583	0.075	0.219
XDKT 150540..	0.366	0.173	0.583	0.047	0.219
XDKT 150560..	0.366	0.173	0.583	-	0.219

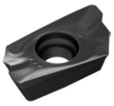
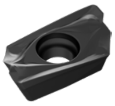
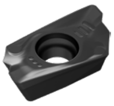
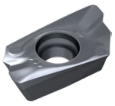
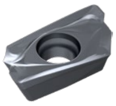
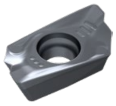


XDKT

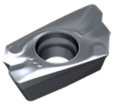
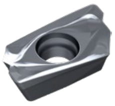
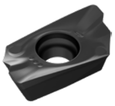
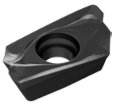
XDKT

ISO	RE inch	**-F50** CTCP220 DRAGONSKIN  XDKT **51 035 ...**	**-M50** CTCP220 DRAGONSKIN  XDKT **51 038 ...**	**-F50** CTPP225 DRAGONSKIN  XDKT **51 035 ...**	**-M50** CTPP225 DRAGONSKIN  XDKT **51 038 ...**
150508SR	0.031	**258**	**258**	**058**	**058**
P		●	●	●	●
M					
K					
N					
S					
H					
O					

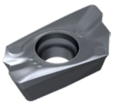
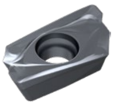
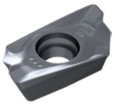
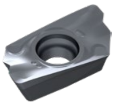
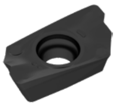
XDKT

ISO	RE inch	**-F50** CTCP230 DRAGONSKIN  XDKT **51 035 ...**	**-M50** CTCP230 DRAGONSKIN  XDKT **51 038 ...**	**-R50** CTCP230 DRAGONSKIN  XDKT **51 040 ...**	**-F50** CTPP235 DRAGONSKIN  XDKT **51 035 ...**	**-M50** CTPP235 DRAGONSKIN  XDKT **51 038 ...**	**-R50** CTPP235 DRAGONSKIN  XDKT **51 040 ...**
150508SR	0.031	**008**	**008**	**008**	**108**	**108**	**108**
150512SR	0.047		**012**			**112**	
150516SR	0.063		**016**			**116**	
150520SR	0.079			**020**		**120**	**120**
150530SR	0.118		**030**			**130**	
150540SR	0.157		**040**			**140**	
P		●	●	●	●	●	●
M					○	○	○
K		○	○	○	○	○	○
N							
S							
H							
O							

XDKT

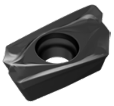
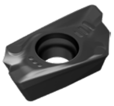
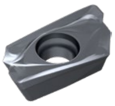
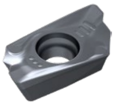
ISO	RE inch	-F50 CTPM225 DRAGONSKIN  XDKT 51 035 ...	-M50 CTPM225 DRAGONSKIN  XDKT 51 038 ...	-F50 CTCM235 DRAGONSKIN  XDKT 51 035 ...	-M50 CTCM235 DRAGONSKIN  XDKT 51 038 ...
150508SR	0.031	**208**	**208**	**308**	**308**
P		●	●	●	●
M		●	●	●	●
K					
N					
S					
H					
O					

XDKT

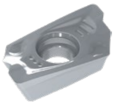
ISO	RE inch	-F50 CTPM240 DRAGONSKIN  XDKT 51 035 ...	-M50 CTPM240 DRAGONSKIN  XDKT 51 038 ...	-R50 CTPM240 DRAGONSKIN  XDKT 51 040 ...	-F40 CTPM245 DRAGONSKIN  XDKT 51 114 ...	NEW -F40 CTCM245 DRAGONSKIN  XDKT 51 114 ...
150508ER	0.031				**458**	**90801**
150508SR	0.031	**408**	**408**	**408**		
150512ER	0.047					**91201**
150512SR	0.047		**412**			
150516ER	0.063					**91601**
150516SR	0.063		**416**			
150520ER	0.079					**92001** 1)
150525ER	0.098					**92501** 1)
150530SR	0.118		**430**			
150532ER	0.126				**482** 2)	**93201** 2)
150540ER	0.157				**490** 2)	**94001** 2)
150540SR	0.157		**440**			
150560ER	0.236					**96001** 2)
P		○	○	○	●	●
M		●	●	●	●	●
K						
N						
S						○
H						
O						

1) Insert radius > 0.098": Modify cutter body
2) Insert radius > 0.063": Modify cutter body

XDKT

ISO	RE inch	**-M50** CTCK215 DRAGONSKIN  XDKT **51 038 ...**	**-R50** CTCK215 DRAGONSKIN  XDKT **51 040 ...**	**-M50** CTPK220 DRAGONSKIN  XDKT **51 038 ...**	**-R50** CTPK220 DRAGONSKIN  XDKT **51 040 ...**	**-F20** CTWN215  XDKT **50 479 ...**
150508FR	0.031					**508**
150508SR	0.031	**508**	**508**	**608**	**608**	
P						
M						
K		●	●	●	●	○
N						●
S						
H						
O						○

XDKT

ISO	RE inch	**-F40** CTC5240 DRAGONSKIN  XDKT **50 473 ...**	**-F40** CTCS245 DRAGONSKIN  XDKT **51 114 ...**	**-R60** CTP6215  XDKT **50 469 ...**
150508ER	0.031	**508**	**558**	
150508SR	0.031			**300**
150532ER	0.126	**532** 1)		
150540ER	0.157	**540** 1)	**59000** 1)	
P				
M				
K				●
N				
S		●	●	
H				●
O				

1) Insert radius > 0.098": Modify cutter body

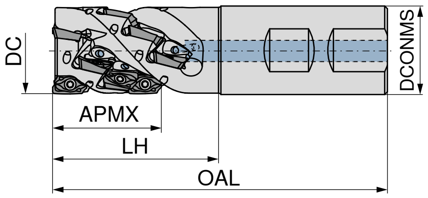
Milling guide

Cutting data standard values	→ 97–100	Machining strategy	→ 113
Starting Parameter	→ 113	Technical Information	→ 132–136
Chip groove description and overview	→ 137–139	Grade description and overview	→ 140–142

MaxiMill – End milling cutter C 211-20K

- ▲ ZEFP = Number of Inserts
- ▲ ZNP = Number of rows

κ = 90°



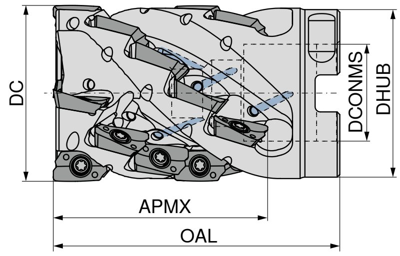
Designation	DC inch	ZNF	APMX inch	ZNP	ZEFP	OAL inch	LH inch	DCONMS inch	torque moment Nm	Insert	58 779 ...
C211.200.R.03K10-20-B200-EF	2.000	3	6.500	10	30	11.000	6.690	2.000	5	XD.. 2007..	**20003**

Spare parts for Article no.	 Screwdriver **80 950 ...**	 Molykote **70 950 ...**	 Clamping screw **70 950 ...**
58 779 20003	**106**	**303**	**01200**

MaxiMill – Extended flute cutter A 211-20K

- ▲ ZEFP = Number of Inserts
- ▲ ZNP = Number of rows

κ = 90°



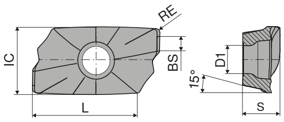
NEW

Designation	DC inch	ZNF	APMX inch	ZNP	ZEFP	OAL inch	DCONMS $_{H6}$ inch	DHUB inch	Insert	58 780 ...
A211.250.R.04K4-20-A100-EF	2.500	4	2.650	4	16	2.250	1.000	2.250	XD.. 2007..	**25004**
A211.300.R.05K5-20-A125-EF	3.000	5	3.250	5	20	2.750	1.250	2.750	XD.. 2007..	**30005**
A211.400.R.05K5-20-A150-EF	4.000	5	3.340	5	20	4.250	1.500	3.750	XD.. 2007..	**40005**

Spare parts for Article no.	 Cylindrical screw **70 950 ...**	 Screwdriver **80 950 ...**	 Molykote **70 950 ...**	 Clamping screw **70 950 ...**
58 780 25004	**003**	**106**	**303**	**01200**
58 780 30005	**004**	**106**	**303**	**01200**
58 780 40005	**004**	**106**	**303**	**01200**

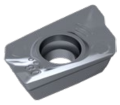
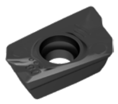
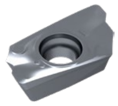
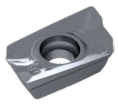
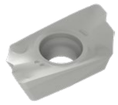
XDKT

Designation	IC inch	D1 inch	L inch	S inch
XDKT 200708..	0.492	0.217	0.740	0.273
XDKT 200716..	0.492	0.217	0.740	0.271
XDKT 200732..	0.492	0.217	0.740	0.269
XDKT 200740..	0.492	0.217	0.740	0.268
XDKT 200760..	0.492	0.217	0.740	0.268



XDKT

XDKT

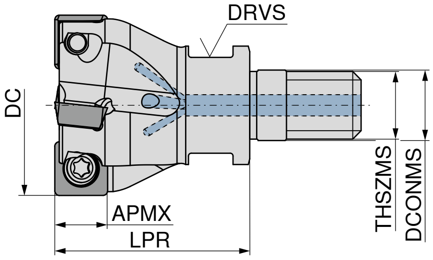
ISO	RE inch	NEW -M50 CTPP235 DRAGONSKIN	NEW -M50 CTCP230 DRAGONSKIN	-F40 CTPM245 DRAGONSKIN	NEW -F40 CTCM245 DRAGONSKIN	NEW -M50 CTPK220 DRAGONSKIN	-F40 CTC5240 DRAGONSKIN	-F40 CTCS245 DRAGONSKIN
								
		XDKT 51 145 ...	XDKT 51 145 ...	XDKT 51 127 ...	XDKT 51 127 ...	XDKT 51 145 ...	XDKT 51 127 ...	XDKT 51 127 ...
200708ER	0.031	**10800**	**00800**	**45800**	**90801**	**60800**	**15800**	**55800**
200716ER	0.063	**11600**	**01600**	**46600**	**91601**	**61600**	**16600**	**56600**
200732ER	0.126			**48200**	**93201**		**18200**	**58200**
200740ER	0.157				**94001**		**19000**	
200760ER	0.236				**96001**		**19200**	
P		●	●	●	●			
M		○		●	●			
K		○	○			●		
N								
S					○		●	●
H								
O								

Milling guide

Cutting data standard values	→ 97–100	Machining strategy	→ 114
Starting Parameter	→ 114	Technical Information	→ 132–136
Chip groove description and overview	→ 137–139	Grade description and overview	→ 140–142

MaxiMill – Screw in cutter G 490-09

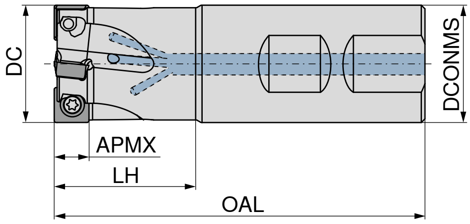
κ = 90°



Designation	DC inch	ZNF	APMX inch	LPR inch	THSZMS inch	DCONMS inch	torque moment Nm	Insert	58 726 ...
G490.100.R.03-09-125-F	1.000	3	0.315	1.250	M12	0.492	3,2	SD.. 09T3..	**10003**
G490.125.R.04-09-150-F	1.250	4	0.315	1.500	M16	0.669	3,2	SD.. 09T3..	**12504**

MaxiMill – End milling cutter C 490-09

κ = 90°



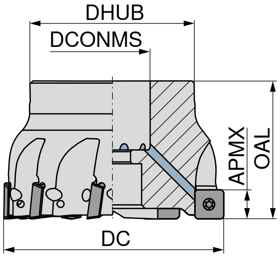
Designation	DC inch	ZNF	APMX inch	DCONMS inch	OAL inch	LH inch	torque moment Nm	Insert	A 58 727 ...	B 58 727 ...
C490.100.R.03-09-B-125-EF	1.000	3	0.315	1.000	3.500	1.250	3,2	SD.. 09T3..		**30003**
C490.100.R.02-09-A-150-EF-800	1.000	2	0.315	1.000	8.000	1.500	3,2	SD.. 09T3..	**10002**	
C490.125.R.04-09-B-150-EF	1.250	4	0.315	1.250	3.750	1.500	3,2	SD.. 09T3..		**32504**
C490.125.R.03-09-A-200-EF-1000	1.250	3	0.315	1.250	10.000	2.000	3,2	SD.. 09T3..	**12503**	

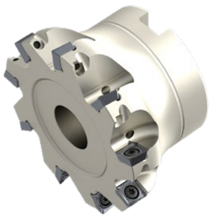


Spare parts **DC**	Screwdriver 80 950 ...	Molykote 70 950 ...	Clamping screw 70 950 ...
1.000 - 1.250	**105**	**303**	**110**

MaxiMill – Shell mill A 490-09

κ = 90°



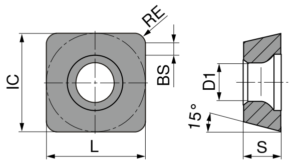


Designation	DC inch	ZNF	APMX inch	DHUB inch	DCONMS H6 inch	OAL inch	torque moment Nm	Insert	58 728 ...
A490.150.R.05-09-A050-175-EF	1.500	5	0.315	1.250	0.500	1.250	3,2	SD.. 09T3..	15005
A490.200.R.06-09-A075-175-EF	2.000	6	0.315	1.650	0.750	1.650	3,2	SD.. 09T3..	20006
A490.250.R.07-09-A100-200-EF	2.500	7	0.315	1.970	1.000	1.970	3,2	SD.. 09T3..	25007
A490.300.R.09-09-A100-200-EF	3.000	9	0.315	2.130	1.000	2.130	3,2	SD.. 09T3..	30009
A490.400.R.10-09-B125-200-EF	4.000	10	0.315	2.870	1.250	2.870	3,2	SD.. 09T3..	40010
A490.500.R.11-09-B200-200-EF	5.000	11	0.315	3.750	2.000	2.000	3,2	SD.. 09T3..	50011
A490.600.R.12-09-B200-200-EF	6.000	12	0.315	3.750	2.000	2.000	3,2	SD.. 09T3..	60012

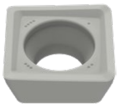
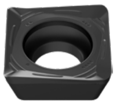
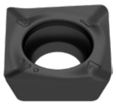
Spare Parts DC	Screwdriver 80 950 ...	Molykote 70 950 ...	Clamping screw 70 950 ...
1.500 - 6.000	105	303	110

SDHT / SDNT

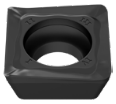
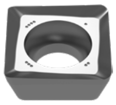
Designation	IC inch	D1 inch	L inch	BS inch	S inch
SD.T 09T3..	0.375	0.173	0.375	0.098	0.156



SDHT / SDNT

								NEW
		TCM10	**-29** CTCP230	CTPP235	**-29** CTPP235	**-33** CTPM240	**-F50** CTPM245	**-F50** CTCM245
			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		CERMET SDHT	SDNT	SDNT	SDNT	SDNT	SDNT	SDNT
		50 424 ...	**51 011 ...**	**51 082 ...**	**51 011 ...**	**51 030 ...**	**51 111 ...**	**51 111 ...**
ISO	RE inch							
09T308ER	0.031			**108**			**458**	**90801**
09T308SR	0.031	**900**	**008**		**108**	**408**		
P		●	●	●	●	○	●	●
M				○	○	●	●	●
K		○	○	○	○			
N								
S								○
H								
O								

SDNT / SDHT

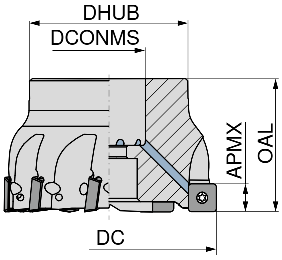
		-31 CTCK215	**-27P** H216T	**-27P** AMZ	**-27** CTC5240	**-M31** CTC5240	**-F10** CTCS245
		DRAGONSKIN			DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
							
		SDNT	SDHT	SDHT	SDHT	SDNT	SDHT
		51 029 ...	**50 424 ...**	**50 424 ...**	**50 496 ...**	**50 425 ...**	**51 125 ...**
ISO	RE inch						
09T308ER	0.031				**508**	**508**	**55800**
09T308FR	0.031		**550**	**650**			
09T308SR	0.031	**508**					
P							
M							
K		●	○	○			
N			●	●			
S					●	●	●
H							
O			○	○			

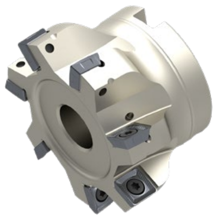
Milling guide

Cutting data standard values	→ 97–100	Starting Parameter	→ 115
Technical Information	→ 132–136	Chip groove description and overview	→ 137–139
Grade description and overview	→ 140–142		

MaxiMill – Shell mill A 490-12

κ = 90°





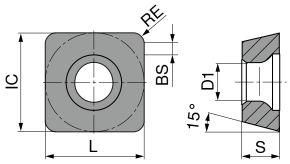
Designation	DC inch	ZNF	APMX inch	DHUB inch	DCONMS inch	OAL inch	torque moment Nm	Insert	58 703 ...
A490.200.R.05-12-A075-175-EF	2.000	5	0.393	1.750	0.750	1.750	5	SD.. 1205..	20005



Spare Parts for Article no.	Screwdriver 80 950 ...	Molykote 70 950 ...	Clamping screw 70 950 ...
58 703 20005	106	303	01200

SDHW / SDMT / SDHT

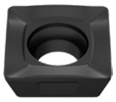
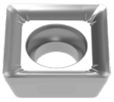
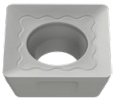
Designation	IC inch	D1 inch	L inch	BS inch	S inch
SDH. 120508..	0.500	0.217	0.500	0.087	0.197
SDHT 120512..	0.500	0.217	0.500	0.071	0.197
SDHT 120520..	0.500	0.217	0.500	0.039	0.197
SDHT 120525..	0.500	0.217	0.500	0.059	0.197
SDMT 120508..	0.500	0.217	0.500	0.118	0.197
SDMT 1205ZZ..	0.500	0.217	0.500	0.035	0.197



SDHW / SDMT / SDHT

								NEW
		TCM10	**-29** CTCP230 DRAGONSKIN	**-29** CTPP235 DRAGONSKIN	**-29** CTPM240 DRAGONSKIN	**-33** CTPM240 DRAGONSKIN	**-F50** CTPM245 DRAGONSKIN	**-F50** CTCM245 DRAGONSKIN
								
		CERMET SDHW	SDMT	SDMT	SDMT	SDHT	SDMT	SDMT
		50 428 ...	**51 081 ...**	**51 081 ...**	**51 081 ...**	**51 028 ...**	**51 110 ...**	**51 110 ...**
ISO	RE inch							
120508ER	0.031						**458**	**90801**
120508SR	0.031	**901**						
120512SR	0.047					**412**		
120520SR	0.079					**421**		
1205ZZSN	0.031		**020**	**120**	**420**			
P		●	●	●	○	○	●	●
M				○	●	●	●	●
K		○	○	○				
N								
S								○
H								
O								

SDMT / SDHT

ISO	RE inch	**-31** CTCK215 DRAGONSKIN  SDMT **51 059 ...**	**-27P** H216T  SDHT **50 426 ...**	**-27P** AMZ  SDHT **50 426 ...**	**-M31** CTC5240 DRAGONSKIN  SDMT **50 580 ...**	**-F50** CTCS245 DRAGONSKIN  SDMT **51 110 ...**
120508ER	0.031				**508**	**55800**
120508FR	0.031		**555**	**655**		
120525FR	0.098		**559**			
1205ZZSN	0.031	**521**				

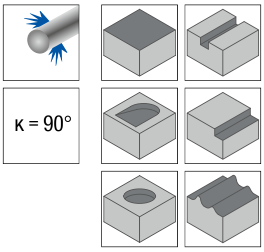
	-31	-27P	-27P	-M31	-F50
P					
M					
K	●	○	○		
N		●	●		
S				●	●
H					
O		○	○		

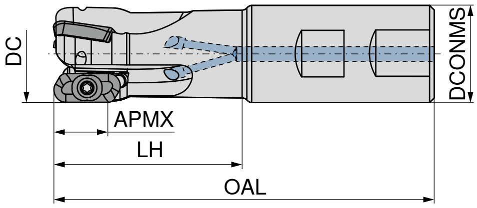
Milling guide

Cutting data standard values	→ 97–100	Starting Parameter	→ 116
Technical Information	→ 132–136	Chip groove description and overview	→ 137–139
Grade description and overview	→ 140–142		

MaxiMill – End milling cutter 90° C HSC-11

- ▲ Insert radius > 0.125": Modify cutter body
- ▲ High Speed Cutter (HSC)



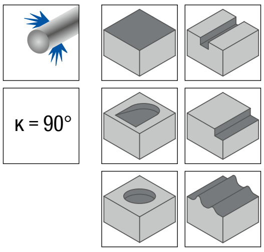


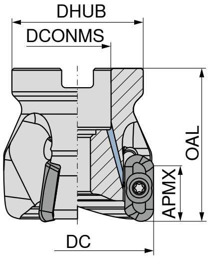
A

Designation	DC inch	ZNF	APMX inch	DCONMS h6 inch	OAL inch	LH inch	torque moment Nm	Insert	58 675 ...
CHSC.0625.R.02-11-A-100-EF	0.625	2	0.393	0.625	3.000	1.000	1,8	XDHT 11T3..	**06202**
CHSC.0625.R.02-11-A-125-EF	0.625	2	0.393	0.625	3.250	1.250	1,8	XDHT 11T3..	**06302**
CHSC.0750.R.02-11-A-150-EF	0.750	2	0.393	0.750	3.600	1.500	1,8	XDHT 11T3..	**07502**
CHSC.100.R.03-11-A-200-EF	1.000	3	0.393	1.000	4.350	2.000	1,8	XDHT 11T3..	**10003**

MaxiMill – Shell mill 90° A HSC-11

- ▲ Insert radius > 0.125": Modify cutter body
- ▲ High Speed Cutter (HSC)



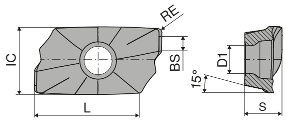


Designation	DC inch	ZNF	APMX inch	DCONMS H6 inch	DHUB inch	OAL inch	torque moment Nm	Insert	58 718 ...
AHSC.150.R.04-11-A050-175-EF	1.500	4	0.393	0.500	1.421	1.750	1,8	XDHT 11T3..	**15004**
AHSC.200.R.04-11-A075-175-EF	2.000	4	0.393	0.750	1.750	1.750	1,8	XDHT 11T3..	**20004**
AHSC.250.R.05-11-A100-200-EF	2.500	5	0.393	1.000	2.250	2.000	1,8	XDHT 11T3..	**25005**
AHSC.300.R.05-11-A100-200-EF	3.000	5	0.393	1.000	2.250	2.000	1,8	XDHT 11T3..	**30005**

Spare parts **DC**	 Screwdriver 80 950 ...	 Molykote 70 950 ...	 Clamping screw 70 950 ...
0.625 - 1.000	**039**	**303**	**128**
1.500 - 3.000	**039**	**303**	**131**

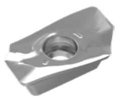
XDKT / XDHT

Designation	IC inch	D1 inch	L inch	BS inch	S inch
XD.T 11T302FR	0.268	0.110	0.417	0.079	0.150
XD.T 11T304FR	0.268	0.110	0.417	0.071	0.150
XD.T 11T308FR	0.268	0.110	0.417	0.055	0.150
XD.T 11T320FR	0.268	0.110	0.417	0.055	0.150
XD.T 11T325FR	0.268	0.110	0.417	0.055	0.150
XDHT 11T312FR	0.268	0.110	0.417	0.055	0.150
XDHT 11T316FR	0.268	0.110	0.417	0.055	0.150
XDHT 11T332FR	0.268	0.110	0.417	0.031	0.150
XDHT 11T340FR	0.268	0.110	0.417	-	0.150
XDHT 11T350FR	0.268	0.110	0.417	-	0.150



XDKT

XDKT / XDHT



ISO	RE inch	**-F20** CTWN215 XDKT **50 478 ...**	**-27P** H216T XDHT **50 477 ...**
11T302FR	0.008	**502**	**502**
11T304FR	0.016	**504**	**504**
11T308FR	0.031	**508**	**508**
11T312FR	0.047		**512**
11T316FR	0.063		**516**
11T320FR	0.079	**520** 1)	**520** 1)
11T325FR	0.098	**525** 1)	**525** 1)
11T332FR	0.126		**532** 1)
11T340FR	0.157		**540** 1)
11T350FR	0.197		**550** 1)

P		
M		
K	○	○
N	●	●
S		
H		
O	○	○

1) Insert radius > 0.063": Modify cutter body

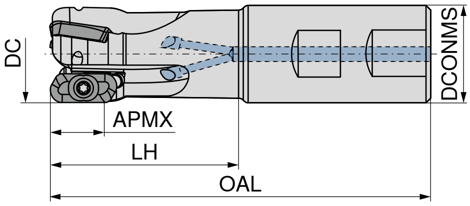
Milling guide

Safety advice	→ 117	Cutting data standard values	→ 118
Machining strategy	→ 119+120	Technical Information	→ 132–136
Chip groove description and overview	→ 137–139	Grade description and overview	→ 140–142

MaxiMill – End milling cutter 90° C HSC-19

- ▲ Insert radius > 0.157": Modify cutter body
- ▲ High Speed Cutter (HSC)

κ = 90°



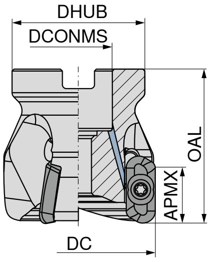
A

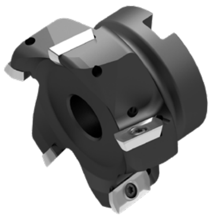
Designation	DC inch	ZNF	APMX inch	DCONMS h5 inch	OAL inch	LH inch	RPMX 1/min.	torque moment Nm	Insert	58 679 ...
CHSC.100.R.02-19-A-200-EF	1.000	2	0.709	1.000	4.500	2.000	35000	5	XDHT 1904..	10002
CHSC.100.R.02-19-A-250-EF	1.000	2	0.709	1.000	6.500	2.500	32800	5	XDHT 1904..	10102
CHSC.125.R.02-19-A-250-EF	1.250	2	0.709	1.250	5.000	2.500	29100	5	XDHT 1904..	12502
CHSC.125.R.02-19-A-325-EF	1.250	2	0.709	1.250	6.500	3.250	27200	5	XDHT 1904..	12602
CHSC.150.R.03-19-A125-325-EF	1.500	3	0.709	1.250	5.750	3.250	23800	5	XDHT 1904..	15003
CHSC.150.R.03-19-A125-400-EF	1.500	3	0.709	1.250	6.500	4.000	21900	5	XDHT 1904..	15103

MaxiMill – Shell mill 90° A HSC-19

- ▲ Insert radius > 0.157": Modify cutter body
- ▲ High Speed Cutter (HSC)

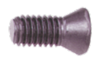
κ = 90°





Designation	DC inch	ZNF	APMX inch	DCONMS H6 inch	DHUB inch	OAL inch	RPMX 1/min.	torque moment Nm	Insert	58 716 ...
AHSC.200.R.03-19-A075-175-EF	2.000	3	0.709	0.750	1.750	1.750	21600	5	XDHT 1904..	20003
AHSC.250.R.03-19-A100-200-EF	2.500	3	0.709	1.000	2.250	2.250	18800	5	XDHT 1904..	25003
AHSC.250.R.04-19-A100-200-EF	2.500	4	0.709	1.000	2.250	2.250	18800	5	XDHT 1904..	25004
AHSC.300.R.03-19-A100-200-EF	3.000	3	0.709	1.000	2.250	2.250	16400	5	XDHT 1904..	30003
AHSC.300.R.04-19-A100-200-EF	3.000	4	0.709	1.000	2.250	2.250	16400	5	XDHT 1904..	30004
AHSC.400.R.04-19-B125-200-EF	4.000	4	0.709	1.250	2.750	2.750	14500	5	XDHT 1904..	40004
AHSC.500.R.05-19-B150-200-EF	5.000	5	0.709	1.500	3.750	3.750	12800	5	XDHT 1904..	50005
AHSC.600.R.05-19-B150-200-EF	6.000	5	0.709	1.500	3.750	3.750	11500	5	XDHT 1904..	60005

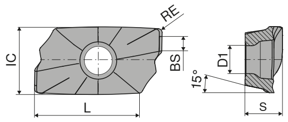




Spare parts for Article no.	Screwdriver 80 950 ...	Molykote 70 950 ...	Clamping screw 70 950 ...
58 679 10002 / 58 679 10102	105	303	172
58 679 12502	039	303	128
58 679 12602 / 58 679 15003	105	303	173
58 679 15103	105	303	173
58 716 40004 / 58 716 50005	105	303	174
58 716 60005 / 58 716 20003	105	303	174
58 716 25003 / 58 716 25004	105	303	174
58 716 30004 / 58 716 30003	105	303	174

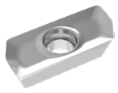
XDHT

Designation	IC inch	D1 inch	L inch	BS inch	S inch
XDHT 190402..	0.375	0.183	0.748	0.079	0.187
XDHT 190404..	0.375	0.183	0.748	0.079	0.187
XDHT 190408..	0.375	0.183	0.748	0.079	0.187
XDHT 190412..	0.375	0.183	0.748	0.079	0.187
XDHT 190416..	0.375	0.183	0.748	0.079	0.187
XDHT 190420..	0.375	0.183	0.748	0.079	0.187
XDHT 190425..	0.375	0.183	0.748	0.055	0.187
XDHT 190432..	0.375	0.183	0.748	0.039	0.187
XDHT 190440..	0.375	0.183	0.748	0.039	0.187
XDHT 190450..	0.375	0.183	0.748	-	0.187



XDKT

XDHT



XDHT

ISO	RE inch	**-27P** H216T XDHT **50 487 ...**
190402FR	0.008	**552**
190404FR	0.016	**554**
190408FR	0.031	**556**
190412FR	0.047	**557**
190416FR	0.063	**558**
190420FR	0.079	**560**
190425FR	0.098	**562**
190432FR	0.126	**564**
190440FR	0.157	**566**
190450FR	0.197	**568** [1]
P		
M		
K		○
N		●
S		
H		
O		○

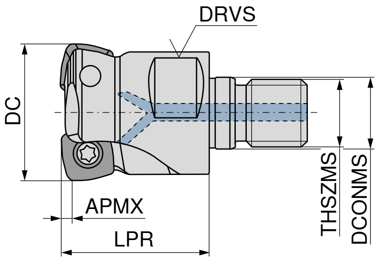
1) Insert radius > 0.157": Modify cutter body

Milling guide

Cutting data standard values	→ 97-100	Safety advice	→ 117
Machining strategy	→ 121-123	Technical Information	→ 132-136
Chip groove description and overview	→ 137-139	Grade description and overview	→ 140-142

MaxiMill – Screw in cutter G HFC

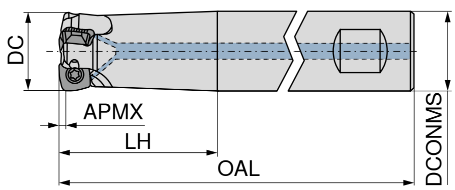
▲ High Feed Cutter (HFC)



Designation	DC inch	ZNF	APMX inch	LPR inch	DCONMS inch	THSZMS inch	RPMX 1/min.	torque moment Nm	Insert	**58 682 ...**
GHFC.0625.R.02-06-125-F	0.625	2	0.031	1.250	0.335	M8	17800	1,2	XPLX 0603..	**06202**
GHFC.0750.R.03-06-125-F	0.750	3	0.031	1.250	0.413	M10	21400	1,2	XPLX 0603..	**07503**
GHFC.100.R.04-06-150-F	1.000	4	0.031	1.500	0.492	M12	17000	1,2	XPLX 0603..	**10004**
GHFC.125.R.05-06-150-F	1.250	5	0.031	1.500	0.669	M16	20300	1,2	XPLX 0603..	**12505**

MaxiMill – End milling cutter C HFC

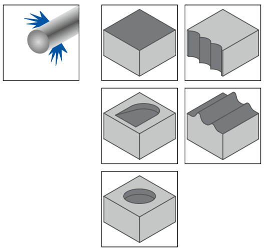
▲ High Feed Cutter (HFC)

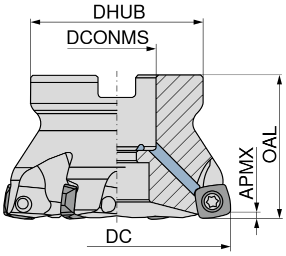


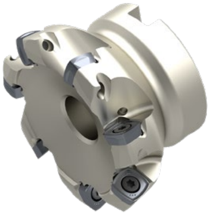
Designation	DC inch	ZNF	APMX inch	OAL inch	LH inch	DCONMS $_{h6}$ inch	RPMX 1/min.	torque moment Nm	Insert	A **58 681 ...**	B **58 681 ...**
CHFC.0625.R.02-06-B-150-EF	0.625	2	0.031	3.500	1.500	0.625	18100	1,2	XPLX 0603..		**26202**
CHFC.0625.R.02-06-A-150-EF-800	0.625	2	0.031	8.000	1.500	0.625	18100	1,2	XPLX 0603..	**06202**	
CHFC.0750.R.03-06-B-200-EF	0.750	3	0.031	4.200	2.000	0.750	14100	1,2	XPLX 0603..		**27503**
CHFC.0750.R.03-06-A-200-EF-900	0.750	3	0.031	9.000	2.000	0.750	14100	1,2	XPLX 0603..	**07503**	
CHFC.100.R.04-06-B-200-EF	1.000	4	0.031	4.400	2.000	1.000	15400	1,2	XPLX 0603..		**30004**
CHFC.100.R.04-06-A-200-EF-900	1.000	4	0.031	9.000	2.000	1.000	15400	1,2	XPLX 0603..	**10004**	
CHFC.125.R.05-06-B100-250-EF	1.250	5	0.031	4.900	2.500	1.000	10700	1,2	XPLX 0603..		**32505**
CHFC.125.R.05-06-A100-250-EF-900	1.250	5	0.031	9.000	2.500	1.000	10700	1,2	XPLX 0603..	**12505**	
CHFC.100.R.03-09-B-200-EF	1.000	3	0.039	4.300	2.000	1.000	15400	3,2	XDLX 09T3..		**60003**
CHFC.100.R.03-09-A-200-EF-800	1.000	3	0.039	8.000	2.000	1.000	9000	3,2	XDLX 09T3..	**50003**	
CHFC.125.R.04-09-B100-250-EF	1.250	4	0.039	4.800	2.500	1.000	10700	3,2	XDLX 09T3..		**62504**
CHFC.125.R.03-09-A-250-EF-1000	1.250	3	0.039	10.000	2.500	1.250	8100	3,2	XDLX 09T3..	**52503**	
CHFC.125.R.02-12-A-250-EF-1000	1.250	2	0.079	10.000	2.500	1.250	6480	5	XOLX 1204..	**82502**	
CHFC.150.R.03-12-A125-250-EF-1000	1.500	3	0.079	10.000	2.500	1.250	6100	5	XOLX 1204..	**85003**	

MaxiMill – Shell mill A HFC

▲ High Feed Cutter (HFC)







Designation	DC inch	ZNF	APMX inch	OAL inch	DCONMS H6 inch	DHUB inch	RPMX 1/min.	torque moment Nm	Insert	58 683 ...
AHFC.150.R.04-09-A050-175-EF	1.500	4	0.039	1.420	0.500	1.420	26400	3,2	XDLX 09T3..	15004
AHFC.200.R.05-09-A075-175-EF	2.000	5	0.039	1.750	0.750	1.750	23500	3,2	XDLX 09T3..	20005
AHFC.250.R.06-09-A075-200-EF	2.500	6	0.039	1.750	0.750	1.750	20500	3,2	XDLX 09T3..	25006
AHFC.200.R.04-12-A075-175-EF	2.000	4	0.079	1.750	0.750	1.750	18800	5	XOLX 1204..	20104
AHFC.250.R.05-12-A100-200-EF	2.500	5	0.079	2.250	1.000	2.250	16400	5	XOLX 1204..	25105
AHFC.300.R.07-12-A100-200-EF	3.000	7	0.079	2.250	1.000	2.250	14000	5	XOLX 1204..	30107
AHFC.400.R.08-12-A125-200-EF	4.000	8	0.079	2.750	1.250	2.750	12000	5	XOLX 1204..	40108
AHFC.500.R.10-12-B150-250-EF	5.000	10	0.079	3.750	1.500	3.750	9800	5	XOLX 1204..	50110
AHFC.300.R.06-19-A100-200-EF	3.000	6	0.130	2.250	1.000	2.250	4900	5	XOLX 1906..	30206
AHFC.400.R.08-19-A125-200-EF	4.000	8	0.130	2.750	1.250	2.750	4000	5	XOLX 1906..	40208
AHFC.500.R.10-19-B150-250-EF	5.000	10	0.130	3.750	1.500	3.750	3500	5	XOLX 1906..	50210


Screwdriver

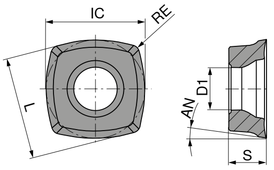

Molykote


Clamping screw

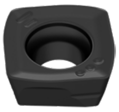
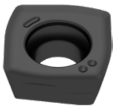
Spare parts for Article no.	Screwdriver 80 950 ...	Molykote 70 950 ...	Clamping screw 70 950 ...
58 681 06202 / 58 681 07503	102	303	116
58 681 10004 / 58 681 12505	102	303	116
58 681 82502 / 58 681 85003	106	303	01200
58 681 52503 / 58 681 62504	105	303	304
58 681 50003 / 58 681 60003	105	303	110
58 681 26202 / 58 681 27503	102	303	116
58 681 30004 / 58 681 32505	102	303	116
58 682 06202 / 58 682 07503	102	303	116
58 682 10004 / 58 682 12505	102	303	116
58 683 25006 / 58 683 15004	105	303	304
58 683 40108 / 58 683 50110	106	303	01200
58 683 50210 / 58 683 40208	106	303	302
58 683 30206	106	303	302
58 683 20005	105	303	304
58 683 20104 / 58 683 25105	106	303	01200
58 683 30107	106	303	01200

XPLX / XDLX / XOLX / XOHX

Designation	IC inch	D1 inch	L inch	BS inch	S inch	AN °
XPLX 0603..	0.250	0.110	0.236	0.039	0.108	11.000
XDLX 09T3..	0.375	0.173	0.354	0.075	0.156	15.000
XO.X 1204..	0.500	0.217	0.472	0.051	0.187	10.000
XOLX 1906..	0.754	0.236	0.748	-	0.250	10.000



XPLX

								NEW
		-M50 CTCP220	**-M50** CTPP225	**-M50** CTPP235	**-M50** CTPM225	**-M50** CTPM240	**-F40** CTPM245	**-F40** CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		XPLX	XPLX	XPLX	XPLX	XPLX	XPLX	XPLX
		51 019 ...	**51 019 ...**	**51 019 ...**	**51 019 ...**	**51 019 ...**	**51 116 ...**	**51 116 ...**
ISO	RE inch							
060305ER	0.020						**455**	**90501**
060305SR	0.020	**255**	**055**	**105**	**205**	**405**		
P		●	●	●	●	○	●	●
M				○	●	●	●	●
K				○				
N								
S								○
H								
O								

XPLX

		-M50 CTCK215	**-F40** CTC5240	**-F40** CTCS245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
		XPLX	XPLX	XPLX
		51 019 ...	**50 518 ...**	**51 116 ...**
ISO	RE inch			
060305ER	0.020		**558**	**55500**
060305SR	0.020	**505**		
P				
M				
K		●		
N				
S			●	●
H				
O				

XDLX

ISO	RE inch	-M50 CTCP220 DRAGONSKIN  XDLX 51 016 ...	-M50 CTPP225 DRAGONSKIN  XDLX 51 016 ...	-M50 CTCP230 DRAGONSKIN  XDLX 51 016 ...	-M50 CTPP235 DRAGONSKIN  XDLX 51 016 ...
09T308SR	0.031	**258**	**058**	**008**	**108**
P		●	●	●	●
M					○
K				○	○
N					
S					
H					
O					

XDLX

ISO	RE inch	-M50 CTPM225 DRAGONSKIN  XDLX 51 016 ...	-M50 CTCM235 DRAGONSKIN  XDLX 51 016 ...	-M50 CTPM240 DRAGONSKIN  XDLX 51 016 ...	-F40 CTPM245 DRAGONSKIN  XDLX 51 115 ...	-M50 CTPM245 DRAGONSKIN  XDLX 51 016 ...	NEW -M50 CTCM245 DRAGONSKIN  XDLX 51 016 ...
09T308ER	0.031				**458**		
09T308SR	0.031	**208**	**308**	**408**		**458**	**90801**
P		●	●	○	●	●	●
M		●	●	●	●	●	●
K							
N							
S							○
H							
O							

XDLX / XOLX

ISO	RE inch	-M50 CTCK215 DRAGONSKIN  XDLX 51 016 ...	NEW -M50 CTPK220 DRAGONSKIN  XOLX 51 017 ...	-F40 CTC5240 DRAGONSKIN  XDLX 50 503 ...	-F40 CTCS245 DRAGONSKIN  XDLX 51 115 ...
09T308ER	0.031			**558**	**558**
09T308SR	0.031	**508**			
190615SR	0.059		**61500**		
P					
M					
K		●	●		
N					
S				●	●
H					
O					

XOLX

ISO	RE inch	-M50 CTCP220 DRAGONSKIN  XOLX 51 017 ...	-M50 CTPP225 DRAGONSKIN  XOLX 51 017 ...	-M50 CTCP230 DRAGONSKIN  XOLX 51 017 ...	-M50 CTPP235 DRAGONSKIN  XOLX 51 017 ...	-R50 CTPP235 DRAGONSKIN  XOLX 51 018 ...
120410SR	0.039	**260**	**060**	**010**	**110**	**110**
P		●	●	●	●	●
M					○	○
K				○	○	○
N						
S						
H						
O						

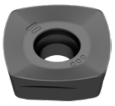
XOLX

							NEW	NEW
		-M50 CTPM225	**-M50** CTCM235	**-M50** CTPM240	**-F40** CTPM245	**-M50** CTPM245	**-F40** CTCM245	**-M50** CTCM245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
								
		XOLX	XOLX	XOLX	XOLX	XOLX	XOLX	XOLX
		51 017 ...	**51 017 ...**	**51 017 ...**	**51 022 ...**	**51 017 ...**	**51 022 ...**	**51 017 ...**
ISO	RE inch							
120410ER	0.039				**460**		**91001**	
120410SR	0.039	**210**	**310**	**410**		**460**		**91001**
P		●	●	○	●	●	●	●
M		●	●	●	●	●	●	●
K								
N								
S							○	○
H								
O								

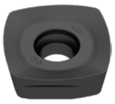
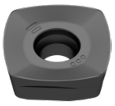
XOLX / XOHX

		-M50 CTCK215	**-F40** CTC5240	**-F50** CTC5240	**-F40** CTCS245	**-F50** CTCS245
		DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
						
		XOLX	XOLX	XOHX	XOLX	XOHX
		51 017 ...	**50 504 ...**	**51 124 ...**	**51 022 ...**	**51 124 ...**
ISO	RE inch					
120410ER	0.039		**558**		**560**	
120410SR	0.039	**510**		**16000**		**56000**
P						
M						
K		●				
N						
S			●	●	●	●
H						
O						

XOLX

ISO	RE inch	-M50 CTCP230 DRAGONSKIN  XOLX 51 017 ...	-M50 CTPP235 DRAGONSKIN  XOLX 51 017 ...	-M50 CTPM240 DRAGONSKIN  XOLX 51 017 ...	-F40 CTPM245 DRAGONSKIN  XOLX 51 022 ...
190615ER	0.059				**465**
190615SR	0.059	**015**	**115**	**415**	
P		●	●	○	●
M			○	●	●
K		○	○		
N					
S					
H					
O					

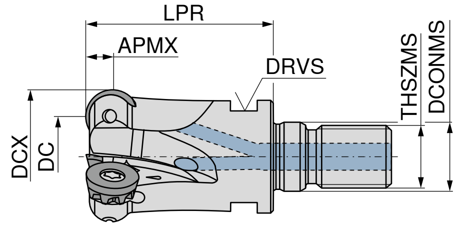
XOLX

ISO	RE inch	NEW -F40 CTCM245 DRAGONSKIN  XOLX 51 022 ...	-M50 CTCK215 DRAGONSKIN  XOLX 51 017 ...	NEW -M50 CTPK220 DRAGONSKIN  XOLX 51 017 ...	-F40 CTC5240 DRAGONSKIN  XOLX 50 504 ...	-F40 CTCS245 DRAGONSKIN  XOLX 51 022 ...
190615ER	0.059	**91501**			**515**	**56500**
190615SR	0.059		**515**	**61500**		
P		●				
M		●				
K			●	●		
N						
S		○			●	●
H						
O						

Milling guide

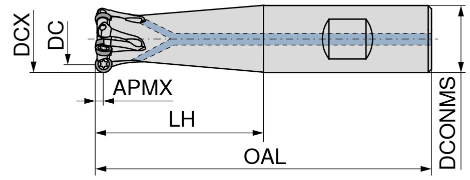
Cutting data standard values	→ 97–100	Machining strategy	→ 125–128
Starting Parameter	→ 125–128	Technical Information	→ 132–136
Chip groove description and overview	→ 137–139	Grade description and overview	→ 140–142

MaxiMill – Screw in cutter G 251 RS



Designation	DC inch	DCX inch	ZNF	APMX inch	DCONMS inch	LPR inch	THSZMS inch	RPMX 1/min.	torque moment Nm	Insert	58 684 ...
G251.100.R.03-10-125-RS-F	0.606	1.000	3	0.197	0.492	1.250	M12	25450	2	RP.X 10T3..	**10103**
G251.125.R.04-10-125-RS-F	0.856	1.250	4	0.196	0.669	1.500	M16	25450	2	RP.X 10T3..	**12604**
G251.150.R.05-10-175-RS-F	1.106	1.500	5	0.197	0.669	1.750	M16	15150	2	RP.X 10T3..	**15105**
G251.125.R.03-12-125-RS-F	0.777	1.250	3	0.236	0.492	1.575	M12	25450	3,2	RP.X 1204..	**22503**

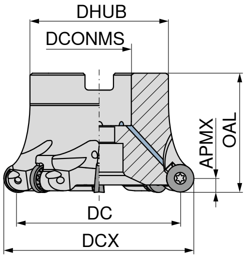
MaxiMill – End milling cutter C 251 RS

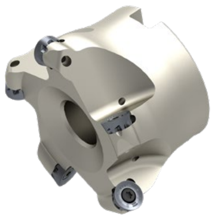


Designation	DC inch	DCX inch	ZNF	APMX inch	OAL inch	LH inch	DCONMS inch	RPMX 1/min.	Insert	A 58 685 ...	B 58 685 ...
C251.0750.R.03-08-B-125-RS-EF	0.435	0.750	3	0.157	3.500	1.250	0.750	31800	RDHX 0802..		**27503**
C251.0750.R.03-08-A-200-RS-EF-800	0.435	0.750	3	0.157	8.000	2.000	0.750	22260	RDHX 0802..	**07503**	
C251.100.R.04-08-B-225-RS-EF	0.685	1.000	4	0.157	4.500	2.250	1.000	25450	RDHX 0802..		**30004**
C251.100.R.04-08-A-300-RS-EF-800	0.685	1.000	4	0.157	8.000	3.000	1.000	18000	RDHX 0802..	**10004**	
C251.125.R.05-08-B-275-RS-EF	0.935	1.250	5	0.157	5.250	2.750	1.250	19850	RDHX 0802..		**32505**
C251.125.R.05-08-A-325-RS-EF-1000	0.935	1.250	5	0.157	10.000	3.250	1.250	18000	RDHX 0802..	**12505**	
C251.100.R.03-10-B-225-RS-EF	0.606	1.000	3	0.197	4.500	2.250	1.000	25450	RP.X 10T3..		**50003**
C251.100.R.03-10-A-300-RS-EF-800	0.606	1.000	3	0.197	8.000	3.000	1.000	20000	RP.X 10T3..	**40003**	
C251.125.R.04-10-B-275-RS-EF	0.857	1.250	4	0.197	5.250	2.750	1.250	19850	RP.X 10T3..		**52504**
C251.125.R.04-10-A-325-RS-EF-1000	0.857	1.250	4	0.197	10.000	3.250	1.250	18000	RP.X 10T3..	**42504**	
C251.150.R.05-10-B125-325-RS-EF	1.106	1.500	5	0.197	6.000	3.250	1.250	15100	RP.X 10T3..		**55005**
C251.150.R.05-10-A125-375-RS-EF-1000	1.106	1.500	5	0.197	10.000	3.750	1.250	10700	RP.X 10T3..	**45005**	
C251.125.R.02-12-A-325-RS-EF-1000	0.778	1.250	2	0.236	10.000	3.250	1.250	8500	RP.X 1204..	**62502**	
C251.150.R.03-12-A125-375-RS-EF-1000	1.028	1.500	3	0.236	10.000	3.750	1.250	12500	RP.X 1204..	**65003**	
C251.150.R.02-16-A125-375-RS-EF-1000	0.870	1.500	2	0.315	10.000	3.750	1.250	10500	RP.X 1605..	**75002**	

Spare parts **Insert**	Screwdriver 80 950 ...	Molykote 70 950 ...	Clamping screw 70 950 ...
RDHX 0802..	**102**	**303**	**116**
RP.X 10T3..	**104**	**303**	**840**
RP.X 10T3..		**303**	
RP.X 1204..	**105**	**303**	**304**
RP.X 1605..	**106**	**303**	**01200**

MaxiMill – Shell mill A 251 RS



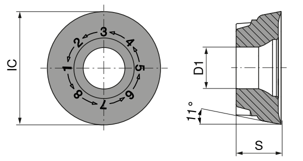


Designation	DC inch	DCX inch	ZNF	APMX inch	OAL inch	DHUB inch	DCONMS $_{H6}$ inch	RPMX 1/min.	torque moment Nm	Insert	58 686 ...
A251.150.R.06-08-A050-175-RS-EF	1.185	1.500	6	0.157	1.420	1.420	0.500	15150	1,2	RDHX 0802..	**15006**
A251.300.R.12-08-A100-200-RS-IN-EF	2.685	3.000	12	0.157	2.250	2.250	1.000	7950	1,2	RDHX 0802..	**30012**
A251.150.R.05-10-A050-175-RS-EF	1.106	1.500	5	0.197	1.420	1.420	0.500	15900	2	RP.X 10T3..	**15105**
A251.200.R.06-10-A075-175-RS-EF	1.606	2.000	6	0.197	1.750	1.750	0.750	12700	2	RP.X 10T3..	**20106**
A251.200.R.05-12-A075-175-RS-EF	1.528	2.000	5	0.236	1.750	1.750	0.750	12700	3,2	RP.X 1204..	**20205**
A251.200.R.06-12-A075-175-RS-EF	1.528	2.000	6	0.236	1.750	1.750	0.750	12700	3,2	RP.X 1204..	**20206**
A251.250.R.06-12-A100-200-RS-EF	2.028	2.500	6	0.236	2.250	2.250	1.000	10100	3,2	RP.X 1204..	**25206**
A251.300.R.07-12-RS-A100-200-EF	2.528	3.000	7	0.236	2.250	2.250	1.000	7950	3,2	RP.X 1204..	**30207**
A251.400.R.10-12-B125-200-RS-EF	3.528	4.000	10	0.236	2.750	2.750	1.250	6350	3,2	RP.X 1204..	**40210**
A251.600.R.12-12-B150-200-RS-EF	5.528	6.000	12	0.236	3.750	3.750	1.500	8300	3,2	RP.X 1204..	**60212**
A251.200.R.03-16-A075-175-RS-EF	1.370	2.000	3	0.315	1.750	1.750	0.750	12700	5	RP.X 1605..	**20303**
A251.250.R.05-16-A100-200-RS-EF	1.870	2.500	5	0.315	2.250	2.250	1.000	10100	5	RP.X 1605..	**25305**
A251.300.R.06-16-A100-200-RS-EF	2.370	3.000	6	0.315	2.250	2.250	1.000	7950	5	RP.X 1605..	**30306**
A251.400.R.07-16-B125-200-RS-EF	3.370	4.000	7	0.315	2.750	2.750	1.250	6350	5	RP.X 1605..	**40307**
A251.500.R.08-16-B150-200-RS-EF	4.370	5.000	8	0.315	3.750	3.750	1.500	5400	5	RP.X 1605..	**50308**
A251.600.R.10-16-B150-200-RS-EF	5.370	6.000	10	0.315	3.750	3.750	1.500	7200	5	RP.X 1605..	**60310**
A251.300.R.05-20-A100-200-RS-EF	2.213	3.000	5	0.394	2.250	2.250	1.000	8600	5	RP.X 2006..	**30405**
A251.400.R.06-20-A125-200-RS-EF	3.213	4.000	6	0.394	2.750	2.750	1.250	6350	5	RP.X 2006..	**40406**
A251.500.R.07-20-B150-200-RS-EF	4.213	5.000	7	0.394	3.750	3.750	1.500	5400	5	RP.X 2006..	**50407**
A251.600.R.08-20-B150-200-RS-EF	5.213	6.000	8	0.394	3.750	3.750	1.500	6500	1,2	RP.X 2006..	**60408**

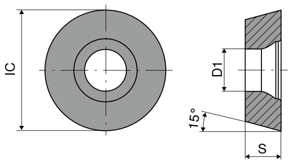
Spare Parts **Insert**	 Screwdriver **80 950 ...**	 Molykote **70 950 ...**	 Clamping screw **70 950 ...**
RDHX 0802..	**102**	**303**	**116**
RP.X 10T3..	**104**	**303**	**840**
RP.X 1204..	**105**	**303**	**304**
RP.X 1605..	**106**	**303**	**01200**
RP.X 2006..	**106**	**303**	**302**

RDHX / RPHX / RPNX

Designation	IC inch	D1 inch	S inch
RDHX 0501..	0.197	0.098	0.063
RDHX 0802..	0.315	0.110	0.094
RP.X 10T3..	0.394	0.134	0.156
RP.X 1204..	0.472	0.173	0.187
RP.X 1605..	0.630	0.217	0.219
RP.X 2006..	0.787	0.236	0.250



RP.X 10T3.. / RP.X 1204.. / RP.X 1605.. / RPNX 2006..

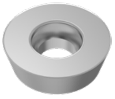


RDHX 0501.. / RDHX0802..

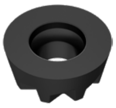
RDHX

	-SN CTCP230	-SN CTPP235	-F50 CTPM240	-F50 CTPM245	NEW -F50 CTCM245
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
	RDHX	RDHX	RDHX	RDHX	RDHX
	51 048 ...	51 048 ...	51 083 ...	51 083 ...	51 083 ...
ISO					
0501M0SN	**020**	**120**		**465**	
0802M0SN	**025**	**125**	**420**	**470**	**92001**
0802M4SN				**471**	**92101**
P	●	●	○	●	●
M		○	●	●	●
K	○	○			
N					
S					○
H					
O					

RDHX

	-EN CTCK215	-FN H216T	-M31 CTC5240	-F50 CTCS245
	DRAGONSKIN		DRAGONSKIN	DRAGONSKIN
				
	RDHX	RDHX	RDHX	RDHX
	51 048 ...	50 481 ...	50 481 ...	51 083 ...
ISO				
0501M0FN		**600**		
0802M0EN			**500**	
0802M0FN		**602**		
0802M0SN				**570**
0802M4EN	**520**		**50100**	
P				
M				
K	●	○		
N		●		
S			●	●
H				
O		○		

RPHX / RPNX

ISO	-SN TCM10  CERMET RPHX 50 483 ...	-F50 CTCP230 DRAGONSKIN  RPNX 51 055 ...	-M50 CTCP230 DRAGONSKIN  RPNX 51 054 ...	-SN CTCP230 DRAGONSKIN  RPHX 51 052 ...	-SN CTCP230 DRAGONSKIN  RPNX 51 057 ...
10T3M0SN	900				
10T3M8SN		020	020	020	
1204M0SN	902				
1204M8SN		025	025	025	025
1605M8SN			030	030	030
2006M8SN					035
P	●	●	●	●	●
M					
K	○	○	○	○	○
N					
S					
H					
O					

RPHX / RPNX

ISO	-F50 CTPP235 DRAGONSKIN  RPHX 51 051 ...	-F50 CTPP235 DRAGONSKIN  RPNX 51 055 ...	-M30 CTPP235 DRAGONSKIN  RPHX 51 049 ...	-M30 CTPP235 DRAGONSKIN  RPNX 51 053 ...
10T3M8EN			120	
10T3M8SN	12000	120		
1204M8SN	125	125		
1605M0SN		130		
2006M8EN				120
P	●	●	●	●
M	○	○	○	○
K	○	○	○	○
N				
S				
H				
O				

RPNX / RPHX

	-M50 CTPP235	**-M50** CTPP235	**-SN** CTPP235	**-SN** CTPP235
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
				
	RPNX	RPHX	RPHX	RPNX
ISO	**51 054 ...**	**51 050 ...**	**51 052 ...**	**51 057 ...**
10T3M8SN	**12000**	**12000**	**120**	
1204M8SN	**125**		**125**	**125**
1605M8SN	**130**		**130**	**130**
2006M8SN				**135**
P	●	●	●	●
M	○	○	○	○
K	○	○	○	○
N				
S				
H				
O				

RPHX

	-F50 CTPM225	**-M30** CTPM225	**-SN** CTPM225	**-F50** CTCM235	**-M30** CTCM235
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN
					
	RPHX	RPHX	RPHX	RPHX	RPHX
ISO	**51 051 ...**	**51 049 ...**	**51 052 ...**	**51 051 ...**	**51 049 ...**
1204M8EN		**225**			**325**
1204M8SN	**225**		**225**	**325**	
P	●	●	●	●	●
M	●	●	●	●	●
K					
N					
S					
H					
O					

RPHX / RPNX

ISO	-F50 CTPM240 DRAGONSKIN  RPHX 51 051 ...	-F50 CTPM240 DRAGONSKIN  RPNX 51 055 ...	-M30 CTPM240 DRAGONSKIN  RPHX 51 049 ...	-M30 CTPM240 DRAGONSKIN  RPNX 51 053 ...	-M50 CTPM240 DRAGONSKIN  RPHX 51 050 ...
10T3M8EN			420		
10T3M8SN	420				420
1204M8EN			425		
1204M8SN	425				425
1605M8EN			430		
1605M8SN	430				
2006M8EN				420	
2006M8SN		435			
P	○	○	○	○	○
M	●	●	●	●	●
K					
N					
S					
H					
O					

RPHX / RPNX

ISO	CTPM245 DRAGONSKIN  RPHX 51 052 ...	-F50 CTPM245 DRAGONSKIN  RPHX 51 051 ...	-F50 CTPM245 DRAGONSKIN  RPNX 51 055 ...	-M32 CTPM245 DRAGONSKIN  RPHX 51 108 ...	-M50 CTPM245 DRAGONSKIN  RPHX 51 050 ...
10T3M4SN		470 1)	470 1)		470 1)
10T3M8SN		471	471		471
1204M4EN	475 1)			475 1)	
1204M4SN		475 1)	475 1)		475 1)
1204M6SN		476			476
1204M8SN		477	476		477
1605M8SN		480			
2006M4SN		485 1)			
2006M8SN			485		
P	●	●	●	●	●
M	●	●	●	●	●
K					
N					
S					
H					
O					

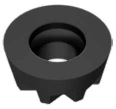
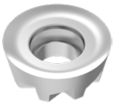
1) Insert with 4 indexes

RPNX / RPHX

ISO	NEW -F50 CTCM245 DRAGONSKIN  RPNX 51 055 ...	NEW -M50 CTCM245 DRAGONSKIN  RPNX 51 054 ...	NEW -F50 CTCM245 DRAGONSKIN  RPHX 51 051 ...	NEW -M50 CTCM245 DRAGONSKIN  RPHX 51 050 ...
10T3M4SN	92001 1)		92001 1)	92001 1)
10T3M8SN	92101		92101	
1204M4SN	92501 1)		92501 1)	92501 1)
1204M6SN		92601	92601	92601
1204M8SN	92601			92701
1605M8SN	93001		93001	
2006M8SN	93501	93501		
P	●	●	●	●
M	●	●	●	●
K				
N				
S	○	○	○	○
H				
O				

1) Insert with 4 indexes

RPNX / RPHX

ISO	-R30 CTCK215 DRAGONSKIN  RPNX 51 056 ...	-SN CTCK215 DRAGONSKIN  RPHX 51 052 ...	-SN CTCK215 DRAGONSKIN  RPNX 51 057 ...	-SN CTPK220 DRAGONSKIN  RPNX 51 057 ...	-27P H216T  RPHX 50 483 ...
10T3M8EN	520				
10T3M8FN					600
10T3M8SN		520		620	
1204M8EN	525				
1204M8FN					602
1204M8SN		525	525	625	
1605M8FN					604
1605M8SN		530	530	630	
2006M8SN			535	635	
P					
M					
K	●	●	●	●	○
N					●
S					
H					
O					○

RPNX / RPHX

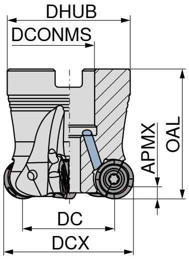
	NEW				
	-M31	**-M31**	**-F50**	**-F50**	**-R60**
	CTC5240	CTC5240	CTCS245	CTCS245	CTP6215
	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	
					
	RPNX	RPHX	RPHX	RPNX	RPNX
ISO	**51 149 ...**	**50 493 ...**	**51 051 ...**	**51 055 ...**	**50 508 ...**
10T3M4EN		550 1)			
10T3M4SN			570 1)		
10T3M8EN		551			
10T3M8SN			571		
1204M4EN		552 1)			
1204M4SN			575		
1204M6EN		56200	57800		
1204M8EN		582			300
1204M8SN			577		
1605M8EN		555	58100		
2006M8EN	12001				
2006M8SN				585	
P					
M					
K					●
N					
S	●	●	●	●	
H					●
O					

1) Insert with 4 indexes

Milling guide

Cutting data standard values	→ 97–100	Machining strategy	→ 129
Technical Information	→ 132–136	Chip groove description and overview	→ 137–139
Grade description and overview	→ 140–142		

MaxiMill – Shell mill A 252



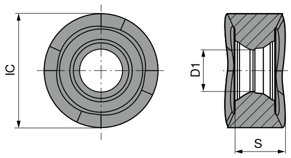
Designation	DC inch	DCX inch	ZNF	APMX inch	OAL inch	DHUB inch	DCONMS inch	torque moment Nm	Insert	58 689 ...
A252.150.R.04-12-A050-175-EF	1.027	1.500	4	0.118	1.500	1.500	0.500	3,2	RNHU 1205..	**15004**
A252.200.R.05-12-A075-175-EF	1.527	2.000	5	0.118	1.750	1.750	0.750	3,2	RNHU 1205..	**20005**
A252.250.R.06-12-A100-200-EF	2.027	2.500	6	0.118	2.250	2.250	1.000	3,2	RNHU 1205..	**25006**
A252.300.R.07-12-A100-200-EF	2.527	3.000	7	0.118	2.250	2.250	1.000	3,2	RNHU 1205..	**30007**

Spare Parts **DC**	 Screwdriver 80 950 ...	 Molykote 70 950 ...	 Clamping screw 70 950 ...
1.027 - 2.527	**128**	**303**	**859**

7

RNHU

Designation	IC inch	D1 inch	S inch
RNHU 1004..	0.394	0.134	0.181
RNHU 1205..	0.472	0.173	0.209



RNHU

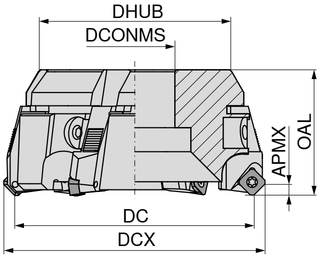
	-M50 CTPP235 DRAGONSKIN  RNHU **51 130 ...**	**-F50** CTPM240 DRAGONSKIN  RNHU **51 129 ...**	**-M31** CTPM245 DRAGONSKIN  RNHU **51 106 ...**	**-M32** CTPM245 DRAGONSKIN  RNHU **51 107 ...**	**-M31** CTC5240 DRAGONSKIN  RNHU **50 520 ...**	**-M31** CTC5240 DRAGONSKIN  RNHU **50 521 ...**
ISO						
1004M4ER	**12000**	**42000**	**470**	**470**	**550**	
1205M4ER		**42500**	**475**	**475**		**552**
1205M4SR	**12500**					
P	●	○	●	●		
M	○	●	●	●		
K	○					
N						
S					●	●
H						
O						

Milling guide

Cutting data standard values	→ 97–100	Machining strategy	→ 130
Technical Information	→ 132+136	Chip groove description and overview	→ 137–139
Grade description and overview	→ 140–142		

MaxiMill – Combi Mill Base Holder 260

▲ Basic body with clamping wedges, without cartridges



DC inch	ZNF	DCONMS inch	DHUB inch	OAL inch	58 715 ...
3.000	5	1.000	2.449	2.449	**30005**
4.000	6	1.250	3.386	3.386	**40006**
5.000	7	1.500	3.780	3.780	**50007**
6.000	10	1.500	4.882	4.882	**60010**
8.000	12	2.500	6.772	6.772	**80012**
10.000	14	2.500	8.898	8.898	**10014**

For information on axial runout setting, see → **page 131**





Spare parts **DC**	Clamping wedge screw 70 950 ...	Clamping Wedge 70 950 ...	Key-T 70 950 ...	Molykote 70 950 ...	Eccentric Key 70 950 ...
3.000 - 10.000	**297**	**296**	**317**	**303**	**298**

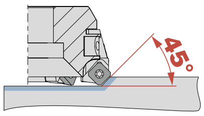
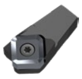
Insert related diameter

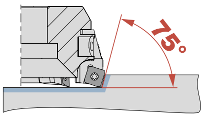
	Nominal Ø in inches															
	3,00		**4,00**		**5,00**		**6,00**		**8,00**		**10,00**		**12,00**		**16,00**	
Inserts	**DC inch**	**DCX inch**	**DC inch**	**DCX inch**	**DC inch**	**DCX inch**	**DC inch**	**DCX inch**	**DC inch**	**DCX inch**	**DC inch**	**DCX inch**	**DC inch**	**DCX inch**	**DC inch**	**DCX inch**
SD.. 0903..	3,15	3,48	3,94	4,27	4,84	5,17	6,22	6,55	7,80	8,13	9,76	10,09	12,32	12,65	15,67	16,00
SD.. 1204..	3,15	3,72	3,94	4,51	4,84	5,41	6,22	6,79	7,80	8,37	9,76	10,33	12,32	12,89	15,67	16,24
SE.. 1204..	3,15	3,66	3,94	4,45	4,84	5,35	6,22	6,73	7,80	8,31	9,76	10,28	12,32	12,83	15,67	16,18
SD.. 1504..	2,95	3,70	3,74	4,49	4,65	5,39	6,02	6,77	7,60	8,35	9,57	10,31	12,13	12,87	15,47	16,22
SP.. 1204..	3,23	3,46	4,02	4,25	4,92	5,16	6,30	6,54	7,87	8,11	9,84	10,08	12,40	12,64	15,75	15,98
OA.. 0605..	3,15	3,37	3,94	4,16	4,84	5,06	6,22	6,44	7,80	8,02	9,76	9,98	12,32	12,54	15,67	15,89
RP.X 1204..	3,15	3,62	3,94	4,41	4,84	5,31	6,22	6,69	7,80	8,27	9,76	10,24	12,32	12,80	15,67	16,14
RP.X 16..	2,99	3,62	3,78	4,41	4,69	5,31	6,06	6,69	7,64	8,27	9,61	10,24	12,17	12,80	15,51	16,14
SD.. 1205..	3,50		4,29		5,20		6,57		8,15		10,12		12,68		16,02	
SD.. 09T3	3,50		4,29		5,20		6,57		8,15		10,12		12,68		16,02	
LD..1504..	3,50		4,29		5,20		6,57		8,15		10,12		12,68		16,02	
XD.T 11T3	3,50		4,29		5,20		6,57		8,15		10,12		12,68		16,02	
XDKT 1505	3,50		4,29		5,20		6,57		8,15		10,12		12,68		16,02	
AP.. 1003..	3,50		4,29		5,20		6,57		8,15		10,12		12,68		16,02	
TPKW 2204..	3,50		4,29		5,20		6,57		8,15		10,12		12,68		16,02	

MaxiMill 260/combi cutter system

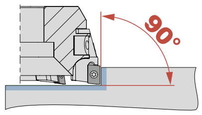
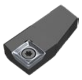
Cassette for inserts

Face milling

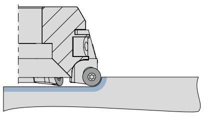
		 SD.. 0903..	 SD.. 1204.. XD.. 1204..	 SE.. 1204..	 SD.. 1504..	 SA.. 1706..		 OA.. 0605..
Cartridge no.		041	031	029	032	058		057
Article no. 70 950 ...		329	411	306	412	30800		338

		 SP.. 1204..
Cartridge no.		018
Article no. 70 950 ...		310

Shoulder milling

		 AP.. 1003..	 LD.. 1504..	 XD.T 11T3..	 XDKT 1505..		 SD.. 1205..	 SD.. 09T3..		 TPKW 2204..
Cartridge no.		042	051	054	056		039	055		025
Article no. 70 950 ...		307	300	336	339		311	337		313

Face/Copy milling

		 RP.X 1204..	 RP.X 16....
Cartridge no.		052	053
Article no. 70 950 ...		333	707

Insert	APMX inch	Cassette 70 950 ...
AP.. 1003..	0.315	307
LD.. 1504..	0.551	300
OA.. 0605..	0.138	338
RP.X 1204..	0.236	333
RP.X 16..	0.315	707
SAKU 1706	0.331	30800
SD.. 0903..	0.157	329
SD.. 09T3..	0.315	337
SD.. 1204..	0.236	411
SD.. 1205..	0.236	311
SD.. 1504..	0.354	412
SE.. 1204..	0.236	306
SP.. 1204..	0.354	310
TPKW 2204..	0.709	313
XD.T 11T3	0.394	336
XDKT 1505..	0.551	339

Spare parts **Insert**	 TORX® blade 80 950 ...	 Screwdriver 80 950 ...	 Molykote 70 950 ...	 Clamping screw 70 950 ...	 Torque screwdriver 80 950 ...
AP.. 1003..	033	110	303	112	191
OA.. 0605..	037	114	303	302	193
RP.X 1204.. / LD.. 1504..	036	113	303	304	192
SD.. 0903..	033	110	303	115	191
SD.. 09T3..	036	113	303	110	192
SD.. 1204.. / SE.. 1204.. / SP.. 1204.. / SD.. 1205.. / SD.. 1504.. / RP.X 16.. / TPKW 2204..	037	114	303	280	193
XD.T.. 11T3..	043	125	303	131	191
XDKT 1505..	054	128	303	839	192

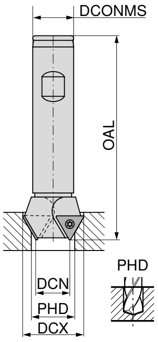
Insert countersink 90°

Supply details:

Indexable insert countersink including clamping screws

WPS

NEW



B

DCX inch	DCN inch	PHD inch	ZEFP	ZNF	DCONMS inch	OAL inch	Insert	58 196 ...
0.748	0.276	0.374	2	2	0.625	3.940	TOHX 090204	**19000**
0.906	0.433	0.472	2	2	0.625	3.940	TOHX 090204	**23000**
1.024	0.433	0.472	1	2	0.625	3.940	TOHX 090204	**26000**
1.181	0.472	0.472	2	2	0.750	3.940	TOHX 140305	**30000**
1.339	0.630	0.669	2	2	0.750	3.940	TOHX 140305	**34000**
1.457	0.748	0.787	2	2	0.750	3.940	TOHX 140305	**37000**

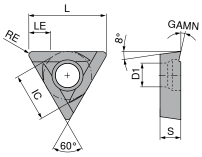
TORX® Screws

Screwdriver

Spare parts **DCX**	62 950 ...	80 950 ...
0.748 - 1.024	**09900**	**125**
1.181 - 1.457	**12600**	**127**

TOHX

Designation	L inch	S inch	D1 inch	IC inch
140305EN	0.536	0.118	0.150	0.323



TOHX

ISO	RE inch	NEW **-G06** BK8425 ○ ○ ○  **F** TOHX **62 602 ...**	NEW **-U877** BK8425 ○ ○ ○  **F** TOHX **62 604 ...**	NEW **-G12** BK8425 ○ ○ ○  **F** TOHX **62 603 ...**
090204EN	0.016		**31400**	**31400**
140305EN	0.020	**33000**		
P		●	●	●
M		●	●	●
K		●	●	●
N				
S		●	●	●
H		○	○	○
O				

TOHX

ISO	RE inch	NEW **-U877** K10 ○ ○ ○  **F** TOHX **62 604 ...**	NEW **-G12** K10 ○ ○ ○  **F** TOHX **62 603 ...**
090204EN	0.016	**51400**	
090204FN	0.016		**51600**
140305FN	0.020		**52800**
P			
M			
K			
N		●	●
S		●	●
H			
O		●	●

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength lbf/in^2* / HB / HRC	Material number	Material designation	Material number	Material designation
P	**Unalloyed steel**	**P.1.1**	< 0.15 % C	Annealed	60900 lbf/in^2 / 125 HB	1.0401	1015	1.0301	1010
		P.1.2	< 0.45 % C	Annealed	92800 lbf/in^2 / 190 HB	1.1191	1045	1.0737	12L14
		P.1.3		Tempered	121800 lbf/in^2 / 250 HB	1.1191	1045	1.0503	1043
		P.1.4	< 0.75 % C	Annealed	132000 lbf/in^2 / 270 HB	1.1223	1060	1.0535	1055
		P.1.5		Tempered	146500 lbf/in^2 / 300 HB	1.1223	1060	1.1274	1095
	Low-alloy steel	**P.2.1**		Annealed	88500 lbf/in^2 / 180 HB	1.7131	5115	1.6523	8620
		P.2.2		Tempered	134900 lbf/in^2 / 275 HB	1.7131	5115	1.6582	4340
		P.2.3		Tempered	146500 lbf/in^2 / 300 HB	1.7225	4142	1.7131	5115
		P.2.4		Tempered	174000 lbf/in^2 / 375 HB	1.7225	4142	17223	4140
	High-alloy steel and high-alloy tool steel	**P.3.1**		Annealed	98600 lbf/in^2 / 200 HB	1.4021	420	1.2379	D2
		P.3.2		Hardened and tempered	159500 lbf/in^2 / 300 HB	1.2343	H11	1.3343	M2
		P.3.3		Hardened and tempered	188500 lbf/in^2 / 400 HB	1.2343	H11	1.2363	A2
	Stainless steel	**P.4.1**	Ferritic / martensitic	Annealed	98600 lbf/in^2 / 200 HB	1.4016	430	1.4125	440C
		P.4.2	Martensitic	Tempered	117500 lbf/in^2 / 250 HB	1.4112	S44003	1.4021	420
M	**Stainless steel**	**M.1.1**	Austenitic / austenitic-ferritic	Quenched	88500 lbf/in^2 / 200 HB	1.4301	304	1.4401	316
		M.2.1	Austenitic	Tempered	300 HB	1.4841	314	1.4568	17-7 PH
		M.3.1	Austenitic / ferritic (Duplex)		113100 lbf/in^2 / 230 HB	1.4462	S32205	1.4410	S32750
K	**Grey cast iron**	**K.1.1**	Pearlitic / ferritic		88500 lbf/in^2 / 180 HB	0.6010	A48-20B	0.6025	A48-40 B
		K.1.2	Pearlitic (martensitic)		127600 lbf/in^2 / 260 HB	0.6030	A48-45B	0.6040	A48-60 B
	Spherulitic graphite cast iron	**K.2.1**	Ferritic		78300 lbf/in^2 / 160 HB	0.7040	60-40-18	0.7050	65-45-12
		K.2.2	Pearlitic		122600 lbf/in^2 / 250 HB	0.7070	100-70-03	0.7660	A439 Type D2
	Malleable iron	**K.3.1**	Ferritic		63800 lbf/in^2 / 130 HB	0.8035	GTW-35-04		
		K.3.2	Pearlitic		113100 lbf/in^2 / 230 HB	0.8170	70003		
N	**Aluminium wrought alloy**	**N.1.1**	Non-hardenable		60 HB	3.0255	A91060	3.0255	A91060
		N.1.2	Hardenable		49300 lbf/in^2 / 100 HB	3.1355	2024	3.1355	2024
	Cast aluminium alloy	**N.2.1**	≤ 12 % Si, non-hardenable		36300 lbf/in^2 / 75 HB	3.2581	A04130 / A413-0	3.2581	A04130 / A413-0
		N.2.2	≤ 12 % Si, hardenable		43500 lbf/in^2 / 90 HB	3.2134	G-AlSi5Cu1Mg		
		N.2.3	> 12 % Si, non-hardenable		63800 lbf/in^2 / 130 HB		G-AlSi17Cu4Mg		
	Copper and copper alloys (bronze/brass)	**N.3.1**	Free-machining alloys, PB > 1 %		54400 lbf/in^2 / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0380	C37700
		N.3.2	CuZn, CuSnZn		43500 lbf/in^2 / 90 HB	2.0331	CuZn15	2.0331	C34000
		N.3.3	CuSn, lead-free copper and electrolytic copper		49300 lbf/in^2 / 100 HB	2.0060	E-Cu57		
	Magnesium alloys	**N.4.1**	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn		
S	**Heat-resistant alloys**	**S.1.1**	Fe - basis	Annealed	98600 lbf/in^2 / 200 HB	1.4864	X12NiCrSi 36-16	1.4864	330
		S.1.2			137800 lbf/in^2 / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4980	S66286
		S.2.1	Ni or Co basis	Annealed	121800 lbf/in^2 / 250 HB	2.4856	Inconel 625	2.4812	Hastelloy C
		S.2.2			171100 lbf/in^2 / 350 HB	2.4952	Nimonic 80A	2.4668	Inconel 718
		S.2.3		Cast	156600 lbf/in^2 / 320 HB	2.4674	Nimocast PK24	2.4670	Nimocast 713
	Titanium alloys	**S.3.1**	Pure titanium		5800 lbf/in^2	3.7025	Ti99,8		
		S.3.2	Alpha + beta alloys		152300 lbf/in^2	3.7165	TiAl6V4		
		S.3.3	Beta alloys		203100 lbf/in^2 / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr		
H	**Hardened steel**	**H.1.1**		Hardened and tempered	46-55 HRC				
		H.1.2		Hardened and tempered	56-60 HRC				
		H.1.3		Hardened and tempered	61-65 HRC				
		H.1.4		Hardened and tempered	66-70 HRC				
	Chilled iron	**H.2.1**		Cast	400 HB				
	Hardened cast iron	**H.3.1**		Hardened and tempered	55 HRC				
O	**Non-metal materials**	**O.1.1**	Plastics, duroplastic		≤ 21800 lbf/in^2				
		O.1.2	Plastics, thermoplastic		≤ 14500 lbf/in^2				
		O.2.1	Aramid fibre-reinforced		≤ 145000 lbf/in^2				
		O.2.2	Glass/carbon-fibre reinforced		≤ 145000 lbf/in^2				
		O.3.1	Graphite						

*** Tensile Strength at Rupture (Rm)**

Cutting data standard values

Cutting Material **hard** (v_c↑) → **tough** (v_c↓)

	DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN				DRAGONSKIN			
	CERMET		CERMET													
	CTEP210		TCM10		CTCP220		CTPP225		CTCP230		CTPP231		CTPP235		CTPP236	
Index	🚱	🚰	🚱	🚰	🚱	🚰	🚱	🚰	🚱	🚰	🚱	🚰	🚱	🚰	🚱	🚰
P.1.1	1130		960		1120	560	870	520	940	500	660	330	810	450	990	590
P.1.2	1000		850		1020	510	770	470	800	440	560	300	690	400	890	530
P.1.3	870		740		920	460	680	430	670	390	460	260	570	350	740	430
P.1.4	820		710		890	450	650	410	620	370	560	300	530	330	890	530
P.1.5	760		650		840	420	610	390	560	350	530	300	470	310	790	460
P.2.1	1020		870		1030	520	790	480	820	450	560	300	700	410	890	530
P.2.2	810		700		880	440	650	410	610	370	430	230	520	330	660	400
P.2.3	760		650		840	420	610	390	560	350	560	300	470	310	890	530
P.2.4	600		520		730	360	500	340	390	280	400	200	320	250	590	360
P.3.1					460	230	430	210	460	290	560	300	400	320	890	530
P.3.2					310	170	330	170	300	180	460	260	360	270	590	460
P.3.3					170	100	230	120	130	70	400	230	320	230	500	400
P.4.1					460	230	430	210	460	290	460	260	400	320	590	460
P.4.2					390	200	380	190	380	230	430	230	380	300	560	430
M.1.1											560	300	400	320	890	530
M.2.1													360	270		
M.3.1													390	310		
K.1.1									1020	630	1190	300			500	360
K.1.2	990		790						530	330	1190	300			500	360
K.2.1	1160		920						660	400	760	560			500	360
K.2.2	990		790						430	260	530	360			500	360
K.3.1	990		790						630	380	690	530				
K.3.2									530	330	690	530				
N.1.1																
N.1.2																
N.2.1													500	360		
N.2.2													500	360		
N.2.3													500	360		
N.3.1													500	360		
N.3.2																
N.3.3																
N.4.1																
S.1.1																
S.1.2																
S.2.1																
S.2.2																
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H.1.4																
H.2.1																
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values

	Cutting Material **hard** (v_c↑) → **tough** (v_c↓)															
	DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN		DRAGONSKIN					
													CERAMIC		CBN	
	CTPM225		CTCM235		CTPM240		CTPM241		CTPM245		CTCM245		CTN3105		CTL3215	
Index	🚱	🚰	🚱	🚰	🚱	🚰	🚱	🚰	🚱	🚰	🚱	🚰	🚱	🚰	🚱	🚰
P.1.1	900	630	830	610	750	470	660	330	800	460	920	440				
P.1.2	760	540	690	500	620	420	560	300	680	410	800	390				
P.1.3	640	450	570	410	500	370	460	230	570	360	680	340				
P.1.4	600	430	530	370	460	350	560	300	530	340	650	330				
P.1.5	530	380	470	330	400	330	500	260	480	320	590	300				
P.2.1	780	550	710	520	640	420	560	300	700	420	820	400				
P.2.2	580	420	520	370	450	350	400	200	520	340	640	320				
P.2.3	530	380	470	330	400	330	560	300	480	320	590	300				
P.2.4	380	280	310	210	260	270	360	200	330	260	450	240				
P.3.1	490	400	450	380	410	350	690	330	510	350	580	400				
P.3.2	400	330	420	360	370	310	590	330	470	310	540	360				
P.3.3	310	270	400	350	320	280	530	300	430	260	500	310				
P.4.1	490	400	450	380	410	350	460	300	510	350	580	400				
P.4.2	440	370	440	370	390	330	430	260	490	330	560	380				
M.1.1	**490**	**400**	**450**	**380**	**410**	**350**	**690**	**330**	**510**	**350**	**580**	**400**				
M.2.1	**400**	**330**	**420**	**360**	**370**	**310**	**590**	**300**	**470**	**310**	**540**	**360**				
M.3.1	**460**	**380**	**440**	**380**	**400**	**340**	**690**	**330**	**500**	**340**	**570**	**390**				
K.1.1													**2640**		**2640**	
K.1.2													**1980**		**1980**	
K.2.1																
K.2.2															**1490**	
K.3.1																
K.3.2																
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
N.3.1																
N.3.2																
N.3.3																
N.4.1																
S.1.1								200				260				
S.1.2								200				230				
S.2.1								200				120				
S.2.2								200				80				
S.2.3								200				100				
S.3.1								200								
S.3.2								200								
S.3.3								200								
H.1.1																
H.1.2															500	
H.1.3																
H.1.4																
H.2.1															920	
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

Cutting data standard values

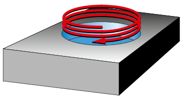
	Cutting Material **hard** (v_c↑) → **tough** (v_c↓)																	
	DRAGONSKIN		DRAGONSKIN										DRAGONSKIN					
	CTCK215		CTPK220		CTPK221		AMZ		H216T		CTWN215		CTC5240		CTCS245		CTP6215	
Index	🚱	🚰	🚱	🚰	🚱	🚰	🚱	🚰	🚱	🚰	🚱	🚰	🚱	🚰	🚱	🚰	🚱	🚰
P.1.1					630	400												
P.1.2					590	330												
P.1.3					500	260												
P.1.4					590	330												
P.1.5					560	300												
P.2.1					590	330												
P.2.2					460	260												
P.2.3					590	330												
P.2.4					430	260												
P.3.1					690	400												
P.3.2					530	300												
P.3.3					430	260												
P.4.1					690	400												
P.4.2					630	330												
M.1.1																		
M.2.1																		
M.3.1																		
K.1.1	**1190**	**690**	**1060**	**630**	**890**	**660**	660		430	430	430	430					920	830
K.1.2	**730**	**430**	**560**	**330**	**890**	**660**	530		360	360	360	360					630	530
K.2.1	**760**	**460**	**690**	**430**	**830**	**590**	610		430	430	430	430					590	500
K.2.2	**530**	**330**	**460**	**300**	**590**	**400**	500		400	400	400	400					590	500
K.3.1	**830**	**500**	**660**	**400**	**730**	**560**	660		430	430	430	430					830	730
K.3.2	**690**	**430**	**560**	**330**	**730**	**560**	580		360	360	360	400					630	530
N.1.1								**4950**		**4950**		**4950**						
N.1.2								**3300**		**3300**		**3300**						
N.2.1								**3960**		**3630**		**3630**						
N.2.2								**3960**		**3300**		**3300**						
N.2.3								**990**		**920**		**920**						
N.3.1								**1160**		**1160**		**1160**						
N.3.2								**1160**		**1160**		**1160**						
N.3.3								**1060**		**1060**		**1060**						
N.4.1								**1060**		**1060**		**1060**						
S.1.1														**260**		**210**		
S.1.2														**230**		**180**		
S.2.1														**120**		**90**		
S.2.2														**80**		**70**		
S.2.3														**100**		**80**		
S.3.1														**260**		**210**		
S.3.2														**170**		**130**		
S.3.3														**130**		**110**		
H.1.1																	**170**	
H.1.2																	**130**	
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1								530	530	530	530	530						
O.1.2																		
O.2.1								590	790	790	790	790						
O.2.2																		
O.3.1																		

The cutting data is strongly influenced by external conditions, such as the stability of the tool and workpiece clamping, material and type of machine.
The specified values represent guideline cutting data that can be adjusted by approx. **±20%** according to the usage conditions.

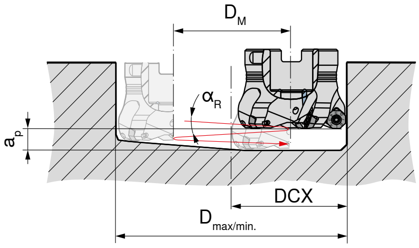
System MaxiMill 274-04/-09

Machining strategy

Helical plunge milling



$D_{max.}$ in inch = largest diameter for flat bottom hole
$D_{min.}$ in inch = smallest hole diameter for flat bottom surface
D_M = D_{max} – DCX and D_{min} – DCX



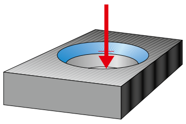
OF..04

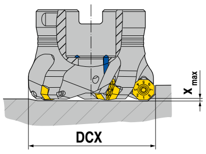
DCX inch	D_{max} inch	D_{min} inch	$\alpha_{R\,max}$ °
1.01	1.77	1.54	2.3
1.21	2.17	1.93	1.9
1.48	2.72	2.48	1.4
1.80	3.35	3.11	1.2
2.19	4.13	3.90	0.9
2.70	5.16	4.92	0.7
3.37	6.50	6.26	0.6
4.16	8.07	7.83	0.5
5.15	10.04	9.80	0.4

SF..09

DCX inch	D_{max} inch	D_{min} inch	$\alpha_{R\,max}$ °
1.08	1.77	1.65	1.9
1.28	2.17	2.05	1.5
1.54	2.72	2.60	1.1
1.87	3.35	3.23	0.9
2.27	4.13	4.02	0.7
2.78	5.16	5.04	0.5
3.44	6.50	6.38	0.4
4.23	8.07	7.95	0.3
5.22	10.04	9.92	0.3

Axial plunging





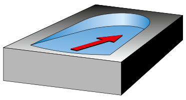
OF..04

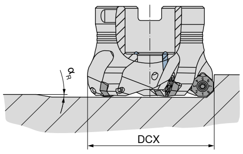
DCX inch	x_{max} inch
1.01	0.10
1.21	0.10
1.48	0.10
1.80	0.10
2.19	0.10
2.70	0.10
3.37	0.10
4.16	0.10
5.15	0.10

SF..09

DCX inch	x_{max} inch
1.08	0.15
1.28	0.14
1.54	0.13
1.87	0.12
2.27	0.12
2.78	0.12
3.44	0.11
4.23	0.11
5.22	0.11

Angled ramping





OF..04

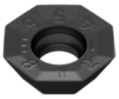
DCX inch	$\alpha_{R\,max}$ °
1.01	14.2
1.21	9.5
1.48	6.5
1.80	4.7
2.19	3.5
2.70	2.7
3.37	2.0
4.16	1.6
5.15	1.2

SF..09

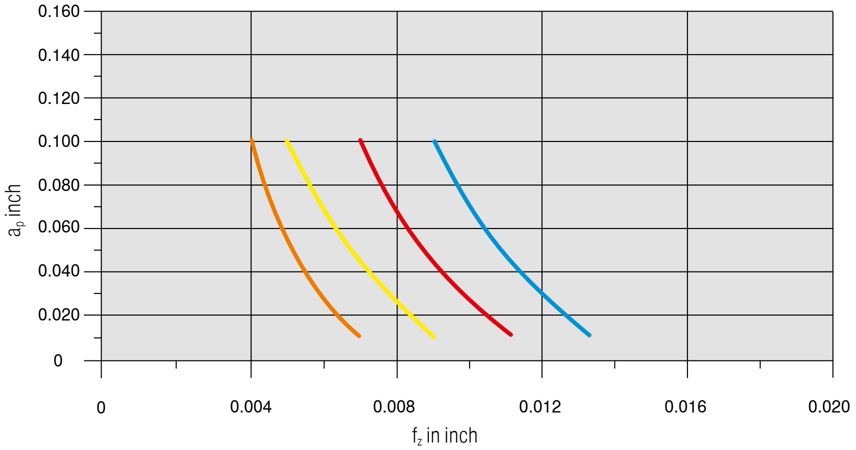
DCX inch	$\alpha_{R\,max}$ °
1.08	20.4
1.28	13.0
1.54	8.0
1.87	5.8
2.27	4.3
2.78	3.2
3.44	2.3
4.23	1.7
5.22	1.3

System MaxiMill 274-04

Starting Parameter



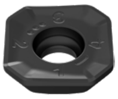
OF.. 04



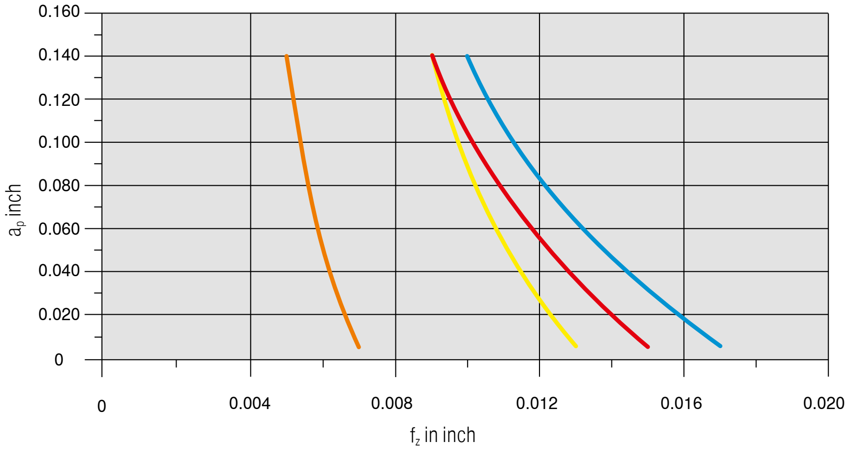
Material			Inserts		v_c in ft/min	Cooling
Steel	**P.4.1**	P20	**OFHT040305SN-M50**	**CTPP235**	660	Dry
Stainless steel	**M.1.1**	316Ti	**OFHT040305SN-F50**	**CTPM240**	600	Dry
Cast iron	**K.1.1**	GG25 Cast Iron	**OFHT040305SN-M50**	**CTCK215**	825	Dry
Heat-resistant	**S.2.2**	Inconel 718	**OFHT040305SN-F50**	**CTC5240**	115	Emulsion

System MaxiMill 274-09

Starting Parameter



SF.. 09



Material			Inserts		v_c in ft/min	Cooling
Steel	**P.4.1**	P20	**SFKT0903AFSR-M50**	**CTPP235**	660	Dry
Stainless steel	**M.1.1**	316Ti	**SFHT0903AFSR-F50**	**CTPM240**	600	Dry
Cast iron	**K.1.1**	GG25 Cast Iron	**SFKT0903AFSR-R50**	**CTCK215**	825	Dry
Heat-resistant	**S.2.2**	Inconel 718	**SFHT0903AFSR-F50**	**CTC5240**	115	Emulsion

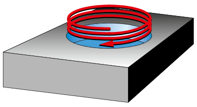
Detailed information on cutting speed for each grade can be found on → page **98–100**

From v_c > 1300 SFM, the tool must be balanced!

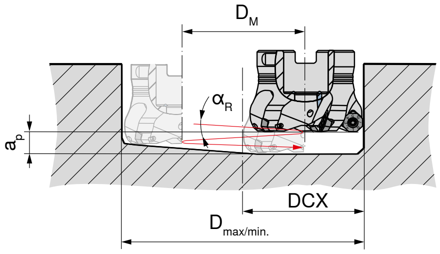
System MaxiMill 274-05/-12

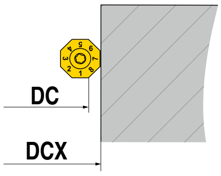
Machining strategy

Helical plunge milling



$D_{max.}$ in inch = largest diameter for flat bottom hole
$D_{min.}$ in inch = smallest hole diameter for flat bottom surface
D_M = D_{max} – DCX and D_{min} – DCX





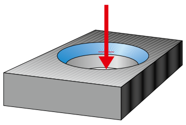
OF..05

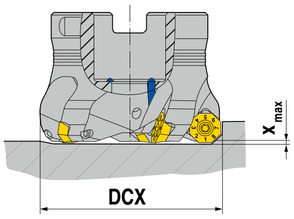
DC inch	DCX inch	D_{max} inch	D_{min} inch	$\alpha_{R\,max}$ °
1.97	**2.28**	4.21	3.90	1.1
2.48	**2.80**	5.24	4.92	0.9
3.15	**3.46**	6.57	6.26	0.7
3.94	**4.25**	8.15	7.83	0.5
4.92	**5.23**	10.12	9.80	0.4

SF..12

DC inch	DCX inch	D_{max} inch	D_{min} inch	$\alpha_{R\,max}$ °
1.85	**2.40**	4.21	4.13	0.5
2.36	**2.91**	5.24	5.16	0.4
3.03	**3.58**	6.57	6.50	0.3
3.81	**4.37**	8.15	8.07	0.25
4.80	**5.35**	10.12	10.04	0.2

Axial plunging





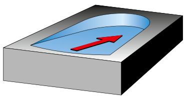
OF..05

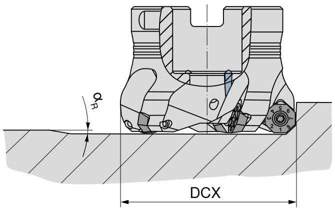
DC inch	DCX inch	X_{max} inch
1.97	**2.28**	0.09
2.48	**2.80**	0.07
3.15	**3.46**	0.07
3.94	**4.25**	0.04
4.92	**5.23**	0.06

SF..12

DC inch	DCX inch	X_{max} inch
1.85	**2.40**	0.13
2.36	**2.91**	0.13
3.03	**3.58**	0.12
3.81	**4.37**	0.10
4.80	**5.35**	0.10

Angled ramping





OF..05

DC inch	DCX inch	$\alpha_{R\,max}$ °
1.97	**2.28**	3.2
2.48	**2.80**	2.0
3.15	**3.46**	1.5
3.94	**4.25**	0.7
4.92	**5.23**	0.7

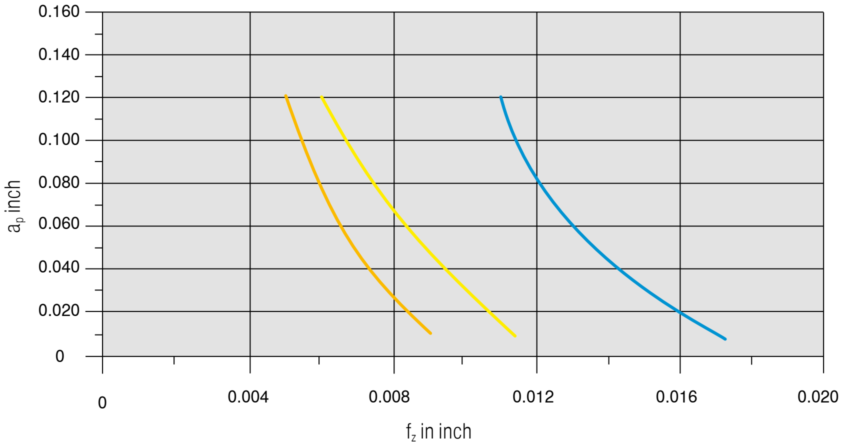
SF..12

DC inch	DCX inch	$\alpha_{R\,max}$ °
1.85	**2.40**	4.9
2.36	**2.91**	3.4
3.03	**3.58**	2.4
3.81	**4.37**	1.6
4.80	**5.35**	1.3

System MaxiMill 274-05

Starting Parameter

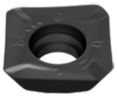
OF.. 05



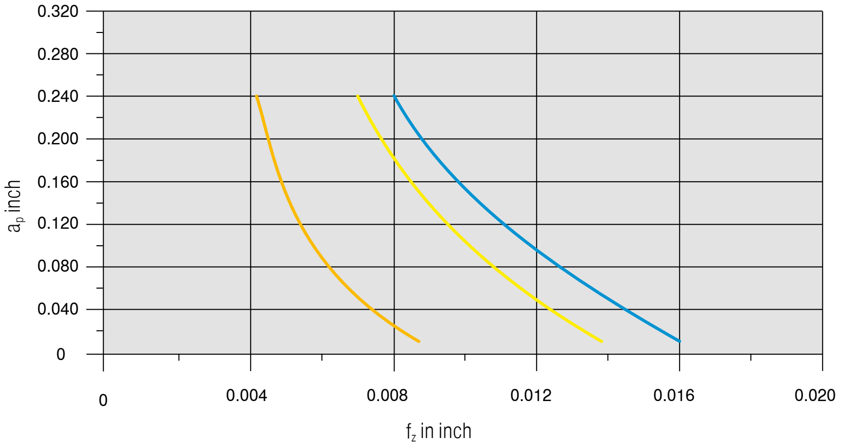
Material			Inserts		v_c in ft/min	Cooling
Steel	**P.4.1**	P20	**OFHT050410SN-M50**	**CTCP230**	660	Dry
Stainless steel	**M.1.1**	316Ti	**OFHT050410SN-F50**	**CTPM240**	600	Dry
Heat-resistant	**S.2.2**	Inconel 718	**OFHT050410SN-F50**	**CTC5240**	115	Emulsion

System MaxiMill 274-12

Starting Parameter



SF.. 12



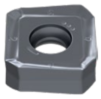
Material			Inserts		v_c in ft/min	Cooling
Steel	**P.4.1**	P20	**SFKT1204AFSR-M50**	**CTPP235**	660	Dry
Stainless steel	**M.1.1**	316Ti	**SFKT1204AFSR-M50**	**CTPM240**	600	Dry
Heat-resistant	**S.2.2**	Inconel 718	**SFHT1204AFER-F40**	**CTC5240**	115	Emulsion

Detailed information on cutting speed for each grade can be found on → page **98–100**

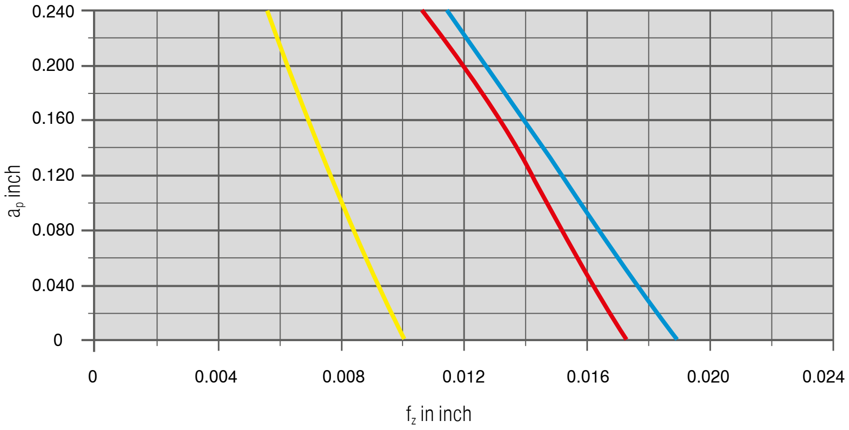
From v_c > 1300 SFM, the tool must be balanced!

MaxiMill 271-12 system

Starting Parameter



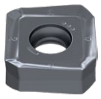
SOHU 12



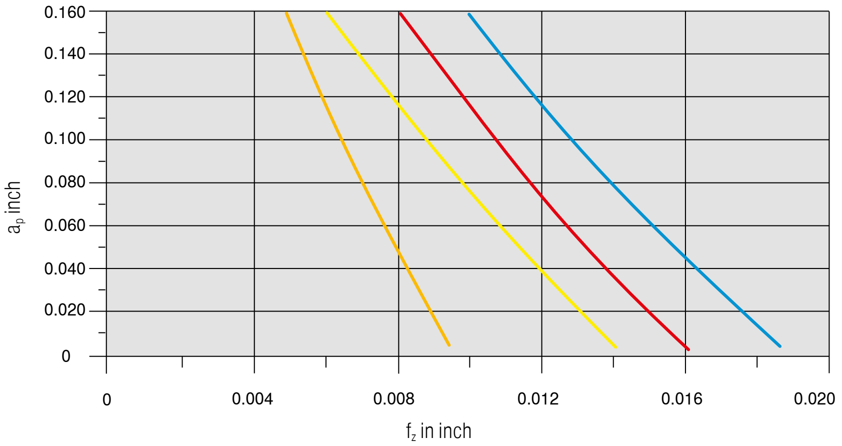
Material			Inserts		v_c in ft/min	Cooling
Steel	**P.4.1**	P20	**SOHU 1204ABSR-M50**	**CTPP230**	660	Dry
Stainless steel	**M.1.1**	316Ti	**SOHU 1204ABSR**	**CTPM240**	600	Dry
Cast iron	**K.1.1**	GG25 Cast Iron	**SOHU 1204ABSR-R50**	**CTCK215**	990	Dry
Heat-resistant	**S.2.2**	Inconel 718	**SOHU 1204ABSR-F50**	**CTC5240**	115	Emulsion

System MaxiMill 271-17

Starting Parameter



SAKU 17



Material			Inserts		v_c in ft/min	Cooling
Steel	**P.4.1**	P20	**SAKU 1706ABSR-M50**	**CTPP235**	660	Dry
Stainless steel	**M.1.1**	316Ti	**SAKU 1706ABSR-F50**	**CTPM240**	600	Dry
Cast iron	**K.1.1**	GG25 Cast Iron	**SAKU 1706ABSR-R50**	**CTCK215**	990	Dry
Heat-resistant	**S.2.2**	Inconel 718	**SAKU 1706ABSR-F50**	**CTC5240**	115	Emulsion

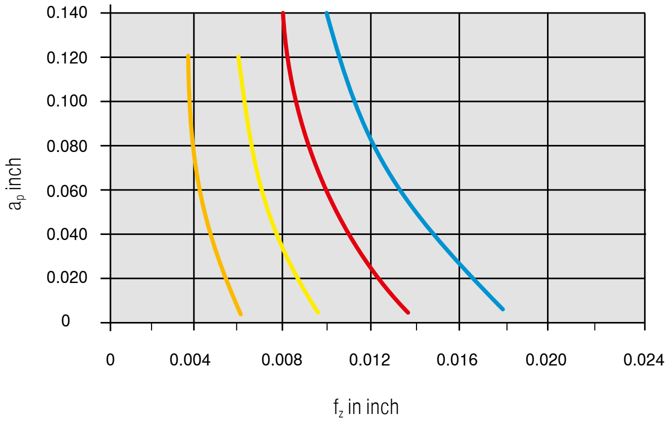
Detailed information on cutting speed for each grade can be found on → page **98–100**

From v_c > 1300 SFM, the tool must be balanced!

MaxiMill 273 system

Starting Parameter

OAKU



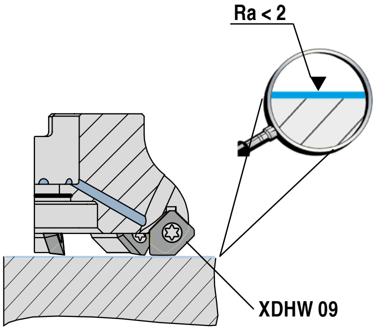
Material			Inserts		v_c in ft/min	Cooling
Steel	**P.4.1**	P20	**OAKU 060508SR-M50**	**CTPP235**	660	Dry
Stainless steel	**M.1.1**	316Ti	**OAKU 060508SR-F50**	**CTPM240**	600	Dry
Cast iron	**K.1.1**	GG25 Cast Iron	**OAKU 060508SR-R50**	**CTCK215**	990	Dry
Heat-resistant	**S.2.2**	Inconel 718	**OAKU 060508ER-F40**	**CTC5240**	115	Emulsion

Detailed information on cutting speed for each grade can be found on → page **98–100**

From v_c > 1300 SFM, the tool must be balanced!

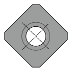
MaxiMill 270 system

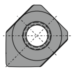
Machining strategy



Finish milling with wiper inserts

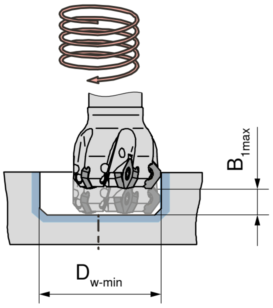
Two wiper inserts are mounted in each 5.000" head





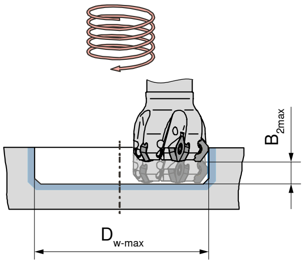
Steel	SDNT	0903AESN-29	CTPP235	+	XDHW	0903AESN	CTPP235
	SDNT	0903AESN-29	CTCP230	+	XDHW	0903AESN	CTCP230
	SDHT	0903AESN-33	CTCP230	+	XDHW	0903AESN	CTCP230
	SDHW	0903AESN	TCM10	+	XDHW	0903AESN	TCM10
Cast iron	SDNT	0903AESN-31	CTCK215	+	XDHW	0903AEEN	CTCK215
Non-ferrous metals	SDHT	0903AEFN-ALP	-27P H216T	+	XDHW	0903AEFN	-27P H216T

Helical plunge milling (without start hole)



C 270-09

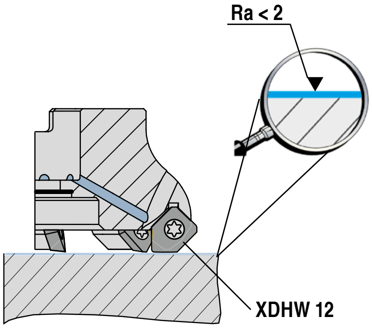
DC inch	$D_{w\text{-}min}$ inch	$B_{1\ max}$ inch	$D_{w\text{-}max}$ inch	$B_{2\ max}$ inch
0.25	0.57	0.06	0.75	0.06
0.50	1.12	0.06	1.22	0.06
0.63	1.44	0.06	1.54	0.06
0.75	1.75	0.06	1.85	0.06
1.00	2.15	0.06	2.24	0.06
1.25	2.70	0.06	2.80	0.06



A 270-09

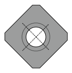
DC inch	$D_{w\text{-}min}$ inch	$B_{1\ max}$ inch	$D_{w\text{-}max}$ inch	$B_{2\ max}$ inch
1.25	2.70	0.06	2.80	0.06
1.50	3.33	0.06	3.43	0.06
2.00	4.11	0.06	4.21	0.06
2.50	5.14	0.06	5.24	0.06
3.00	6.48	0.06	6.57	0.06
4.00	8.05	0.06	8.15	0.06
5.00	10.02	0.06	10.12	0.06
6.00	12.78	0.06	12.87	0.06

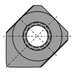
System MaxiMill 270-12



Finish milling with wiper inserts

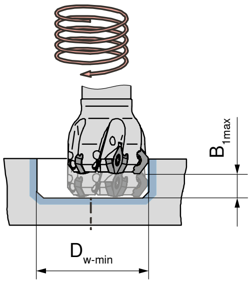
Two wiper inserts are mounted in each 5.000" head

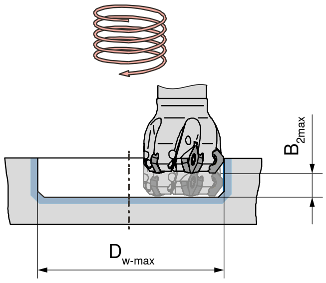




Steel	SDMT	1204AESN-29R	CTPP235	+	XDHW	1204AESN	CTPP235
	SDMT	1204AESN-29R	CTCP230	+	XDHW	1204AESN	CTCP230
	SDHW	1204AESN-R	TCM10	+	XDHW	1204AESN	TCM10
Cast iron	SDMT	1204AEEN-31	CTCK215	+	XDHW	1204AEEN	CTCK215
	SDHW	1204AESN-R	CTCK215	+	XDHW	1204AEEN	CTCK215
Non-ferrous metals	SDHT	1204AEFN-ALP	-27P H216T	+	XDHW	1204AEFN	-27P H216T

Helical plunge milling (without start hole)



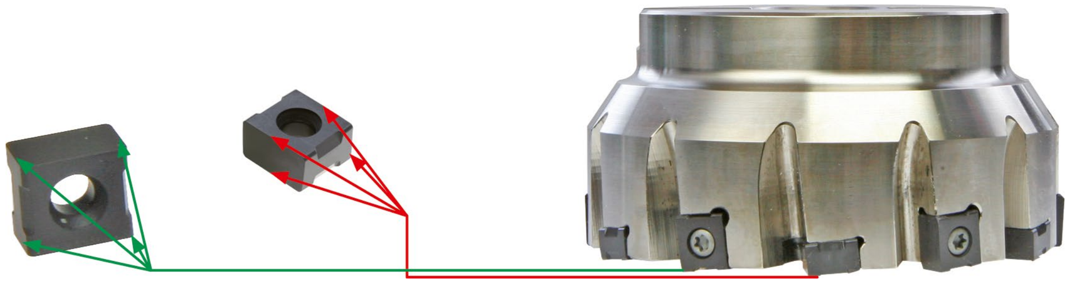


DC inch	$D_{w\text{-}min}$ inch	$B_{1\ max}$ inch	$D_{w\text{-}max}$ inch	$B_{2\ max}$ inch
1.25	2.93	0.06	3.07	0.06
1.50	3.56	0.06	3.70	0.06
2.00	4.35	0.06	4.49	0.06
2.50	5.37	0.06	5.51	0.06
3.00	6.71	0.06	6.85	0.06
4.00	8.29	0.06	8.43	0.06
5.00	10.26	0.06	10.39	0.06
6.00	13.01	0.06	13.15	0.06

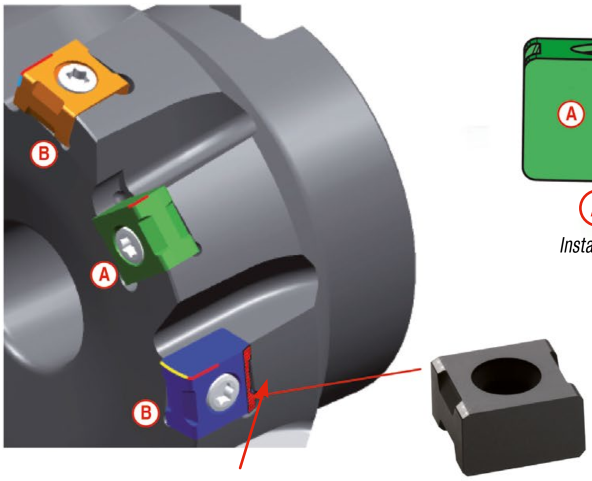
From v_c > 1300 SFM, the tool must be balanced!

MaxiMill HEC 11 / HEC 12 system

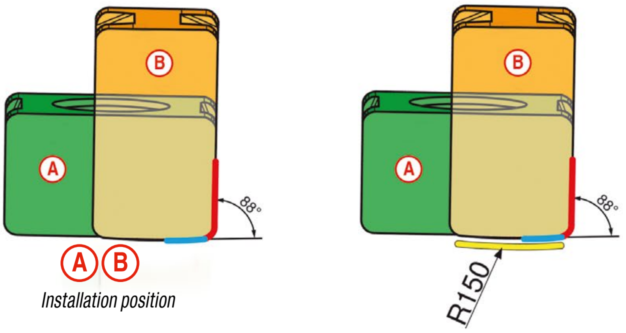
4 cutting edges per installation position



Correct assembly of standard and wiper inserts



Marking for the correct assembly

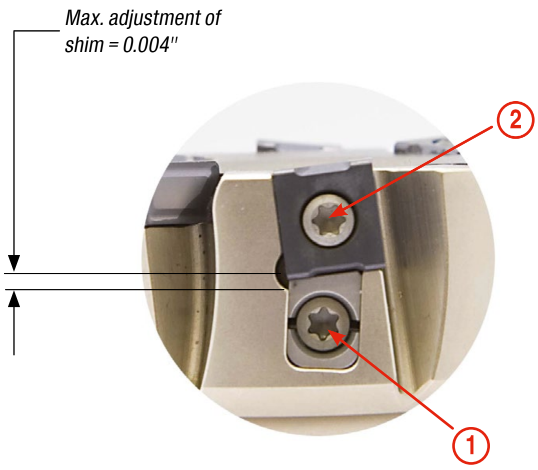


Installation position

🟦	Face machining insert	Ⓑ
🟥	Insert main cutting edge	Ⓐ Ⓑ
🟨	Wiper Facet	Ⓑ

Adjust the tools in axial direction

- Install the wedge into the cutter body and lightly clamp the clamping screw so as not to clamp. ①
- Install the inserts as shown and tighten to 1,0 Nm torque. ②
- Using pre-setting equipment, mark the highest cutting edge. ①
- With small adjustments of the setting screw set all cutting edges to the same height by 0.0002" or better. ①
- Clamp insert with 3,2 Nm torque. ②



Average chip thickness [h_m] – the approach

Face milling

1 Select appropriate average chip thickness [h_m] for the steel from the table.

Material	Tensile strength N/mm²	h_m inch
for steel	...–800	0.008
for steel	800–1000	0.007
for steel	1000–1200	0.006
for steel	1200–...	0.006
for stainless steel	... –750	0.008
for stainless steel	750–900	0.007
for stainless steel	900–1150	0.007
for stainless steel	1150– ...	0.006

2 Select the corrected feed rate value from the table based on the appropriate chip thickness [h_m] and depth of cut [a_e].

h_m inch	Corrected feed value f_z for h_m			
0.008	0.016 **	0.016 **	0.013	0.011
0.007	0.016 **	0.016 **	0.011	0.010
0.006	0.016 **	0.014	0.010	0.009
0.006	0.014	0.012	0.009	0.008
0.008	0.016 **	0.016 **	0.013	0.012
0.007	0.016 **	0.016 **	0.012	0.011
0.007	0.016 **	0.015	0.011	0.009
0.006	0.015	0.013	0.009	0.008
a_e =	**0.012 x DC**	**0.016 x DC**	**0.030 x DC**	**0.040 x DC**

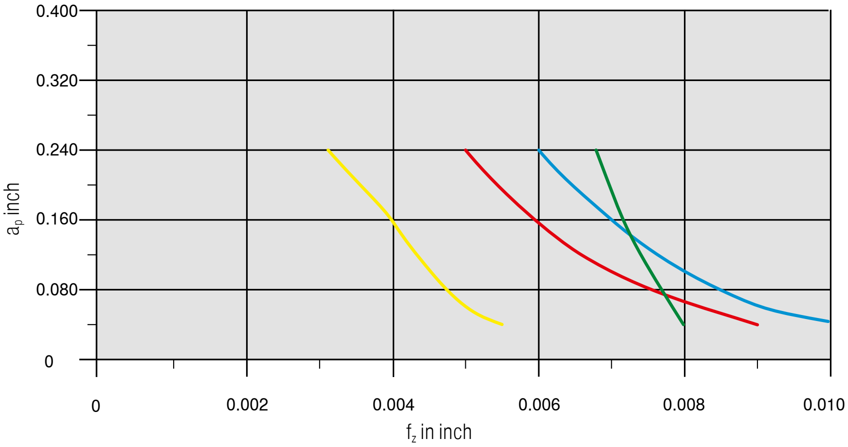
** f_z > 0,016": Danger of an open space contact

7

MaxiMill 491-09 system

Starting Parameter

SNHU 09

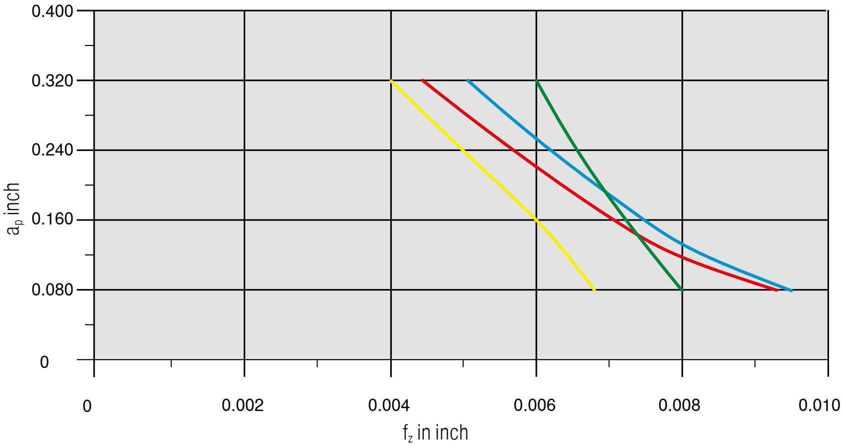


Material			Inserts		v_c in ft/min	Cooling
Steel	**P.4.1**	P20	**SNHU09T308SR-M50**	**CTPP235**	660	Dry
Stainless steel	**M.1.1**	316Ti	**SNHU09T308SR-F50**	**CTPM240**	600	Dry
Cast iron	**K.1.1**	GG25 Cast Iron	**SNHU09T308SR-R50**	**CTCK215**	825	Dry
Non-ferrous metals	**N.1.2**	Aluminum	**SNHU09T308FR-F10**	**CTWN215**	1650	Emulsion

MaxiMill 491-12 system

Starting Parameter

SNHU 12



Material			Inserts		v_c in ft/min	Cooling
Steel	**P.4.1**	P20	**SNHU120408SR-M50**	**CTPP235**	660	Dry
Stainless steel	**M.1.1**	316Ti	**SNHU120408SR-F50**	**CTPM240**	600	Dry
Cast iron	**K.1.1**	GG25 Cast Iron	**SNHU120408SR-R50**	**CTCK215**	825	Dry
Non-ferrous metals	**N.1.2**	Aluminum	**SNHU120408FR-F10**	**CTC5240**	1650	Emulsion

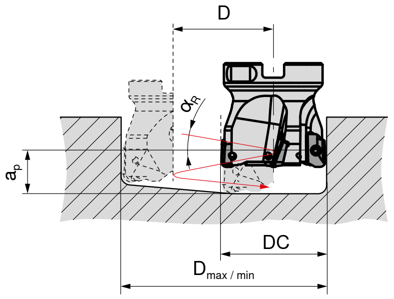
Detailed information on cutting speed for each grade can be found on → page **98–100**

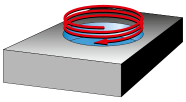
From v_c > 1300 SFM, the tool must be balanced!

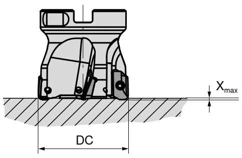
System MaxiMill 211-07

Machining strategy

Helical plunge milling





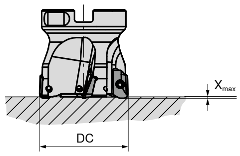


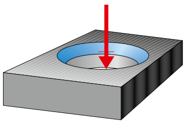
a_p inch = D * π * tan α_R

DC inch	D_{max} / RE 0.4 inch	D_{min} inch	$\alpha_{R\,max}$ °
0.39	0.75	0.51	5.5
0.50	0.91	0.67	6.0
0.63	1.22	0.98	3.0
0.75	1.54	1.30	2.0
1.00	1.93	1.69	1.5
1.25	2.48	2.24	1.2
1.50	3.11	2.87	0.8
2.00	3.90	3.66	0.7

DC inch	D inch	$\alpha_{R\,max\,360°}$ °
0.39	0.51	5.5
0.50	0.67	6.0
0.63	0.98	3.0
0.75	1.30	2.0
1.00	1.69	1.5
1.25	2.24	1.2
1.50	2.87	0.8
2.00	3.66	0.7

Axial plunging

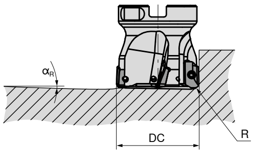


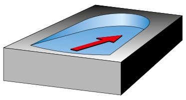


DC inch	X_{max} inch
0.39	0.03
0.50	0.03
0.63	0.03
0.75	0.03
1.00	0.03
1.25	0.03
1.50	0.03
2.00	0.03

$D_{max.}$ in inch = largest diameter for flat bottom hole
$D_{min.}$ in inch = smallest hole diameter for flat bottom surface

Angled ramping

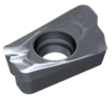




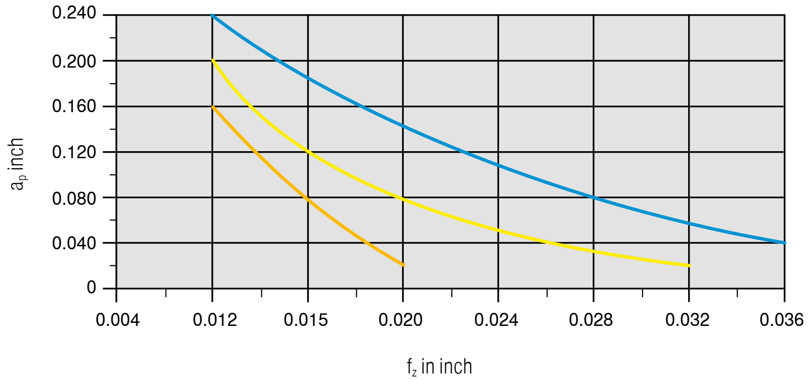
DC inch	α °
0.39	11.0
0.50	7.9
0.63	4.3
0.75	3.0
1.00	2.5
1.25	1.6
1.50	1.2
2.00	1.0

D = D_{max} - DC / D_{min} - DC

Starting Parameter



XDKT 07



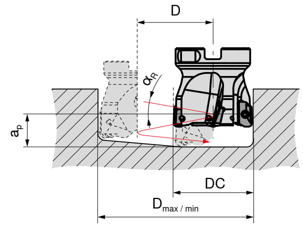
Material			**Inserts**		v_c in ft/min	**Cooling**
Steel	**P.4.1**	P20	**XDKT070308SR-M50**	**CTCP230**	660	Dry
Stainless steel	**M.1.1**	316Ti	**XDKT070308SR-F50**	**CTPM240**	600	Dry
Heat-resistant	**S.2.2**	Inconel 718	**XDKT070308ER-F50**	**CTC5240**	115	Emulsion

Detailed information on cutting speed for each grade can be found on → page **98–100**

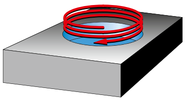
From v_c > 1300 SFM, the tool must be balanced!

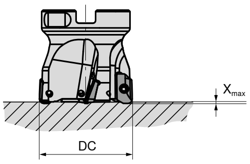
System MaxiMill 211-11

Machining strategy

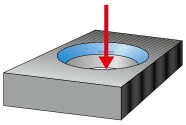


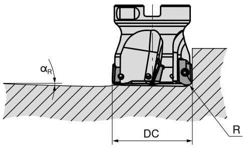
① Helical plunge milling



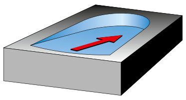


② Axial plunging





③ Angled ramping



DC inch	① Helical plunge milling	RE = 0.032"	② Axial plunging X_{max}	③ Angled ramping α_R
0.50	α_R $D_{max.}$ $D_{min.}$	16 ° 0.83" 0.55"	0.056“	18 °
0.63	α_R $D_{max.}$ $D_{min.}$	9.5 ° 1.14" 0.83"	0.060"	10.8 °
0.75	α_R $D_{max.}$ $D_{min.}$	7 ° 1.45" 1.18"	0.080"	9.8 °
1.00	α_R $D_{max.}$ $D_{min.}$	4.5 ° 1.85" 1.57"	0.080"	7.5 °
1.25	α_R $D_{max.}$ $D_{min.}$	3.2 ° 2.40" 2.08"	0.040"	4.8 °
1.50	α_R $D_{max.}$ $D_{min.}$	2.2 ° 3.03" 2.83"	0.064"	2.9 °
2.00	α_R $D_{max.}$ $D_{min.}$	1.7 ° 3.85" 3.66"	0.064"	2.2 °
2.50	α_R $D_{max.}$ $D_{min.}$	1.5 ° 4.84" 4.57"	0.064"	1.8 °
3.00	α_R $D_{max.}$ $D_{min.}$	1.0 ° 6.18" 6.03"	0.064"	1.4 °
4.00	α_R $D_{max.}$ $D_{min.}$	0.8 ° 4.21" 3.97“	0.064"	1.1 °

$D_{max.}$ in inch = largest diameter for flat bottom hole

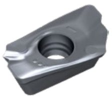
$D_{min.}$ in inch = Smallest diameter for flat bottom surface

a_p inch = D x π x tan (α_R) = Pitch

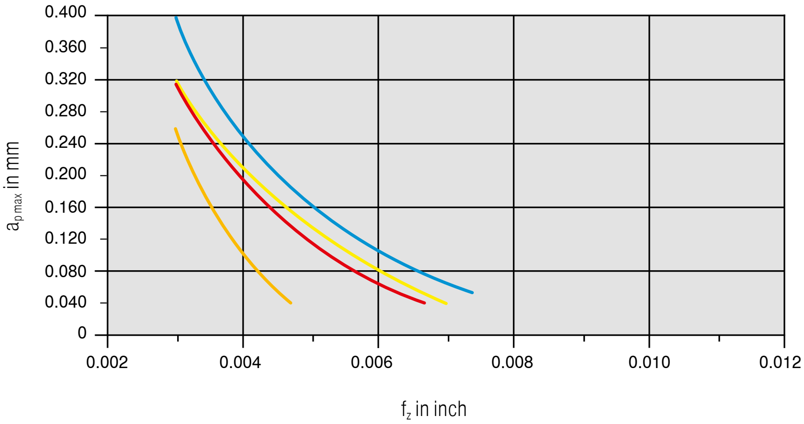
l_a in mm = Overhang length

DC inch	Maximum speed related to projection length n_{max} in min^{-1} l_a = 1–2 x Ø inch	l_a = 2.5 x Ø inch	l_a = 3 x Ø inch	l_a = 4 x Ø inch	l_a = 5 x Ø inch
0.50	55000	51500	47000	42000	37000
0.63	42000	38500	34100	28900	24200
0.75	36900	33000	28500	23900	19500
1.00	33200	29000	24400	19900	15400
1.25	30200	26000	20900	16600	11900
1.50	27700	23000	18000	13500	9000
2.00	25400	20400	15400	10800	6100
2.50	23300	18300	12900	8300	3700
3.00	21300	16100	10600	5800	
4.00	19600	14100	8400		

Starting Parameter



XDKT 11



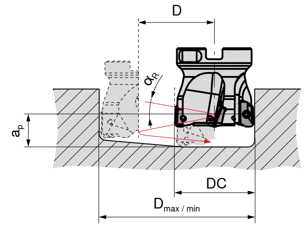
Material			Inserts		v_c in ft/min	Cooling
Steel	**P.4.1**	P20	**XDKT11T308SR-M50**	**CTCP230**	660	Dry
Stainless steel	**M.1.1**	316Ti	**XDKT11T308SR-F50**	**CTPM240**	600	Dry
Cast iron	**K.1.1**	GG25 Cast Iron	**XDKT11T308SR-R50**	**CTCK215**	825	Dry
Heat-resistant	**S.2.2**	Inconel 718	**XDKT11T308ER-F50**	**CTC5240**	115	Emulsion

Detailed information on cutting speed for each grade can be found on → page **98–100**

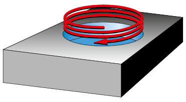
From v_c > 1300 SFM, the tool must be balanced!

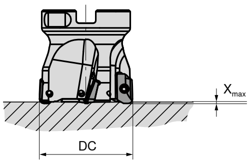
System MaxiMill 211-15

Machining strategy

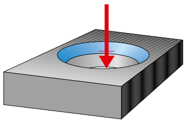


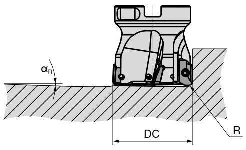
① Helical plunge milling



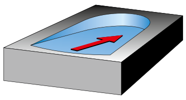


② Axial plunging





③ Angled ramping



	①		②	③
DC inch	Helical plunge milling	RE = 0.032“	Axial plunging X_{max}	Angled ramping α_R
1.00	α_R $D_{max.}$ $D_{min.}$	7.5 ° 1.89“ 1.45“	0.108“	9.5 °
1.25	α_R $D_{max.}$ $D_{min.}$	5 ° 2.44“ 1.85“	0.060“	6.8 °
1.50	α_R $D_{max.}$ $D_{min.}$	3.2 ° 3.07“ 2.48“	0.060“	5.1 °
2.00	α_R $D_{max.}$ $D_{min.}$	2.5 ° 3.86“ 3.38“	0.060“	2.5 °
2.50	α_R $D_{max.}$ $D_{min.}$	1.5 ° 4.88“ 4.37“	0.060“	2.5 °
3.00	α_R $D_{max.}$ $D_{min.}$	1.3 ° 6.22“ 5.78“	0.060“	2.0 °
4.00	α_R $D_{max.}$ $D_{min.}$	1.1 ° 7.80“ 7.48“	0.060“	1.5 °
5.00	α_R $D_{max.}$ $D_{min.}$	0.9 ° 9.76“ 9.45“	0.060“	0.9 °
6.00	α_R $D_{max.}$ $D_{min.}$	0.6 ° 12.52“ 12.20“	0.060“	0.7 °
8.00	α_R $D_{max.}$ $D_{min.}$	0.8 ° 4.21“ 3.97“	0.064“	1.1 °

$D_{max.}$ in inch = largest diameter for flat bottom hole

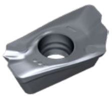
$D_{min.}$ in inch = Smallest diameter for flat bottom surface

a_p inch = D x π x tan (α_R) = Pitch

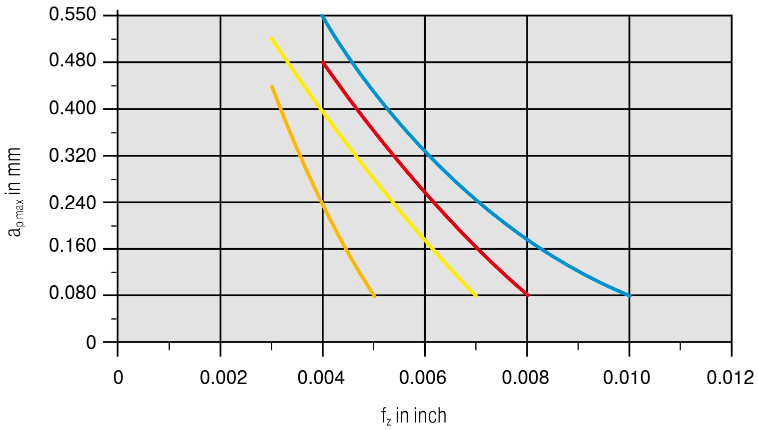
l_a in mm = Overhang length

	Maximum speed related to projection length n_{max} in min^{-1}		
DC inch	l_a = 2 x Ø inch	l_a = 3 x Ø inch	l_a = 5 x Ø inch
1.00	26560	19520	13320
1.25	24160	16720	9520
1.50	22160	14400	7200
2.00	20320	12320	4880
2.50	18640	10320	2960
3.00	17040	8480	
4.00	15680	6720	
5.00	14320		
6.00	13200		

Starting Parameter



XDKT 15



Material			Inserts		v_c in ft/min	Cooling
Steel	**P.4.1**	P20	**XDKT150508SR-M50**	**CTCP230**	660	Dry
Stainless steel	**M.1.1**	316Ti	**XDKT150508SR-F50**	**CTPM240**	600	Dry
Cast iron	**K.1.1**	GG25 Cast Iron	**XDKT150508SR-R50**	**CTCK215**	825	Dry
Heat-resistant	**S.2.2**	Inconel 718	**XDKT150508ER-F40**	**CTC5240**	115	Emulsion

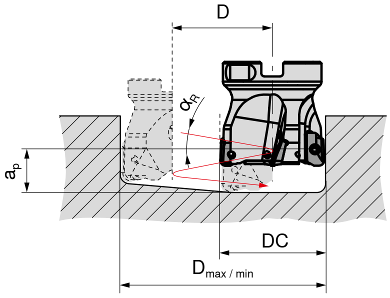
Detailed information on cutting speed for each grade can be found on → page **98–100**

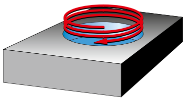
From v_c > 1300 SFM, the tool must be balanced!

System MaxiMill 211-20

Machining strategy

Helical plunge milling

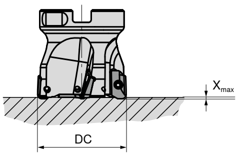




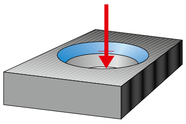
DC inch	D_{max} / RE 0.016 inch	D_{min} inch	$\alpha_{R\ max}$ °
2.50	4.882	4.213	2.2
3.00	6.220	5.630	1.7
4.00	7.795	7.205	1.3

a_p inch = $D * \pi * \tan \alpha_R$

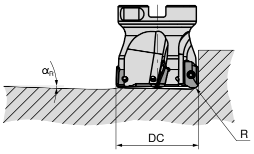
Axial plunging



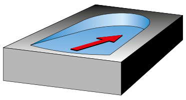
DC inch	X_{max} inch
2.50	0.100
3.00	0.100
4.00	0.100



Angled ramping



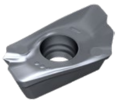
DC inch	α °
2.50	2.2
3.00	1.7
4.00	1.3



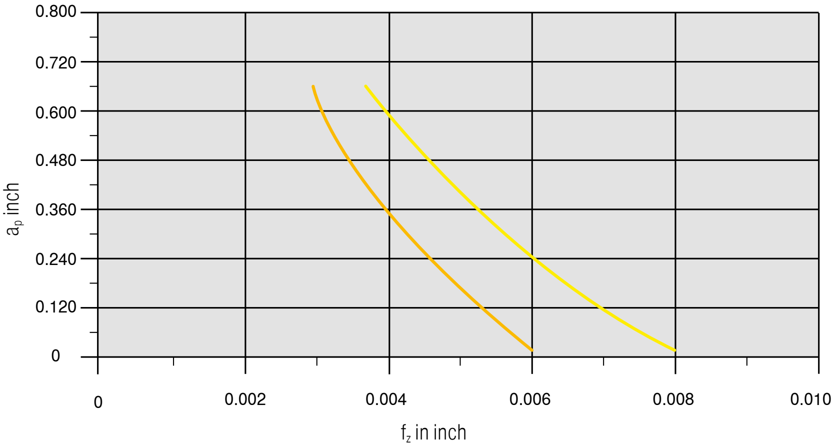
$D = D_{max} - DC / D_{min} - DC$

$D_{max.}$ in inch = largest diameter for flat bottom hole
$D_{min.}$ in inch = smallest hole diameter for flat bottom surface

Starting Parameter



XDKT 20



Material			Inserts		v_c in ft/min	Cooling
Stainless steel	**M.1.1**	316Ti	**XDKT200708ER-F40**	**CTPM240**	600	Dry
Heat-resistant	**S.2.2**	Inconel 718	**XDKT200708ER-F40**	**CTC5240**	115	Emulsion

Detailed information on cutting speed for each grade can be found on → page **98–100**

From v_c > 1300 SFM, the tool must be balanced!

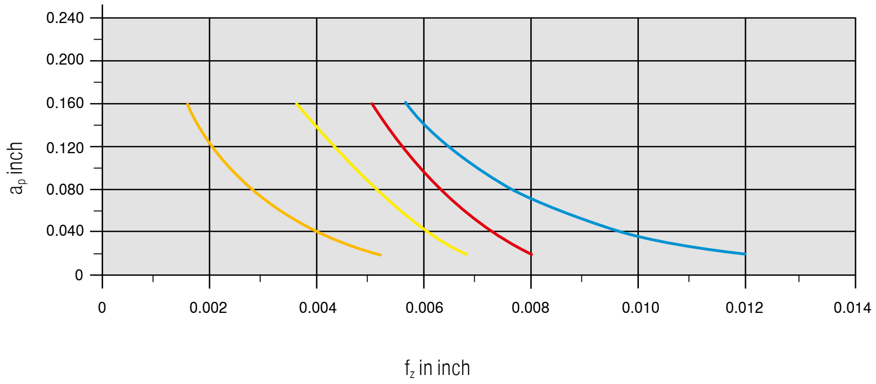
System MaxiMill 490-09

Machining strategy

System MaxiMill 490-09 is not suitable for plunging!

Starting Parameter

SDNT 09



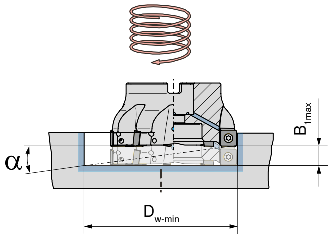
Material			Inserts		v_c in ft/min	Cooling
Steel	**P.4.1**	P20	**SDNT09T308SR-29**	**CTCP230**	660	Dry
Stainless steel	**M.1.1**	316Ti	**SDNT09T308SR-33**	**CTPM240**	600	Dry
Cast iron	**K.1.1**	GG25 Cast Iron	**SDNT09T308SR-31**	**CTCK215**	825	Dry
Heat-resistant	**S.2.2**	Inconel 718	**SDNT09T308ER-M31**	**CTC5240**	115	Emulsion

Detailed information on cutting speed for each grade can be found on → page **98–100**

System MaxiMill 490-12

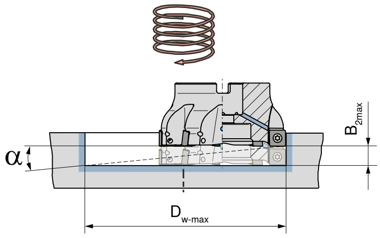
Machining strategy

Helical plunge milling (without start hole)



$$B = (D_W - DC) \times \pi \times \tan \alpha$$

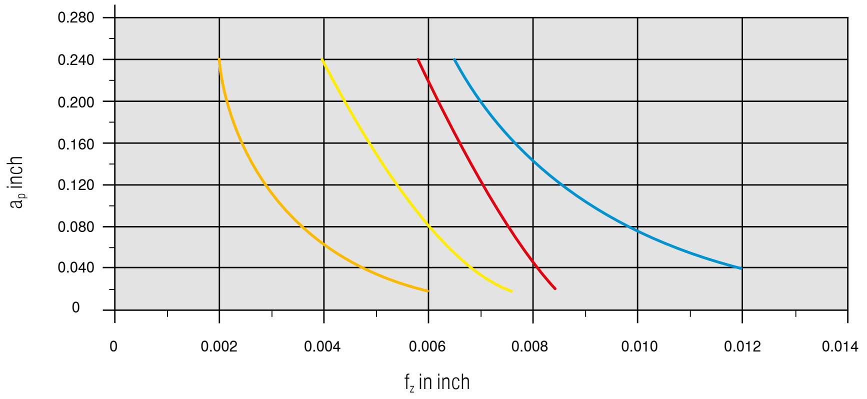
D_w = Diameter of the hole to be produced
DC = Nominal diameter of the milling tool
B = Axial feed to 360° circular movement



DC inch	D_{w-min} inch	$B_{1\,max}$ inch	D_{w-max} inch	$B_{2\,max}$ inch	α °
2.00	3.031	0.098	3.858	0.189	2,0
2.50	4.055	0.071	4.882	0.118	1,0
3.00	5.394	0.083	6.220	0.118	0,8
4.00	6.969	0.083	7.795	0.114	0,6
5.00	8.937	0.071	9.764	0.094	0,4

Starting Parameter

SDMT 12



Material			Inserts		v_c in ft/min	Cooling
Steel	**P.4.1**	P20	**SDMT1205ZZSN-29**	**CTCP230**	660	Dry
Stainless steel	**M.1.1**	316Ti	**SDMT120512SR-33**	**CTPM240**	600	Dry
Cast iron	**K.1.1**	GG25 Cast Iron	**SDMT1205ZZSN-31**	**CTCK215**	825	Dry
Heat-resistant	**S.2.2**	Inconel 718	**SDMT120508ER-M31**	**CTC5240**	115	Emulsion

Detailed information on cutting speed for each grade can be found on → page **98–100**

HSC machining

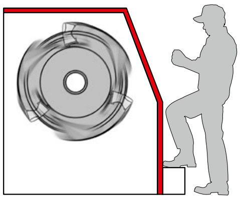
Safety advice

Suitability of the tool for HSC machining

HSC tools from CERATIZIT have been specially developed for this machining strategy and guarantee maximum operational reliability.

Observation of safety precautions of the machine manufacturer

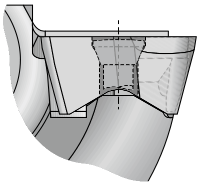
Make sure that all safety precautions of the machine-manufacturer are observed
(e.g.: closed machine guards).



Suitability of the adapters for HSC machining

According to the milling situation, choose the optimum tool/clamping device combination. For high speed milling applications it is necessary to dynamically balance tool and tool adapter together
(see ISO 1940 directives).

Mounting the indexable insert with centrifugal force protection



Insert clamping: EURO-patent EP 1083017A1
Make sure that the insert pocket is cleaned and the threading bore for the clamping screw is in good condition.
Check the axial and radial contact points of the insert in the pocket.
The clamping screws for positive insert clamping must be tightened with a torque of
(XDHT11 = 1,8 Nm; XDH.19 = 6,0 Nm).

Maximum admissible number of revolutions

Please note the maximum number of revolutions stated on the tool. This number is exclusively valid for the specific tool and must be adapted according to the selected tool adapter, total overhang length and the respective machining situation.

Optimum application range of the tool (a_e, a_p, f_z, n)

In order to guarantee productive milling, please observe the recommendations regarding the cutting parameters.

Failure to comply with these safety regulations automatically excludes CERATIZIT from any liability

System MaxiMill HSC-11

Cutting data standard values

Workpiece material		Treatment / alloy		VDI 3323 Group	Hardness HB	H216T (CWK26) v_c in ft/min	H216T (CWK26) v_c in ft/min
N	Aluminum alloys,	non hardenable		21	60		660–9840
		hardenable		22	100		660–6560
	Cast aluminum alloy	non hardenable	< 12% Si	23	80		660–6560
		hardenable	< 12% Si	24	90		660–5900
		non hardenable	> 12% Si	25	130		660–3280
	Copper and copper alloys (Bronze, Brass)		Free-cutting steel alloy (1% Pb)	26			660–1970
			brass, red bronze	27	90	820–3280	820–3280
			bronze	28	100		490–1310
			lead-free copper and electrolytic copper	29	100		980–2620
O	Non metal materials		Duroplastics	29		260–3280	260–3280
			Fibre-reinforced plastics	29		230–1640	230–1640
			hard rubber	30		260–100	260–100

= full lubricant

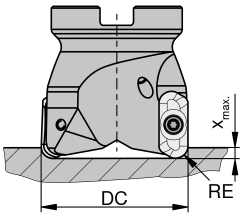
= Minimum quantity lubrication

= dry machining

System MaxiMill HSC-11

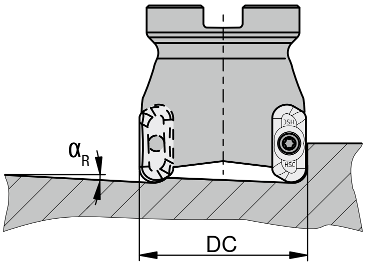
Machining strategy

Axial ramping



DC inch	11 RE 0.008–0.157 $x_{max.}$ inch
0.63	0.07
0.75	0.09
1.00	0.10
1.25	0.09
1.50	0.09
2.00	0.09
2.50	0.08
3.00	0.07
4.00	0.07

Linear ramping



DC inch	α_R °
0.63	18.8
0.75	15.3
1.00	10.3
1.25	6.8
1.50	4.8
2.00	3.5
2.50	2.5
3.00	1.8
4.00	1.3

Milling strategy for roughing and finishing

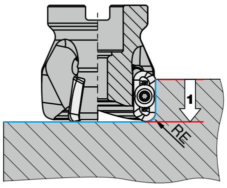
With maximum chip volume

Indexable Insert	RE inch	1 a_p inch	2 3 4 $a_{p\ max.}$ inch
XDHT 11T302FR-ALP	0.008	0.39	0.39
XDHT 11T304FR-ALP	0.016	0.39	0.38
XDHT 11T308FR-ALP	0.031	0.39	0.36
XDHT 11T312FR-ALP	0.047	0.39	0.35
XDHT 11T316FR-ALP	0.063	0.39	0.33
XDHT 11T320FR-ALP	0.079	0.39	0.31
XDHT 11T325FR-ALP	0.098	0.39	0.30
XDHT 11T332FR-ALP	0.126	0.39	0.27
XDHT 11T340FR-ALP	0.157	0.39	0.24
XDHT 11T350FR-ALP	0.197	0.39	0.20

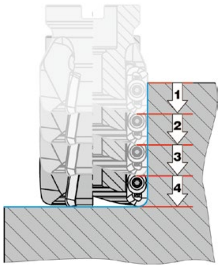
With maximum side wall quality

Indexable Insert	RE inch	2 3 4 $a_{p\ max.}$ inch
XDHT 11T302FR-ALP	0.008	0.31
XDHT 11T304FR-ALP	0.016	0.30
XDHT 11T308FR-ALP	0.031	0.28
XDHT 11T312FR-ALP	0.047	0.26
XDHT 11T316FR-ALP	0.063	0.27
XDHT 11T320FR-ALP	0.079	0.25
XDHT 11T325FR-ALP	0.098	0.22
XDHT 11T332FR-ALP	0.126	0.19
XDHT 11T340FR-ALP	0.157	0.16
XDHT 11T350FR-ALP	0.197	0.12

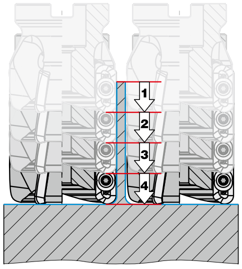
Shoulder milling



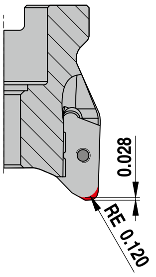
Pocket milling

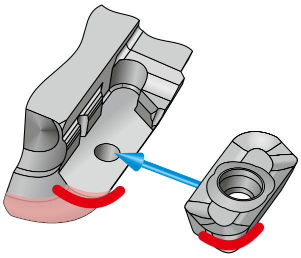


Pocket milling with
thin walled components



Modification to front profile



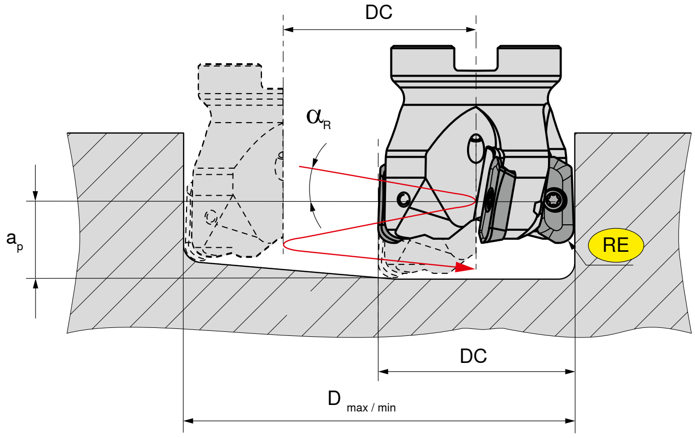


For inserts with a corner radius larger than 0.125" the basic body of the tool must be modified according to the drawing above.

System MaxiMill HSC-11

Machining strategy

Helical plunging



RE = Insert radius
α_R inch = Maximum ramping angle (related to centre of tool)

a_p inch = pitch → D x π x tan (α_R)

D in inch = → D_{max} – DC and/or D_{min} – DC

For flat bottom hole

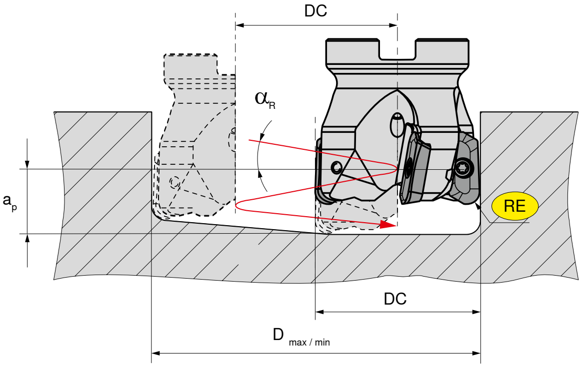
$D_{max.}$ in inch = largest drilling diameter
$D_{min.}$ in inch = smallest drilling diameter
$DN_{max.}$ inch = Maximum hole diameter for non flat bottom

DC inch		XDHT-11 (HSC-11)								
(DN_{max})		RE = 0.008	RE = 0.016	RE = 0.032	RE = 0.048	RE = 0.064	RE = 0.080	RE = 0.100	RE = 0.125	RE = 0.160
1.25	α_R	9.7°	10.0°	9.9°	9.4°	8.9°	8.4°	7.9°	7.0°	6.1°
	$D_{max..}$	1.18	1.18	1.14	1.10	1.06	1.06	1.02	0.94	0.91
(0.75)	$D_{min..}$	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
1.37	α_R	9.4°	9.1°	8.7°	8.3°	7.9°	7.5°	6.9°	6.2°	5.3°
	$D_{max.}$	1.34	1.34	1.30	1.26	1.22	1.22	1.18	1.10	1.06
(0.87)	$D_{min.}$	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71	0.71
1.50	α_R	8.8°	8.6°	8.3°	7.9°	7.5°	7.5°	6.5°	5.9°	5.1°
	$D_{max..}$	1.42	1.42	1.38	1.34	1.30	1.30	1.26	1.18	1.14
(1.00)	$D_{min..}$	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87	0.87
1.50	α_R	8.4°	8.2°	7.8°	7.4°	7.7°	6.7°	6.2°	5.5°	4.8°
	$D_{max.}$	1.50	1.50	1.46	1.42	1.38	1.38	1.34	1.26	1.22
(1.00)	$D_{min.}$	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94	0.94
1.75	α_R	7.6°	7.4°	7.8°	6.7°	6.4°	6.5°	5.6°	5.2°	4.3°
	$D_{max..}$	1.65	1.65	1.61	1.57	1.53	1.53	1.49	1.41	1.37
(1.00)	$D_{min..}$	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18	1.18
2.00	α_R	6.7°	6.5°	6.2°	5.9°	5.6°	5.3°	4.9°	4.4°	3.8°
	$D_{max.}$	1.89	1.89	1.85	1.81	1.77	1.77	1.73	1.65	1.61
(1.50)	$D_{min.}$	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02	1.02
2.50	α_R	4.7°	4.7°	4.8°	4.6°	4.3°	4.1°	3.8°	3.4°	2.9°
	$D_{max.}$	2.44	2.44	2.40	2.36	2.32	2.32	2.28	2.20	2.17
(2.00)	$D_{min.}$	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42	1.42
3.00	α_R	3.3°	3.3°	3.4°	3.4°	3.5°	3.3°	3.0°	2.7°	2.3°
	$D_{max.}$	3.07	3.07	3.03	2.99	2.95	2.95	2.91	2.83	2.80
(2.50)	$D_{min.}$	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97	1.97
4.00	α_R	2.4°	2.5°	2.5°	2.5°	2.6°	2.6°	2.4°	2.2°	1.9°
	$D_{max.}$	3.86	3.86	3.82	3.78	3.74	3.74	3.70	3.62	3.58
(3.50)	$D_{min.}$	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60	2.60
5.00	α_R	1.7°	1.7°	1.7°	1.8°	1.8°	1.8°	1.8°	1.7°	1.5°
	$D_{max.}$	4.88	4.88	4.84	4.80	4.76	4.76	4.72	4.65	4.61
(4.50)	$D_{min.}$	3.39	3.39	3.39	3.39	3.39	3.39	3.39	3.39	3.39
6.25	α_R	1.1°	1.1°	1.1°	1.1°	1.1°	1.1°	1.1°	1.2°	1.2°
	$D_{max.}$	6.22	6.22	6.18	6.14	6.10	6.10	6.06	5.98	5.94
(5.75)	$D_{min.}$	4.41	4.41	4.41	4.41	4.41	4.41	4.41	4.41	4.41
7.75	α_R	0.8°	0.8°	0.9°	0.9°	0.9°	0.9°	0.9°	0.9°	0.9°
	D_{max}	5.75	5.75	5.75	5.75	5.75	5.75	5.75	5.75	5.75
(7.25)	$D_{min.}$	7.80	7.80	7.76	7.72	7.68	7.68	7.64	7.56	7.52

System MaxiMill HSC-19

Machining strategy

Helical plunging



RE = Insert radius
α_R iinch = Maximum ramping angle (related to centre of tool)

a_p inch = pitch → D x π x tan (α_R)

D in inch = → D_{max} – DC and/or D_{min} – DC

For flat bottom hole

$D_{max.}$ in inch = largest drilling diameter
$D_{min.}$ in inch = smallest drilling diameter
$DN_{max.}$ inch = Maximum hole diameter for non flat bottom

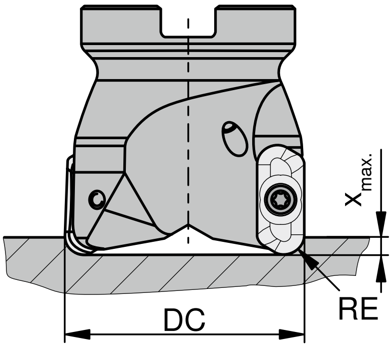
	DC inch	DN_{max} inch	α_R °	D_{max} inch	D_{min} inch
RE = 0.008“	**1.00**	1.93	7°02‘	1.89	1.26
	1.25	2.48	4°34‘	2.44	1.81
	1.50	3.11	3°47‘	3.07	2.44
	2.00	3.90	3°01‘	3.82	3.19
	2.50	4.92	2°17‘	4.88	4.21
	3.00	6.26		6.22	5.55
	4.00	7.83		7.80	7.13
RE = 0.032“	**1.00**	1.93	7°21‘	1.85	1.26
	1.25	2.48	4°44‘	2.40	1.81
	1.50	3.11	3°53‘	3.03	2.44
	2.00	3.90	3°05‘	3.82	3.19
	2.50	4.92	2°20‘	4.84	4.21
	3.00	6.26		6.18	5.55
	4.00	7.83		7.76	7.13
RE = 0.098“	**1.00**	1.93	8°24‘	1.73	1.26
	1.25	2.48	5°13‘	2.28	1.81
	1.50	3.11	4°12‘	2.91	2.44
	2.00	3.90	3°17‘	3.70	3.19
	2.50	4.92	2°27‘	4.72	4.21
	3.00	6.26		6.06	5.55
	4.00	7.83		7.64	7.13
RE = 0.157“	**1.00**	1.93	9°32‘	1.61	1.26
	1.25	2.48	5°42‘	2.17	1.81
	1.50	3.11	4°30‘	2.80	2.44
	2.00	3.90	3°28‘	3.58	3.19
	2.50	4.92	2°33‘	4.61	4.21
	3.00	6.26		5.94	5.55
	4.00	7.83		7.52	7.13

	DC inch	DN_{max} inch	α_R °	D_{max} inch	D_{min} inch
RE = 0.016“	**1.00**	0.98	7°08‘	1.93	1.89
	1.25	1.26	4°37‘	2.48	2.44
	1.50	1.57	3°49‘	3.11	3.07
	2.00	1.97	3°02‘	3.90	3.86
	2.50	2.48	2°18‘	4.92	4.88
	3.00	3.15		6.26	6.22
	4.00	3.94		7.83	7.80
RE = 0.078“	**1.00**	0.98	8°40‘	1.93	1.77
	1.25	1.26	5°04‘	2.48	2.32
	1.50	1.57	4°06‘	3.11	2.95
	2.00	1.97	3°13‘	3.90	3.74
	2.50	2.48	2°25‘	4.92	4.76
	3.00	3.15		6.26	6.10
	4.00	3.94		7.83	7.68
RE = 0.128“	**1.00**	0.98	8°54‘	1.93	1.65
	1.25	1.26	5°26‘	2.48	2.20
	1.50	1.57	4°20‘	3.11	2.83
	2.00	1.97	3°21‘	3.90	3.62
	2.50	2.48	2°30‘	4.92	4.65
	3.00	3.15		6.26	5.98
	4.00	3.94		7.83	7.56
RE = 0.196“	**1.00**	0.98	6°49‘	1.93	1.54
	1.25	1.26	3°59‘	2.48	2.09
	1.50	1.57	3°20‘	3.11	2.72
	2.00	1.97	2°13‘	3.90	3.50
	2.50	2.48	1°52‘	4.92	4.53
	3.00	3.15		6.26	5.87
	4.00	3.94		7.83	7.44

System MaxiMill HSC-19

Machining strategy

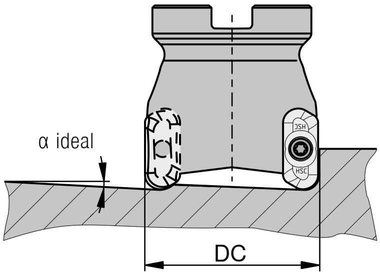
Axial ramping

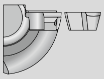
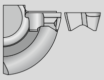


HSC 19	**DC** **mm**	**19** RE 0.008–0.157 **x max.** **mm**	**19** RE 0.196 **x max.** **mm**
CHSC 19 / GHSC 19 / MHSC 19	1.00	0.196	0.157
CHSC 19 / GHSC 19 / MHSC 19	1.25–1.50	0.157	0.118
AHSC 19	1.50–4.00	0.157	0.118

HPC 19	**DC** **mm**	**19** RE 0.008–0.157 **x max.** **mm**	**19** RE 0.196 **x max.** **mm**
CHPC 19 / MHPC 19	1.00	0.196	0.157
CHPC 19 / MHPC 19	1.25–1.50	0.236	0.196
AHPC 19	1.50–4.00	0.236	0.196

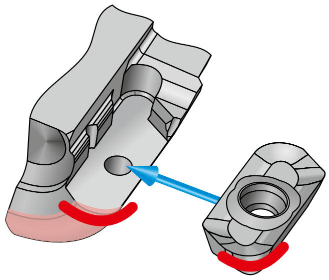
Linear ramping

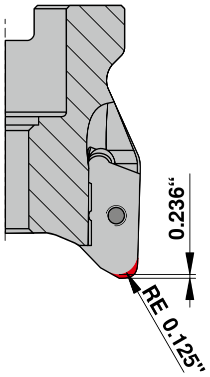


DC **mm**	**α ideal** **HSC 19** 	**HPC 19** 
1.00	11°	11°
1.25	7°	7°
1.50	5°	5°
2.00	4°	4°
2.50	3°	3°
3.00	2°	
4.00	2°	

Modification to basic body

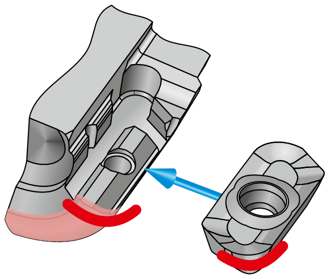
HSC 19





Modification to front profile

HPC 19

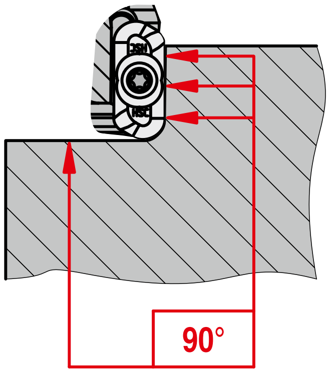


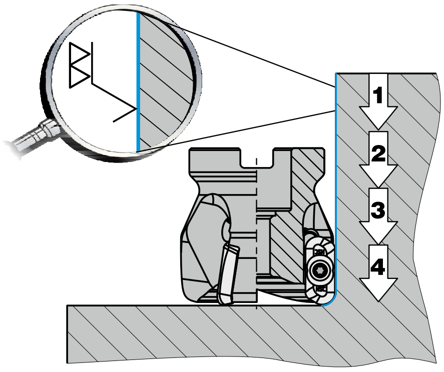
For inserts with a corner radius larger than 4.0 mm the basic body of the tool must be modified according to the drawing above.

System MaxiMill HSC-19

Machining strategy

▽ + ▽▽ Excellent side wall quality after roughing operation.
Additional finishing operations minimized or no longer required.





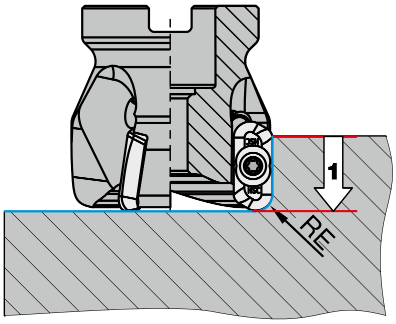
With maximum chip volume

Indexable Insert	RE inch	a_p inch	$a_{p\,max.}$ inch
XDH. 190402FR-ALP	0.008	0.71	0.70
XDH. 190404FR-ALP	0.016	0.71	0.69
XDH. 190408FR-ALP	0.032	0.71	0.68
XDH. 190420FR-ALP	0.078	0.71	0.63
XDH. 190425FR-ALP	0.098	0.71	0.59
XDH. 190432FR-ALP	0.128	0.71	0.58
XDH. 190440FR-ALP	0.157	0.71	0.55
XDH. 190450FR-ALP	0.196	0.67	0.51

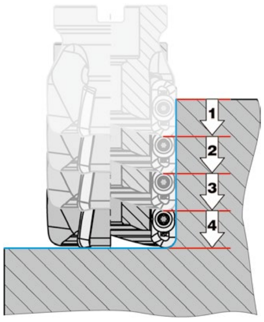
With maximum side wall quality

Indexable Insert	RE inch	$a_{p\,max.}$ inch
XDH. 190402FR-ALP	0.008	0.46
XDH. 190404FR-ALP	0.016	0.46
XDH. 190408FR-ALP	0.032	0.44
XDH. 190420FR-ALP	0.078	0.39
XDH. 190425FR-ALP	0.098	0.37
XDH. 190432FR-ALP	0.128	0.35
XDH. 190440FR-ALP	0.157	0.31
XDH. 190450FR-ALP	0.196	0.28

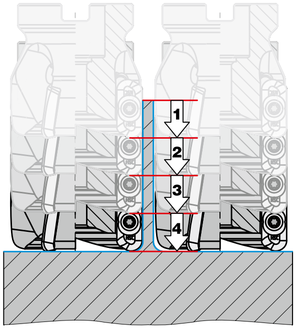
Shoulder milling



Pocket milling



Pocket milling with
thin walled components



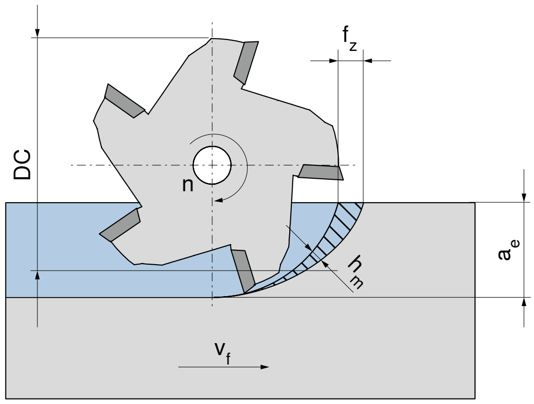
This information applies to the inserts type XDHT 19 and XDHX 19.

Average chip thickness [h_m] – the approach

Shoulder milling

1 Select appropriate average chip thickness [h_m] for the steel from the table.

Material	Tensile strength N/mm²	h_m mm
for steel	...–800	0.0063
for steel	800–1000	0.0055
for steel	1000–1200	0.0048
for steel	1200–...	0.0039
for stainless steel	...–750	0.0059
for stainless steel	750–900	0.0051
for stainless steel	900–1150	0.0043
for stainless steel	1150–...	0.0035*

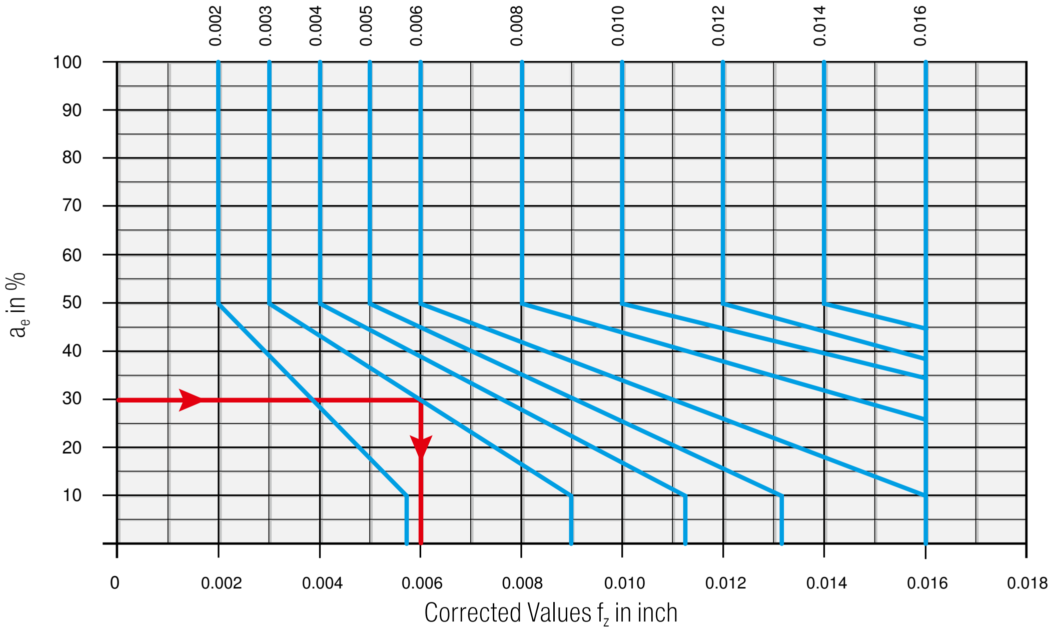


2 Select the corrected feed rate value from the table based on the appropriate chip thickness [h_m] and depth of cut [a_e].

h_m mm	Corrected feed value f_z for h_m				
0.0063	0.0142	0.0114	0.0098	0.0071	0.0063
0.0055	0.0122	0.0102	0.0087	0.0060	0.0055
0.0048	0.0106	0.0087	0.0075	0.0055	0.0047
0.0039	0.0087	0.0071	0.0063	0.0047	0.0039
0.0059	0.0134	0.0106	0.0094	0.0067	0.0059
0.0051	0.0114	0.0094	0.0083	0.0059	0.0051
0.0043	0.0098	0.0079	0.0067	0.0051	0.0043
0.0035*	0.0079	0.0063	0.0055	0.0039	0.0035
a_e =	**0.2 x DC**	**0.3 x DC**	**0.4 x DC**	**0.75 x DC**	**1 x DC**

* $f_z < 0.032$": Danger, as tool is not working and cutting

Start values f_z in inch from starting parameter diagram

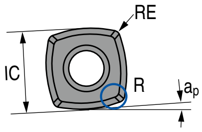


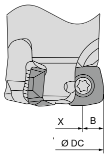
Example:
Start value (f_z) = 0.003"
a_e = 30 %
corrected value (f_z) = 0..006"

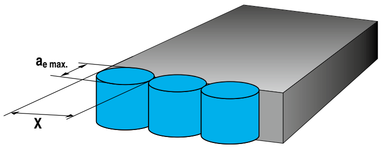
System MaxiMill HFC-06

Machining strategy

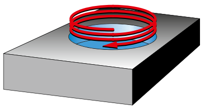
Programmed radius R = 0.047"

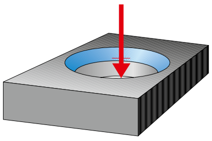


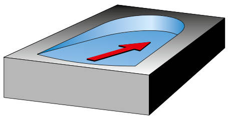




Cutting depth and remaining material			Cutting width for flat surfaces			Cutting depth when plunging				
IC in inch	RE in inch	$a_{p\,max.}$ in inch	DC in inch	X in inch	B in inch	$a_{e\,max.}$ in inch	f_z in inch			X
							initial	min.	max.	
0.25	0.020	0.032	0.625–1.25	DC–(2 x B)	0.169	0.209	0.004	0.003	0.016	<0.7 x DC

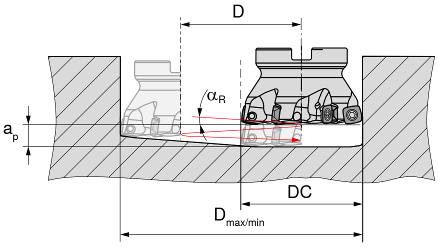






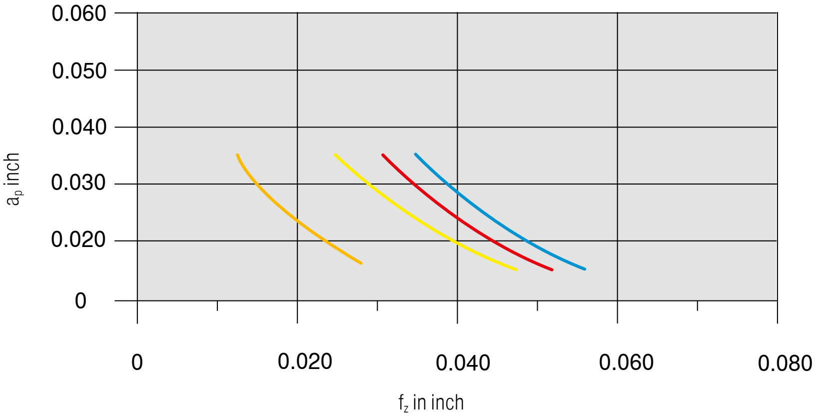
	circular		
	Helical plunging (helical plunging into solid material)		
DC inch	$D_{min.}$ inch	$D_{max.}$ inch	$\alpha_{R\,max.}$ °
0.625	1.22	0.866	4.5°
0.750	1.53	1.18	2.3°
1.00	1.93	1.57	1.3°
1.25	2.48	2.12	0.9°

	axial	Angled
	Plunging	
DC inch	$X_{max.}$ inch	$\alpha_{R\,max.}$ °
0.625	0.020	5.9°
0.750		3.2°
1.00		2.0°
1.25		1.3°



Starting Parameter

XPLX 06



Material			Inserts		v_c in ft/min	Cooling
Steel	**P.4.1**	P20	**XPLX 060305SR-M50**	**CTPP235**	660	Dry
Stainless steel	**M.1.1**	316Ti	**XPLX 060305ER-M40**	**CTPM240**	600	Dry
Cast iron	**K.1.1**	GG25 Cast Iron	**XPLX 060305ER-M50**	**CTCK215**	825	Dry
Heat-resistant	**S.2.2**	Inconel 718	**XPLX 060305SR-F40**	**CTC5240**	115	Emulsion

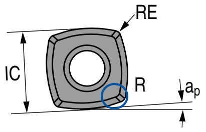
Detailed information on cutting speed for each grade can be found on → page **98–100**

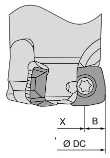
From v_c > 1300 SFM, the tool must be balanced!

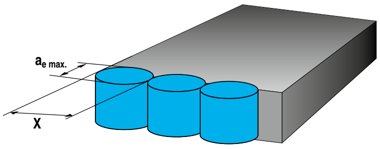
System MaxiMill HFC-09

Machining strategy

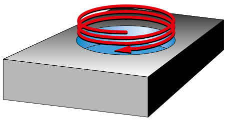
Programmed radius R = 0.078“



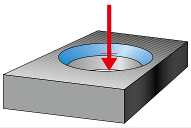


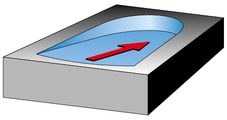


Cutting depth and remaining material			Cutting width for flat surfaces			Cutting depth when plunging				
IC in inch	RE in inch	$a_{p\,max.}$ in inch	DC in inch	X in inch	B in inch	$a_{e\,max.}$ in inch	f_z in inch			X
							initial	min.	max.	
0.354	0.032	0.040	1.00–2.50	DC–(2 x B)	0.142	0.295	0.004	0.003	0.016	<0.7 x DC

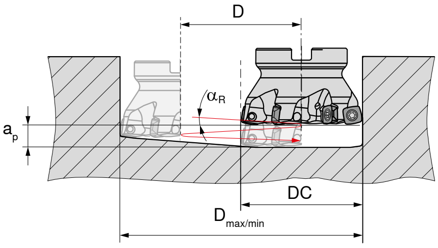


	circular		
	Helical plunging (helical plunging into solid material)		
DC inch	$D_{min.}$ inch	$D_{max.}$ inch	$\alpha_{R\,max.}$ °
1.00	1.89	1.37	3.1°
1.25	2.44	1.93	1.7°
1.37	2.67	2.16	1.4°
1.50	3.07	2.56	1.0°
1.62	4.01	2.71	0.9°
2.00	3.85	3.34	0.8°
2.12	4.01	3.50	0.7°
2.50	4.88	4.37	0.7°
2.62	5.11	4.60	0.6°



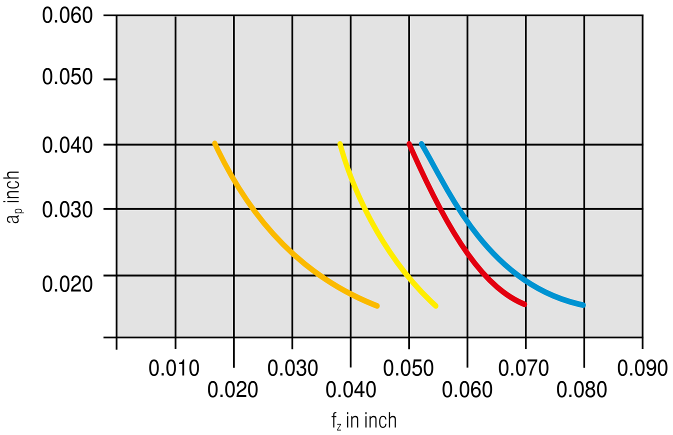


	axial	Angled
	Plunging	
DC inch	$X_{max.}$ inch	$\alpha_{R\,max.}$ °
1.00	0.030	3.6°
1.25		2.0°
1.37		1.6°
1.50		1.2°
1.62		1.1°
2.00		0.9°
2.12		0.8°
2.50		0.8°
2.62		0.7°



Starting Parameter

XDLX 09



Material			Inserts		v_c in ft/min	Cooling
Steel	**P.4.1**	P20	**XDLX09T308SR-M50**	**CTPP235**	660	Dry
Stainless steel	**M.1.1**	316Ti	**XDLX09T308SR-M50**	**CTPM240**	600	Dry
Cast iron	**K.1.1**	GG25 Cast Iron	**XDLX09T308SR-M50**	**CTCK215**	825	Dry
Heat-resistant	**S.2.2**	Inconel 718	**XDLX09T308ER-F40**	**CTC5240**	115	Emulsion

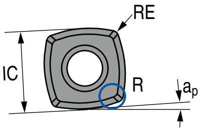
Detailed information on cutting speed for each grade can be found on → page **98–100**

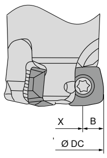
From v_c > 1300 SFM, the tool must be balanced!

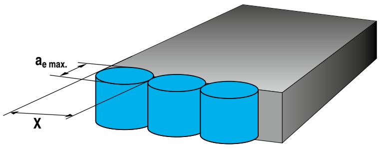
System MaxiMill HFC-12

Machining strategy

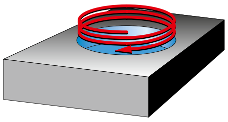
Programmed radius R = 0.118“



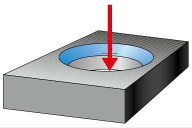


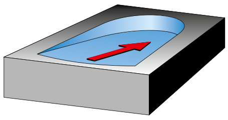


Cutting depth and remaining material			Cutting width for flat surfaces			Cutting depth when plunging				
IC in inch	RE in inch	$a_{p\,max.}$ in inch	DC in inch	X in inch	B in inch	$a_{e\,max.}$ in inch	f_z in inch			X
							initial	min.	max.	
0.472	0.040	0.080	1.25–4.00	DC–(2 x B)	0.326	0.393	0.006	0.004	0.008	<0.7 x DC

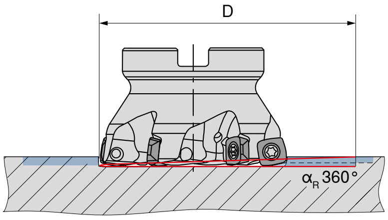


	circular		
	Helical plunging (helical plunging into solid material)		
DC inch	$D_{min.}$ inch	$D_{max.}$ inch	$\alpha_{R\,max.}$ °
1.00	2.45	1.73	6.1°
1.25	2.67	1.97	3.7°
1.50	3.07	2.56	2.5°
1.62	3.22	2.52	2.3°
2.00	3.86	3.15	1.3°
2.12	4.01	3.30	1.3°
2.50	4.88	4.17	0.9°
2.62	5.12	4.41	0.9°
3.00	6.22	5.51	1.1°
4.00	7.79	7.09	0.6°



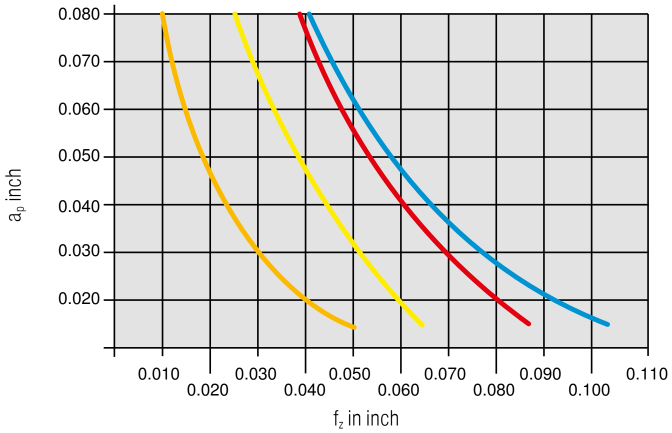


	axial	Angled
	Plunging	
DC inch	$X_{max.}$ inch	$\alpha_{R\,max.}$ °
1.25	0.045	7.2°
1.37		4.4°
1.50		2.9°
1.62		2.7°
2.00 + 2.12		1.5°
2.50 + 2.62		1.1°
3.00		1.3°
4.00		0.7°



Starting Parameter

XOLX 12



Material			Inserts		v_c in ft/min	Cooling
Steel	**P.4.1**	P20	**XOLX120410SR-M50**	**CTPP235**	660	Dry
Stainless steel	**M.1.1**	316Ti	**XOLX120410ER-M50**	**CTPM240**	600	Dry
Cast iron	**K.1.1**	GG25 Cast Iron	**XOLX120410ER-M50**	**CTCK215**	825	Dry
Heat-resistant	**S.2.2**	Inconel 718	**XOLX120410ER-F40**	**CTC5240**	115	Emulsion

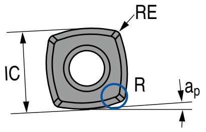
Detailed information on cutting speed for each grade can be found on → page **98–100**

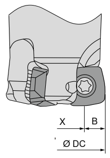
From v_c > 1300 SFM, the tool must be balanced!

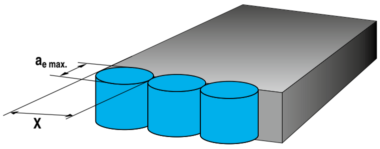
System MaxiMill HFC-19

Machining strategy

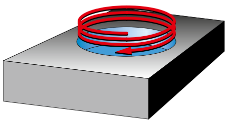
Programmed radius R = 0.196“

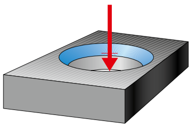


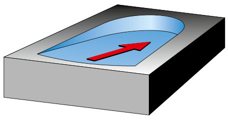




Cutting depth and remaining material			Cutting width for flat surfaces			Cutting depth when plunging				
IC in inch	RE in inch	$a_{p\ max.}$ in inch	DC in inch	X in inch	B in inch	$a_{e\ max.}$ in inch	f_z in inch			X
							initial	min.	max.	
0.753	0.060	0.129	2.50–4.00	DC–(2 x B)	0.516	0.472	0.008	0.004	0.010	<0.65 x DC

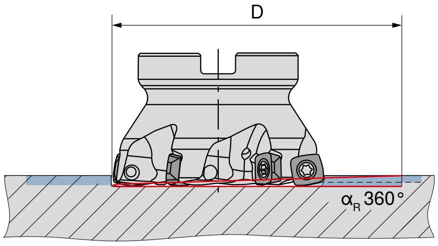






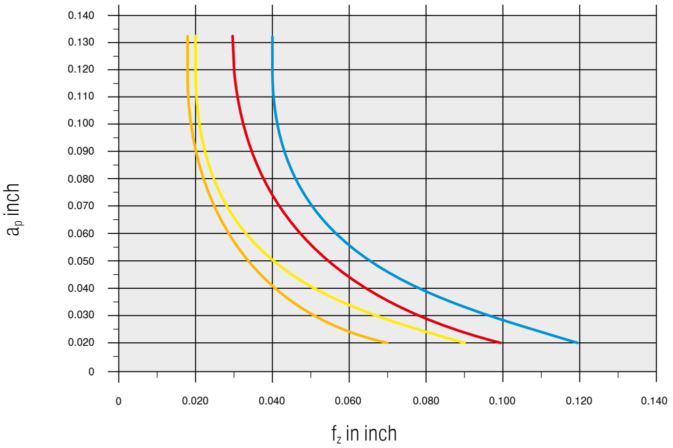
	circular		
	Helical plunging (helical plunging into solid material)		
DC inch	$D_{min.}$ inch	$D_{max.}$ inch	α R max. °
2.50	3.82	4.84	2.5
3.00	5.15	6.18	1.4
4.00	6.73	7.75	1.0
5.00	8.70	9.72	0.7
6.00	11.45	12.48	0.5

	axial	Angled	
		Plunging	
DC inch	$X_{max.}$ inch	α R max. °	$a_{p\ max}$ inch
2.50	0.067	2.9	0.129
3.00		1.8	
4.00		1.3	
5.00		1.0	
6.00		0.7	



Starting Parameter

XOLX 19



Material			Inserts		v_c in ft/min	Cooling
Steel	**P.4.1**	P20	**XOLX190615SR-M50**	**CTPP235**	660	Dry
Stainless steel	**M.1.1**	316Ti	**XOLX190615SR-M50**	**CTPM240**	600	Dry
Cast iron	**K.1.1**	GG25 Cast Iron	**XOLX190615SR-M50**	**CTCK215**	825	Dry
Heat-resistant	**S.2.2**	Inconel 718	**XOLX190615ER-F40**	**CTC5240**	115	Emulsion

Detailed information on cutting speed for each grade can be found on → page **98–100**

From v_c > 1300 SFM, the tool must be balanced!

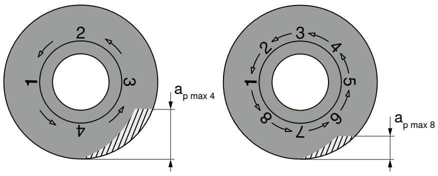
MaxiMill 251 RS system

Technical data

Recommended cutting depth

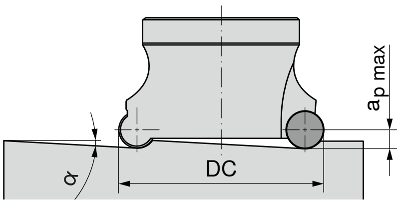
	4-position		8-face
Ø inch	$a_{p\ max.}$ inch	$a_{p\ max}$ theoretical inch	$a_{p\ max.}$ inch
0.196	0.040	0.080	0.028
0.314	0.060	0.140	0.043
0.393	0.100	0.180	0.055
0.472	0.120	0.220	0.067
0.629	0.160	0.300	0.090
0.787	0.160	0.380	0.114

Average depth for the 4/8 index use of the insert



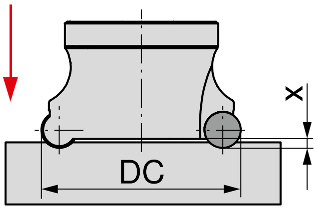
Detailed information on cutting speed for each grade can be found on → page **98–100**

Linear ramping

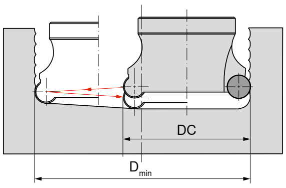


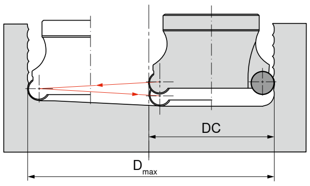
	05 	08 	10 	12 	16 	20 
Ø DC inch	α °	α °	α °	α °	α °	α °
0.37	3.4					
0.50	16.0					
0.62	8.0	5.0				
0.75	5.5	20.0	1.3			
1.00	4.0	13.0	2.0	6.0		
1.25	3.0	8.0	3.0	4.0		
1.50			3.3	2.8		
1.62			3.1			
2.00			2.4	2.6	4.0	
2.12			2.2	2.3		
2.50				1.9	2.8	
2.62				1.6		
3.00				1.3	2.0	3.2
4.00				1.0	1.5	2.3
5.00						1.7

Axial ramping



	05 	08 	10 	12 	16 	20 
Ø DC inch	$X_{max.}$ inch	$X_{max.}$ inch	$X_{max.}$ inch	$X_{max.}$ inch	$X_{max.}$ inch	$X_{max.}$ inch
0.37	0.020					
0.50	0.050					
0.62	0.050	0.020				
0.75	0.050	0.106	0.008			
1.00	0.050	0.106	0.016	0.040		
1.25	0.050	0.106	0.030	0.043		
1.50			0.060	0.047		
1.62			0.060	0.060		
2.00			0.060	0.060	0.080	
2.12			0.060	0.060	0.080	
2.50				0.060	0.080	
2.62				0.060	0.080	
3.00				0.060	0.080	0.120
4.00				0.060	0.080	0.120
5.00						0.120





$D_{min.}$ = smallest drilling diameter depending on the tool diameter

$D_{max.}$ = Maximum hole diameter Depending on the tool diameter

maximum possible hole diameter = 2 x DC – 0.040”

	05 			08 			10 			12 			16 			20 		
Ø DC inch	D_{min} inch	D_{max} inch	α_R °	D_{min} inch	D_{max} inch	α_R °	D_{min} inch	D_{max} inch	α_R °	D_{min} inch	D_{max} inch	α_R °	D_{min} inch	D_{max} inch	α_R °	D_{min} inch	D_{max} inch	α_R °
0.37	0.47	0.59	2.5															
0.50	0.63	0.75	2.1															
0.62	0.94	1.06	1.5	0.83	0.94	2.4												
0.75	1.26	1.38	1.2	1.06	1.26	1.9	1.02	1.18	1.3									
1.00	1.65	1.77	1.0	1.46	1.65	1.5	1.46	1.57	1.8	1.22	1.50	2.2						
1.25	2.20	2.32	0.7	2.01	2.20	1.2	1.97	2.13	1.5	1.81	2.05	1.7						
1.50							2.52	2.76	1.1	2.44	2.68	1.4						
1.62							2.68	2.91	1.1									
2.00							3.31	3.54	0.9	3.19	3.46	1.1	2.95	3.31	1.5			
2.12							3.46	3.70	0.9	3.39	3.62	1.0						
2.50										4.21	4.49	0.9	3.98	4.33	1.1			
2.62										4.45	4.72	0.8						
3.00										5.59	5.83	0.7	5.31	5.67	0.9	5.04	5.51	1.1
4.00										7.13	7.40	0.5	6.89	7.24	0.7	6.61	7.09	0.9
5.00																8.58	9.06	0.7

System MaxiMill 252

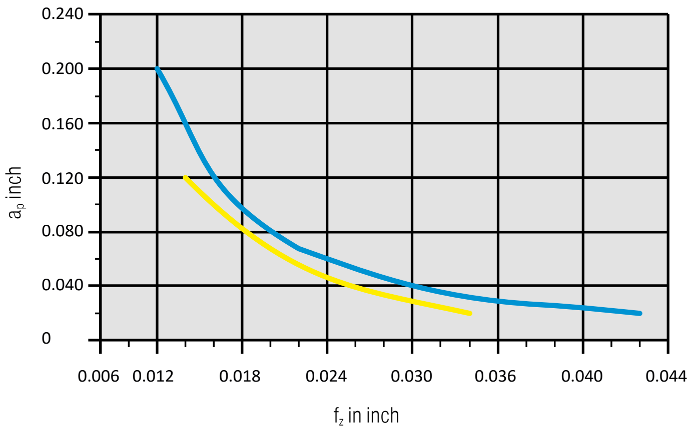
Machining strategy

Recommended cutting depth

Ø inch	4-position $a_{p\,max}$ inch	 inch
0.393	0.100	0.180
0.472	0.120	0.220

Starting Parameter

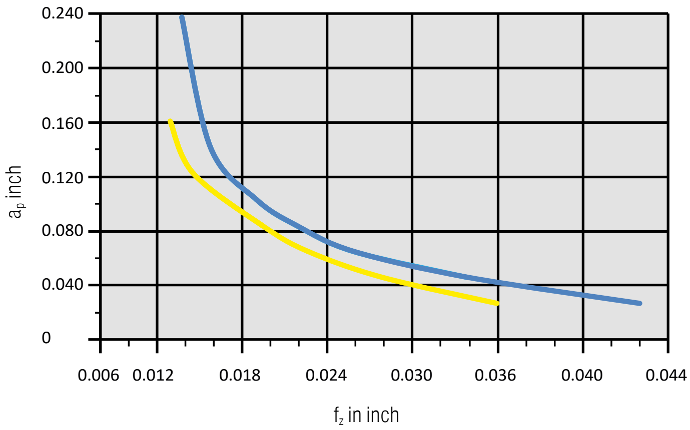
RNHU 10



Material			Inserts		v_c in ft/min	Cooling
Steel	**P.4.1**	P20	**XOLX120410SR-M50**	**CTPP235**	600	Dry
Stainless steel	**M.1.1**	316Ti	**XOLX120410ER-M50**	**CTPM240**	600	Dry

Starting Parameter

RNHU 12



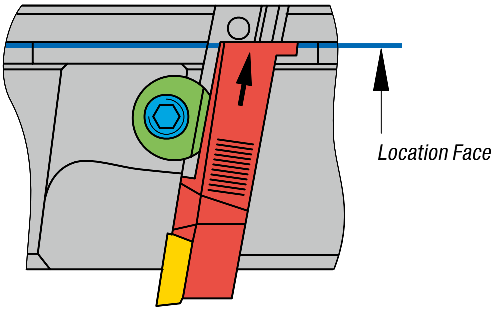
Material			Inserts		v_c in ft/min	Cooling
Steel	**P.4.1**	P20	**XOLX120410SR-M50**	**CTPP235**	600	Dry
Stainless steel	**M.1.1**	316Ti	**XOLX120410ER-M50**	**CTPM240**	600	Dry

Detailed information on cutting speed for each grade can be found on → page **98–100**

From v_c > 1300 SFM, the tool must be balanced!

System MaxiMill 260

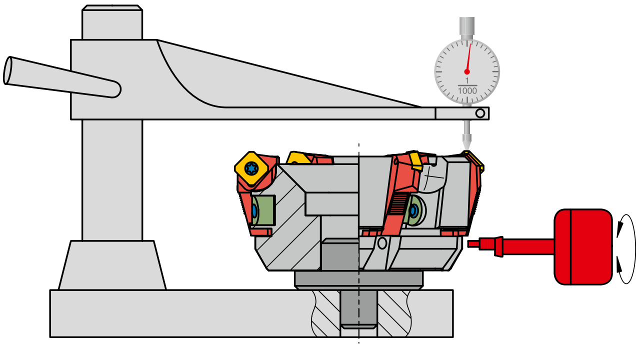
Setting of axial run-out for roughing



For assembly simply press cartridges onto the location face of the radial groove. The axial run-out amounts to 0.00072" measured on the master insert.

Setting of axial run-out with eccentric key and clock gauge or on optical presetting equipment

Exact setting of axial run-out up to 0.0008"

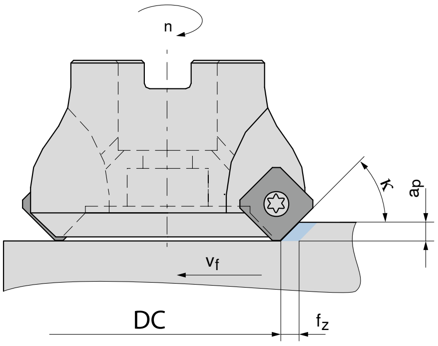


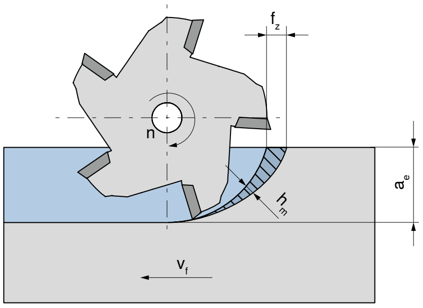
- ▲ Clean the milling tools
- ▲ Mount cutter on appropriate setting equipment.
- ▲ Loosen clamping wedge, push cassette to face and tighten wedge lightly.
- ▲ Insert ecentric key into hole and turn until cassette is in desired position.
- ▲ Keep ecentric key in contact with the cassette so that it remains in position.
  Tighten wedge (torque moment 10 Nm).
- ▲ The tool is now ready for use.

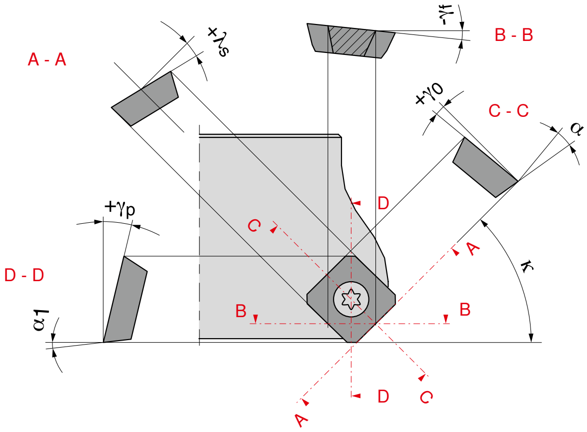
Abbreviations & dimensions

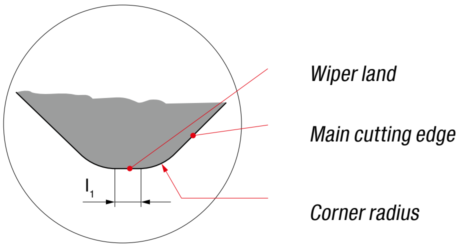
a_e	cutting width	inch
a_p	Cutting depth	inch
DC	Tool diameter	inch
D_w	Workpiece diameter	inch
f_z	Feed per tooth	inch
h_m	Average Chip Thickness	inch
k	Number of teeth	
k_c	Specific cutting force	N/inch^2
$k_{c1.1}$	Specific cutting force for 1 mm^2 chip area	N/inch^2
BS	Length of wiper land	inch
m_c	Increase of specific cutting force	
n	rpm	rpm
Q	Chip volume	in^3/min
v_c	Cutting speed	ft/min
v_f	Feed rate	in/min
ZNF	Number of Effective Teeth	

γ_0	Effective cutting angle	degree
γ_f	Side clearance angle	degree
γ_p	Axial cutting angle	degree
κ	Cutting edge angle	degree
λ_s	Angle of inclination	degree
α	Clearance angle	degree
α_1	Side clearance angle	degree





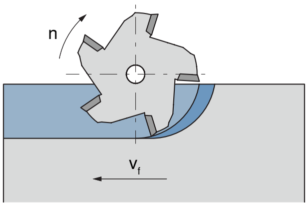




Engagement conditions

Recommended

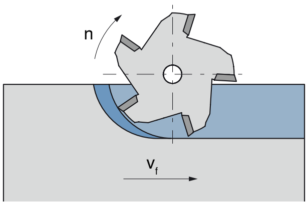
Climb milling



The feed direction of the workpiece is the same as the direction of rotation of the milling cutter in the cutting zone. The chips have maximum thickness at the beginning, chip thickness then decreases until it becomes zero at the end of the cut.

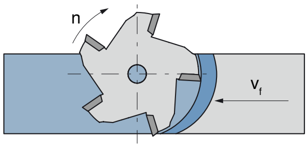
Unsuitable

Conventional milling

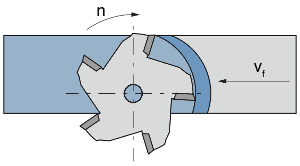


The feed direction of the workpiece is opposite to the direction of rotation of the milling cutter in the cutting zone. Chip thickness is zero at the beginning and increases until it reaches its maximum at the end of the cut.

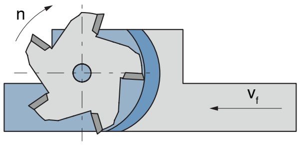
Cutter positioning



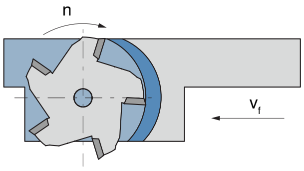
If possible the cutter should exit tangentially of the workpiece.



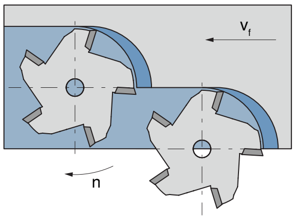
Workpiece situation



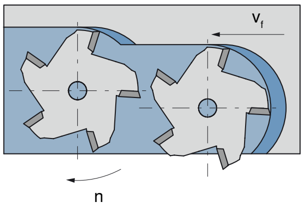
The workpiece should be clamped in such a way as to allow the cutter to emerge tangentially of the workpiece along the whole machining length.



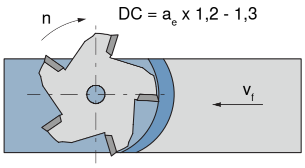
Overlapping



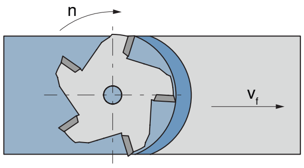
Either employ climb milling or ensure that the cutter comes out of the workpiece tangentially, as in the illustration on the left.



Cutter size



When face milling the diameter of the cutter should be 20–30 % larger than that of the workpiece.



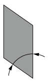
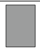
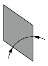
ISO designation indexable milling inserts

X	D	K	T	11	T3	08	S	R	-	F50
1	2	3	4	5	6	7	8	9		10

Z	N	H	W	12	05	PO	S	R	-	15	06	-	R
1	2	3	4	5	6	7	8	9		11	12		13

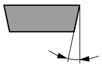
1

Insert shape

A **B** **K**	85° 82° 55°	
H	120°	
L	90°	
O	135°	
P	108°	
C **D** **E** **M** **V**	80° 55° 75° 86° 35°	
R		
S	90°	
T	60°	
W	80°	
X **Z**	Special version	

2

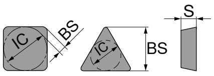
Clearance angle



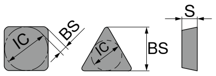
	α
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
O	Special version

3

Tolerances



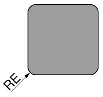
	IC ±inch	BS ±inch	S ±inch	IC = 1/4 / 3/8	IC = 1/2	IC = 5/8 / 3/4
A	0.0010	0.0002	0.0001	●	●	●
C	0.0010	0.0005	0.0001	●	●	●
E	0.0010	0.0010	0.0001	●	●	●
F	0.0005	0.0002	0.0001	●	●	●
G	0.0010	0.0010	0.0005	●	●	●
H	0.0005	0.0005	0.0010	●	●	●
J	0.0020	0.0002	0.0010	●		
	0.0031	0.0002	0.0010		●	
	0.0039	0.0002	0.0010			●
K	0.0020	0.0005	0.0010	●		
	0.0031	0.0005	0.0008		●	
	0.0039	0.0005	0.0008			●



	IC ±inch	BS ±inch	S ±inch	IC = 1/4 / 3/8	IC = 1/2	IC = 5/8 / 3/4
M	0.0020	0.0031	0.0051	●		
	0.0031	0.0051	0.0051		●	
	0.0039	0.0059	0.0051			●
N	0.0020	0.0031	0.0010	●		
	0.0031	0.0051	0.0010		●	
	0.0039	0.0059	0.0010			●
U	0.0031	0.0051	0.0051	●		
	0.0051	0.0079	0.0051		●	
	0.0071	0.0071	0.0051			●

7

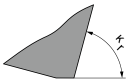
Wiper land / corner radius



Radius

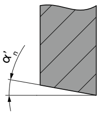
	RE in inch
M0*	
02	0.008
04	0.016
08	0.031
12	0.047

* Only with insert type "R"



1. Designation

	K_r
A	45°
D	60°
E	75°
F	85°
P	90°
Z	Alternative

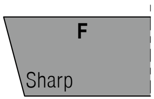


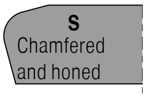
2. Designation

	α'_n
A	3°
B	5°
C	7°
D	15°
E	20°
F	25°
G	30°
N	0°
P	11°
Z **O**	Alternative

8

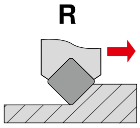
Cutting edge

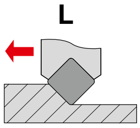


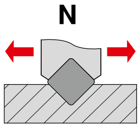


9

Direction of cut

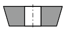
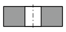
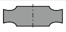
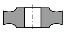
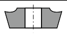
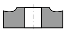
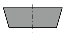
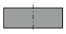
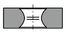
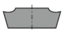
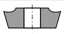
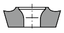
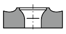
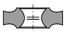
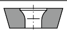
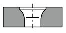






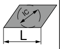
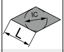
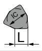
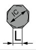
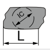
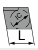
4

Characteristics

A		
F		
G		
M		
N		
Q		
R		
T		
U		
W		
X	Special version	

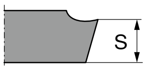
5

Cutting length

IC inch	 **A**	 **T**	 **C/S**	 **H**	 **L**	 **R**	 **V**	 **W**	 **O**	 **X**	 **Z**
0.193										07	
0.196						05					
0.219			05		08			03			
0.236											
1 / 4		11	06		10			04		06	
0.262	10										
0.267										11	
0.275											04
0.313			07								
0.315						08					
0.354					12						
0.366										15	
3 / 8	16	16	09		15			06	04		
0.376	15										
0.378										09	
0.394			10		11	10					12
0.472						12					
0.492										20	
1 / 2		12/22	12		20		22	08		12	
0.622			15		22			10			
0.630						16					
0.638				09							
0.659			16								
0.670			17								
0.676									06		
0.716									07		
3 / 4			19					13			
0.787						20					

6

Insert thickness



	S inch
01	0.063
T1	0.078
02	0.094
03	0.125
T3	0.156
04	0.187
05	0.219
06	0.250
07	0.312
09	0.375

10

Chip groove

Chip breaker designation

F.. = fine
M.. = medium
R.. roughing

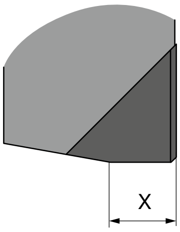
Additional characteristics:

R = transition radius main/ secondary cutting edge
Q = Masterfinish

11

Manufacturer specification

Length of the finishing cutting edge

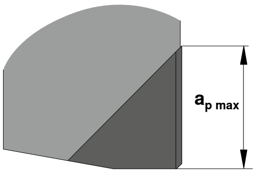


00 = 0,0 mm / 0.00 in
10 = 1,0 mm / 0.039 in
12 = 1,2 mm / 0.047 in
15 = 1,5 mm / 0.059 in
30 = 3,0 mm / 0.118 in
50 = 5,0 mm / 0.197 in

12

Manufacturer specification

$a_{p\,max}$



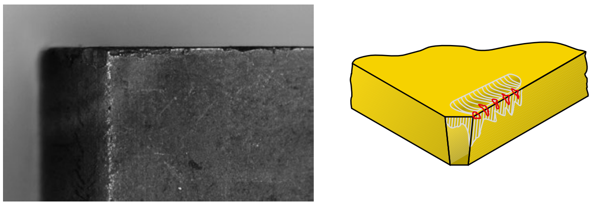
02 = 2,0 mm / 0.078 in
03 = 3,0 mm / 0.118 in
04 = 4,0 mm / 0.157 in
06 = 6,0 mm / 0.236 in
07 = 7,0 mm / 0.275 in
11 = 11,0 mm / 0.433 in

13

Manufacturer specification

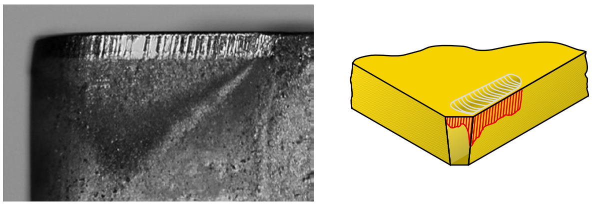
F = Fine
M = Medium
R = Rough

Cutting demands when milling



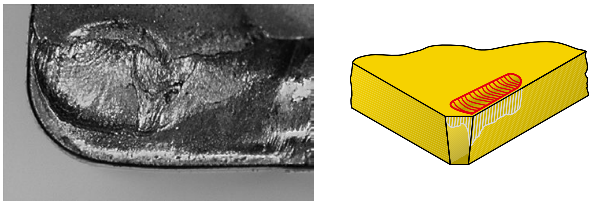
Edge chipping

Cutting speed	↑
Feed per tooth	↓
Toughness of grade	↑
Cutting edge chamfer	↑



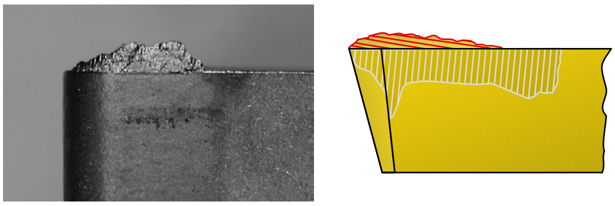
Wear on clearance face

Cutting speed	↓
Feed per tooth	↑
Abrasion resistant grade	↑



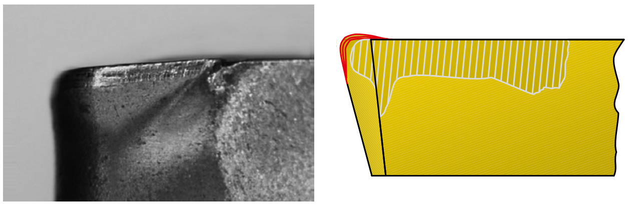
Cratering

Cutting speed	↓
Feed per tooth	↓
Abrasion resistant grade	↑



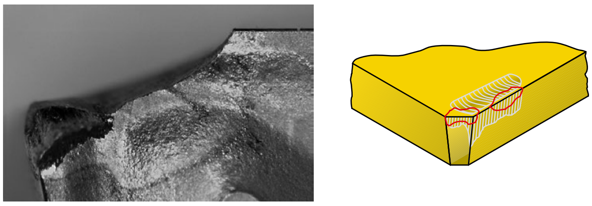
Built-up edge

Cutting speed	↑
Feed per tooth	↑
Wear resistance	↑



Cutting-edge deformation

Cutting speed	↓
Feed per tooth	↓
Abrasion resistant grade	↑



Cutting Edge Breakage

Cutting speed	↓
Toughness of grade	↑

Chip Breakers Overview

increasing wedge angle

			Sharp ●		medium ●●		stable ●●●	
			10	20	30	40	50	60
fine	F	▮	**-F10** **-27** **-27P**	**-F20**		**-F40**	**-F50**	**-ER** **-FN** **-33P** **-33**
medium	M	▮▮			**-M31** **-M30** **-M32**		**-M50** **-31**	**-EN** **-29**
rough	R	▮▮▮			**-R30**		**-R50**	**-SN** **-R60** **-SR**

Chip breaker code

				Cutting edge		
				Sharp 10–20	medium 30–40	stable 50–60
Application type	light	F	▮	●	● ●	● ● ●
	universal	M	▮▮	●	● ●	● ● ●
	difficult	R	▮▮▮	●	● ●	● ● ●

Example: Chip breaker -M50

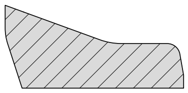
● ● ● = 50–60

▮▮ = M

Chip groove description

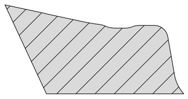
-27P

- Highly positive geometry
- Sharp cutting edges
- Reduced built up edge
- First choice for non-ferrous metals



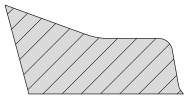
-F10

- Very positive geometry
- Sharp cutting edge
- Prevents sticking and edge build up
- First Choice for non-ferrous metal



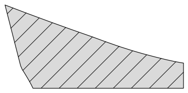
-27

- Highly positive geometry
- Sharp cutting edges
- First choice for non-ferrous metals



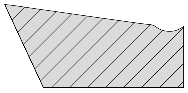
-F20

- Extremely positive geometry
- Lightly rounded cutting edge
- First choice for non-ferrous metals



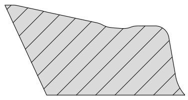
-F40

- Positive geometry
- Rounded cutting edge
- Finish and rough machining
- For unstable clamping situations
- For heat-resistant materials, titanium and super alloys



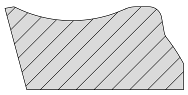
-F50

- Positive geometry with small positive protective chamfer
- Rounded cutting edge
- Low cutting force and good stability
- For unstable clamping situations
- Light rough machining
- First choice for stainless steels



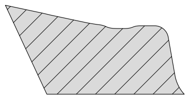
-33P

- Positive geometry with small neutral protective chamfer
- Low adhesion
- Rounded cutting edge
- Low cutting force and good stability
- For unstable clamping situations
- Light rough machining
- First choice for stainless steels



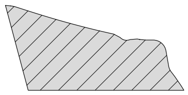
-M30

- Positive geometry
- Rounded cutting edge
- Medium rough machining
- First choice for martensitic stainless steels



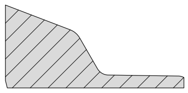
-M31

- Positive geometry
- Rounded cutting edge
- Finish and rough machining
- For unstable clamping situations
- For heat-resistant materials, titanium and super alloys



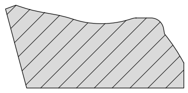
-M32

- Positive geometry
- Rounded cutting edge
- Low cutting force and good stability
- Medium rough machining
- First choice for martensitic stainless steels



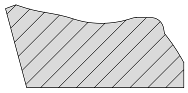
-M50

- Positive geometry with slightly negative protective chamfer
- Rounded cutting edge
- Low cutting force and good stability
- Light to medium rough machining
- First choice for general steels



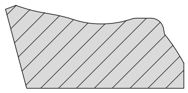
-31

- Positive geometry with neutral protective chamfer
- Rounded cutting edge
- Heavy rough machining
- Strongly interrupted cuts
- First choice for cast iron materials



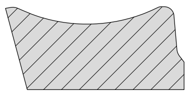
-29

- Positive geometry with slightly negative protective chamfer
- Rounded cutting edge
- Low cutting force and good stability
- Light to medium rough machining
- First choice for general steels



-33

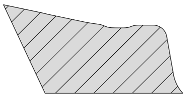
- Positive geometry with small neutral protective chamfer
- Rounded cutting edge
- Low cutting force and good stability
- For unstable clamping situations
- Light rough machining
- First choice for stainless steels



Chip groove description

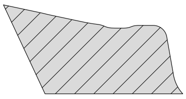
-29R

- Positive geometry with slightly negative protective chamfer
- Heavily rounded cutting edge
- Low cutting force and good stability
- Light to medium rough machining
- First choice for general steels



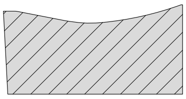
-R30

- Positive geometry with slightly negative protective chamfer
- Heavily rounded cutting edge
- Low cutting force and good stability
- Light to medium rough machining
- First choice for general steels



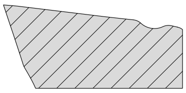
-R50

- Slightly positive geometry
- Rounded cutting edge
- Medium rough machining
- Strongly interrupted cuts
- First choice for cast iron materials



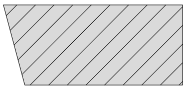
-R60

- Positive geometry with negative stable protective chamfer
- Heavily rounded cutting edge
- For stable machining conditions
- First choice for heavily interrupted cuts
- Heavy rough machining
- First choice for cast iron materials



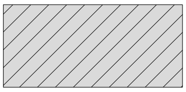
-FN

- Neutral and highly stable geometry
- Heavily rounded cutting edge
- For stable machining conditions
- First choice for hard machining up to approx. 50 HRC



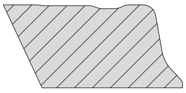
-ER

- Neutral Geometry
- Rounded cutting edge
- Universal application
- High surface quality due to face chamfer
- First choice for machining cast iron and non-ferrous metals



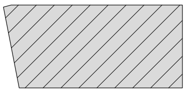
-EN

- Neutral geometry
- Rounded cutting edge
- High surface quality due to face chamfer (radial protective chamfer on indexable insert)
- First choice for machining cast iron and non-ferrous metals



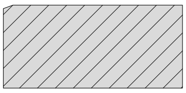
-SN

- Neutral geometry
- Rounded cutting edge
- High surface quality due to face chamfer (radial protective chamfer on indexable insert)
- Low cutting forces
- First choice for good flatness



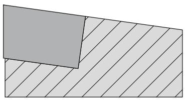
-SR

- Neutral geometry with negative protective chamfer
- Rounded cutting edge
- Robust indexable insert
- For poor machining conditions
- First choice for machining cast iron and steels

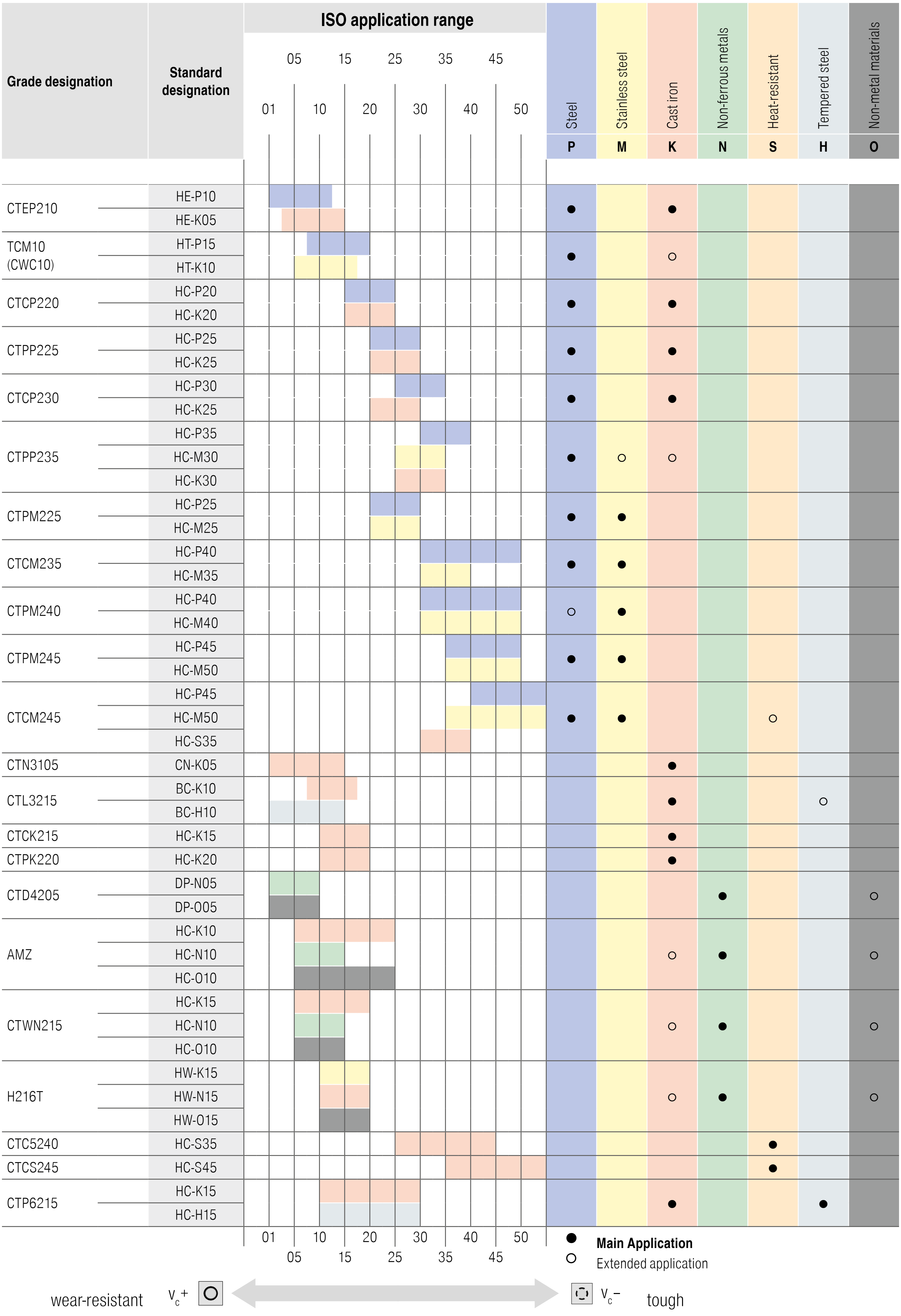


-FR

- Neutral Geometry
- Slightly rounded and stable cutting edge
- Associated with Ceramic and CBN cutting materials.
- For stable machining situations
- First choice for machining cast irons



Grades Overview



Grade designation	Standard designation	ISO application range											Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials
		01	05	10	15	20	25	30	35	40	45	50	P	M	K	N	S	H	O
CTEP210	HE-P10	■	■	▌									●		●				
	HE-K05	▐	■	■															
TCM10 (CWC10)	HT-P15		▐	■	■								●		○				
	HT-K10		■	■	▌														
CTCP220	HC-P20				■	■							●		●				
	HC-K20				■	■													
CTPP225	HC-P25					■	■						●		●				
	HC-K25					■	■												
CTCP230	HC-P30						■	■					●		●				
	HC-K25					■	■												
CTPP235	HC-P35							■	■				●	○	○				
	HC-M30						■	■											
	HC-K30						■	■											
CTPM225	HC-P25					■	■						●	●					
	HC-M25					■	■												
CTCM235	HC-P40							■	■	■	■		●	●					
	HC-M35							■	■										
CTPM240	HC-P40							■	■	■	■		○	●					
	HC-M40							■	■	■	■								
CTPM245	HC-P45								■	■	■		●	●					
	HC-M50								■	■	■								
CTCM245	HC-P45									■	■	■	●	●			○		
	HC-M50								■	■	■	■							
	HC-S35							■	■										
CTN3105	CN-K05	■	■	■											●				
CTL3215	BC-K10		▐	■	▌										●			○	
	BC-H10	■	■	■															
CTCK215	HC-K15			■	■										●				
CTPK220	HC-K20			■	■										●				
CTD4205	DP-N05	■	■													●			○
	DP-O05	■	■																
AMZ	HC-K10		■	■	■	■									○	●			○
	HC-N10		■	■															
	HC-O10		■	■	■	■													
CTWN215	HC-K15		■	■	■										○	●			○
	HC-N10		■	■															
	HC-O10		■	■															
H216T	HW-K15			■	■										○	●			○
	HW-N15			■	■														
	HW-O15			■	■														
CTC5240	HC-S35						■	■	■	■							●		
CTCS245	HC-S45								■	■	■	■					●		
CTP6215	HC-K15			■	■	■	■								●			●	
	HC-H15			■	■	■	■												

● **Main Application**
○ Extended application

Grade description

AMZ

- Carbide, TiAlN-coated
- ISO | K10 | **N10** | O10
- The coated carbide grade for aluminium machining

CTC5240

- Carbide, TiN-TiB$_2$-coated
- ISO | **S35**
- The special grade for machining titanium and titanium alloys

CTCK215

- Carbide, TiCN-Al$_2$O$_3$-coated
- ISO | **K15**
- The first choice for machining cast iron materials at high cutting speeds

CTCM235

- Carbide, TiCN-Al$_2$O$_3$-coated
- ISO | **P40** | **M35**
- The tough alternative for general steel machining
- Well suited to martensitic steel materials

CTCM245

- Carbide, TiCN-Al$_2$O$_3$ coated
- ISO **M45/P50**; S35
- Special grade for machining high-alloy steel materials

CTCP220

- Carbide, TiCN-Al$_2$O$_3$-coated
- ISO | **P20** | **K20**
- The wear-resistant grade for dry machining steels

CTCP225

- Carbide, TiAlTaN-coated
- ISO | **P25** | **K25**
- The wear-resistant grade for wet machining of steels

CTCP230

- Carbide, TiCN-Al$_2$O$_3$-coated
- ISO | **P30** | K25
- The first choice for dry machining steel at high cutting speeds

CTD4205

- Carbide, uncoated
- ISO | **N05** | O05
- Polycrystalline diamond grade for machining non-ferrous metals and non-metallic materials

CTEP210

- Cermet, TiCN-Al$_2$O$_3$-coated
- ISO | **P10** | **K05**
- The coated cermet grade with reserves of toughness for finish machining at high cutting speeds

CTP6215

- Carbide, TiAlN-coated
- ISO | **K15** | **H15**
- The coated carbide grade for hard machining

CTPK220

- Carbide, TiAlTaN-coated
- ISO | **K20**
- Optimal for machining high-strength cast iron materials in the tougher application range

CTPM225

- Carbide, TiAlTaN-coated
- ISO | **P25** | **M25**
- The wear-resistant choice for machining austenitic steels

CTPM240

- Carbide, TiAlTaN-coated
- ISO | P40 | **M40**
- The first choice for machining austenitic steels

CTPM245

- Carbide, TiAlTaN-coated
- ISO | **M45** | **P50**
- The first choice for machining martensitic steels

Grade description

CTPP235

- ▲ Carbide, TiAlTaN-coated
- ▲ ISO | **P35** | M30 | K30
- ▲ The wear-resistant grade for wet machining of steels

CTWN215

- ▲ Carbide, uncoated
- ▲ ISO | K15 | **N10** | 010
- ▲ Uncoated carbide grade for machining non-ferrous metals

H216T

- ▲ Carbide, uncoated
- ▲ ISO | K15 | **N15** | 015
- ▲ The uncoated carbide grade for machining aluminium and other non-ferrous metals
- ▲ Also highly suitable for HSC machining

TCM10

- ▲ Cermet, uncoated
- ▲ ISO | **P15** | **M10** | K10
- ▲ The uncoated cermet grade for finish machining stainless and hardened steel
- ▲ Particularly wear resistant thanks to high heat resistance

CTCS245

- ▲ Carbide, CVD TiN-TiB2 coated
- ▲ ISO | **S45**
- ▲ The special grade for machining nickel-based alloys

Grade description

C T C | **P** | **2** | **2 0** (Example)

Main application – material

1|P	Steel
2|M	Stainless steel
3|K	Cast iron
4|N	Light and non ferrous metals
5|S	Super alloys, titanium
6|H	Hard materials
7|X	Universal application

Application

1	Turning
2	Milling
3	Grooving
4	Drilling
5	Thread turning
6	Others
7	Several processes

Degree of hardness

05	ISO 05
10	ISO 10
15	ISO 15
	...

Grade description – Indexable insert countersink

BK8425	▲ Carbide, TiAlN/TiN-coated ▲ ISO | **P25** | **M25** | **K25** ▲ Universal grade with greater wear resistance thanks to innovative PVD multi-layer coating	K10	▲ Carbide, uncoated ▲ ISO | **K10** ▲ Uncoated carbide grade for machining grey cast iron or non-ferrous metals, depending on the cutting edge geometry

Chip breakers

-SM	▲ Rake angle 15° ▲ For universal use with medium machining ▲ Stable cutting edge	**-U877**	▲ Rake angle 6° ▲ circumferentially ground ▲ Three-ground chip breaker with second clearance angle for clearance with small tool diameters
-G06	▲ Rake angle 6° ▲ Preferred application in P / M / K ▲ Characterized by a particularly stable wedge angle	**-G12**	▲ Rake angle 12° ▲ Preferred application in P / N / S ▲ is characterized by a particularly high cutting performance

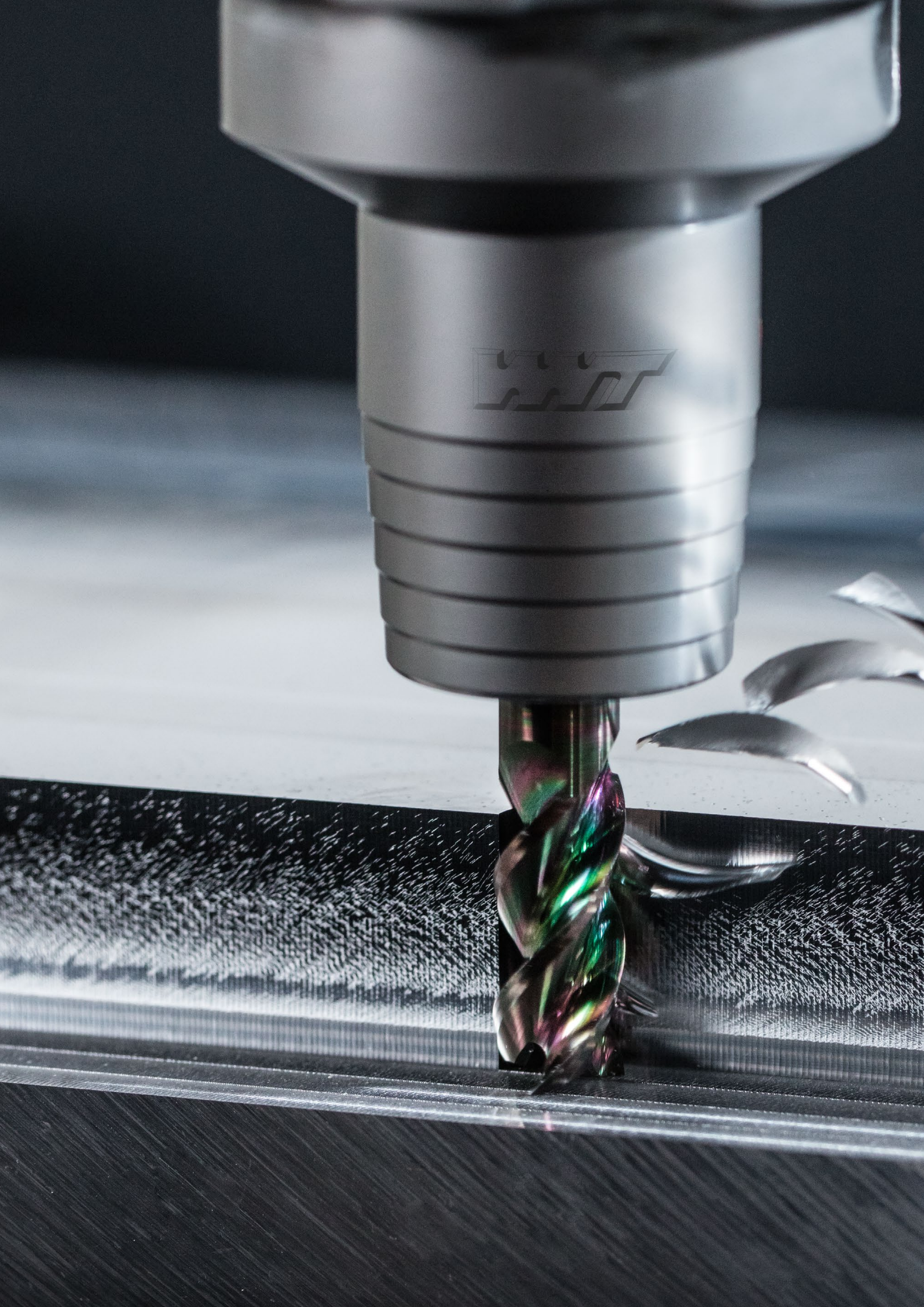


Table of contents

CERATIZIT \ Performance

Premium quality tools for high performance.

The premium quality tools from the **CERATIZIT Performance** product line have been designed for specific applications and are distinguished by their outstanding performance. If you make high demands on the performance of your production and want to achieve the very best results, we recommend the Premium tools in this product line.

CERATIZIT \ Standard

Quality tools for standard applications.

The quality tools of the **CERATIZIT Standard** product line are high quality, powerful and reliable and enjoy the highest trust of our customers worldwide. Tools from this product line are the first choice for many standard applications and guarantee optimal results.

Symbol explanation

Shank

DIN 6535 HA HB	Shank type
	Length: extra short / short / medium / long / extra long

Cutting edge preparation

	Square end
	Corner chamfer (CHW = chamfer width in inch)
	Corner radius
	Full Radius

Application

HPC	High volume machining
	Machining example
	The red arrows describe the possible feed directions
ZEFP	Number of flutes
λ_s=48° γ_s=10°	Cutting geometry λ_s = Helix Angle γ_s = Rake Angle

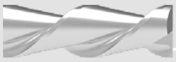
● = **Main Application**
○ = Extended application

Toolfinder

softer — Material to machine — harder

Finish milling

P		●	●	**Steel**
M		●		**Stainless steel**
K		●		**Cast iron**
N	●			**Non-ferrous metals**
S		●		**Heat resistant alloys**
H			●	**Hardened steel**
O				**Non metal materials**


7–16


17–48


69–93


94–95


96–101


36–46

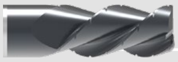

82–93


94–95


96–101

Rough and finish machining

P		●	**Steel**
M		●	**Stainless steel**
K		●	**Cast iron**
N	●		**Non-ferrous metals**
S		●	**Heat resistant alloys**
H			**Hardened steel**
O			**Non metal materials**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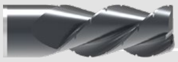
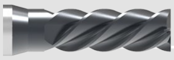
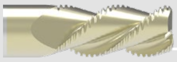

51–60


36–46

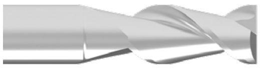
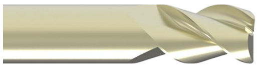
Rough machining

P		●	**Steel**
M		●	**Stainless steel**
K		●	**Cast iron**
N	●		**Non-ferrous metals**
S		●	**Heat resistant alloys**
H			**Hardened steel**
O			**Non metal materials**

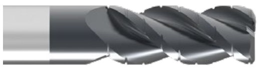
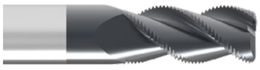
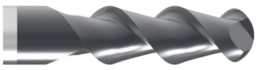
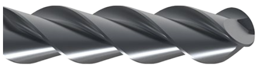

56+57


61–68

Overview High Performance Milling Cutters

	Series	Tool type	Number of flutes ZEFP	Diameter in inch Ø DC	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials		Square end	Corner chamfer	Corner radius	Full Radius	Length	Tool design	coated ■	uncoated ☐	CERATIZIT \ Standard	CERATIZIT \ Performance
	P220	AL	2	1/8“–3/4“				●				HA		▣			▤			☐		7
	S142	AL	2	1/8“–1“				●				HA	▣				▤		■	☐	8+9	
	P109	AL	3	1/8“–1“				●				HA	▣				▤		■			10+11
	P362	AL	3	3/16“–1“				●				HA	▣				▤	HPC	■			12
	P362	AL	3	3/16“–1“				●				HA			▣		▤	HPC	■			13–15
	P376	AL	6	1/4“–1“				●				HA	▣				▤		■			16
	S642	UN	2	1/16“–1“	●	●	●	●	●			HA	▣				▤		■	☐	17+18	
	S642	UN	2	1/8“–3/4“	●	●	●	●	●			HA			▣		▤		■	☐	19+20	
	S643	UN	3	1/16“–1“	●	●	●	●	●			HA	▣				▤		■	☐	21+22	
	S643	UN	3	1/8“–1“	●	●	●	●	●			HA			▣		▤		■	☐	23	
	S644	UN	4	1/32“–1“	●	●	●	●	●			HA	▣				▤		■	☐	25+26	
	S644	UN	4	1/8“–1“	●	●	●	●	●			HA			▣		▤		■	☐	27–35	
	S645	UN	5	1/8“–1“	●	●	●					HA	▣				▤		■	☐	36	
	P007	UN	4	1/8“–1“	●	●	●	●	●			HA	▣				▤	HPC	■			37
	P007	UN	4	1/8“–1“	●	●	●	●	●			HA			▣		▤	HPC	■			38–41
	P556	UN	5	1/4“–1“	●	●	●		●			HA	▣				▤	HPC	■			42
	P556	UN	5	1/4“–1“	●	●	●		●			HA			▣		▤	HPC	■			43–46
	P160	UN	7	1/4“–1“	●	●	●	●	●			HA	▣				▤	HPC	■			47
	P161	UN	7	1/4“–1“	●	●	●	●	●			HA			▣		▤	HPC	■			48
	P119	AL	3	1/8“–1“				●				HA			▣		▤		■			49+50
	P117	UN	3	1/8“–3/4“	●	●	●	●	●			HA			▣		▤		■			51
	P120	UN	4	3/8“–1“	●		●					HA HB			▣		▤	HPC	■			52–54

Overview High Performance Milling Cutters

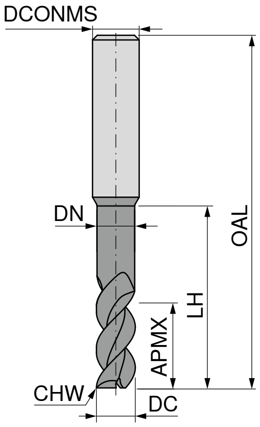
	Series	Tool type	Number of flutes ZEFP	Diameter in inch Ø DC	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials	Square end	Corner chamfer	Corner radius	Full Radius	Length	Tool design	coated	uncoated	CERATIZIT \ Standard	CERATIZIT \ Performance
	P121	UN	5	3/4“–1“	●	●	●		● HB					▨		▨	HPC	■			55
	P102	AL	3	3/16“–1“		HA		●	HB					▨		▨		■			56–58
	P190	UN	4	3/16“–1“	●	HA	●					▨				▨	HPC	■			59
	P191	UN	4	3/16“–1“	●	HA	●							▨		▨	HPC	■			60
	P100	UN	3	3/16“	●	HA	●		HB					▨		▨		■			61
	P100	UN	4	1/4“–3/4“	●		●		HB					▨		▨		■			62+63
	P100	UN	5	1“	●		●		HB					▨		▨		■			64
	P101	Ti	3	3/16“	●	HA	●							▨		▨	HPC	■			65
	P101	Ti	4	1/4“–3/4“	●	HA	●		HB					▨		▨	HPC	■			66+67
	P101	Ti	5	1“	●		●		HB					▨		▨		■			68
	S662	UN	2	1/16“–1“	●	● HA	●	●	●						▨	▨		■	☐	69+70	
	S663	UN	3	1/8“–1“	●	● HA	●	●	●						▨	▨		■	☐	71–73	
	P157	UN	4	1/8“–1“	●	● HA	●	●							▨	▨	HPC	■			74
	S664	UN	4	1/32“–1“	●	● HA	●	●							▨	▨		■	☐	75+76	
	P250	ST	2	1/8“–1/2“	●	● HA	●	●	●						▨	▨		■			77
	P251	UN	2	0.031“–0.187“	●	● HA	●	●	●						▨	▨		■			78
	P252	UN	2	0.031“–0.187“	●	● HA	●	●	●						▨	▨		■			79
	P253	UN	2	0.031“–0.187“	●	● HA	●	●	●						▨	▨		■			80
	P254	UN	2	0.031“–0.187“	●	● HA	●	●	●						▨	▨		■			81
	P501	UN	4	0.005“–0.120“	●	● HA	●	●	●			▨				▨		■			82–84
	P504	UN	4	0.005“–0.120“	●	● HA	●	●	●			▨				▨		■			85–87
	P503	UN	4	0.005“–0.120“	●	● HA	●	●	●						▨	▨		■			88–90

Overview High Performance Milling Cutters

	Series	Tool type	Number of flutes ZEFP	Diameter in inch Ø DC	Steel	Stainless steel	Cast iron	Non-ferrous metals	Heat-resistant	Tempered steel	Non-metal materials	Square end	Corner chamfer	Corner radius	Full Radius	Length	Tool design	coated ■	uncoated ☐	CERATIZIT \ Standard	CERATIZIT \ Performance
	**P506**	**UN**	**4**	0.005–0.120	● HA	●	●	●	●						◡	▤		■			91–93
	**P137**	**UN**	**2**	0.010–0.155	● HA		●											■	☐		94
	**P139**	**UN**	**4**	0.010–0.155	● HA		●											■	☐		95
	**P132**	**UN**	**2**	1/8–1/2	● HA		●											■	☐		96
	**P133**	**UN**	**4**	1/4–1/2	● HA		●											■	☐		97
	**P134**	**UN**	**2**	1/8–1/2	● HA		●											■	☐		98
	**P135**	**UN**	**4**	1/4–1/2	● HA		●											■	☐		99
	**P130**	**UN**	**2**	1/4–1/2	● HA		●											■	☐		100
	**P131**	**UN**	**4**	1/4–1/2	● HA		●											■	☐		101

End milling cutter

P220 AL λ_s=50° γ_s=7° ZEFP



HA HA

DC +0.000/-0.002 inch	APMX inch	DN inch	LH inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	CHW inch	ZEFP	59 003 ...	59 003 ...
1/8	3/8	0.120	3/4	2	1/8	0.006	2	**12530**	
3/16	7/16	0.180	3/4	2	3/16	0.006	2	**18824**	
1/4	1/2	0.240	13/16	2 1/2	1/4	0.006	2		**25020**
5/16	3/4	0.300	1	3	5/16	0.006	2		**31324**
3/8	7/8	0.360	1 1/8	3	3/8	0.006	2		**37523**
1/2	1	0.480	1 3/8	3	1/2	0.006	2	**50020**	
1/2	1 1/4	0.480	1 5/8	3 1/2	1/2	0.006	2		**50025**
5/8	1 1/4	0.600	1 7/8	4	5/8	0.006	2		**62520**
3/4	1 1/2	0.720	2 1/4	5	3/4	0.006	2		**75020**

P		
M		
K		
N	●	●
S		
H		
O		

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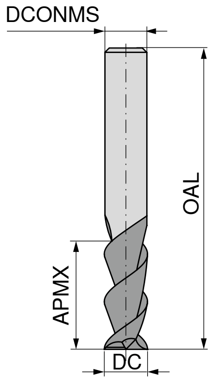
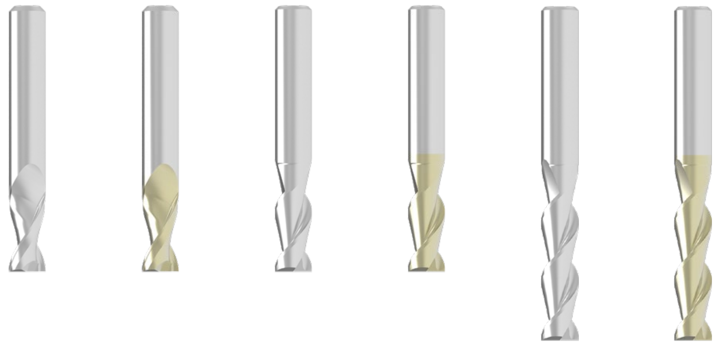
End milling cutter

S142 **AL** λ_s=40° γ_s=12° ZEFP





						ZrN		ZrN		ZrN
					HA	HA	HA	HA	HA	HA
					59 053 ...	59 054 ...	59 053 ...	59 054 ...	59 053 ...	59 054 ...
DC +0.000/-0.002 inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP						
1/8	1/4	1 1/2	1/8	2	12520	12520				
1/8	3/8	1 1/2	1/8	2					12530	12530
5/32	5/16	2	3/16	2	15620	15620				
5/32	9/16	2	3/16	2					15636	15636
3/16	5/16	2	3/16	2	18817	18817				
3/16	9/16	2	3/16	2					18830	18830
7/32	3/8	2	1/4	2	21917	21917				
1/4	3/8	2	1/4	2	25015	25015				
1/4	3/4	2 1/2	1/4	2					25030	25030
5/16	13/16	2 1/2	5/16	2	31326	31326				
5/16	1 1/4	4	5/16	2					31340	31340
11/32	1	2 1/2	3/8	2	34429	34429				
3/8	1/2	2 1/2	3/8	2	37513	37513				
3/8	1	2 1/2	3/8	2			37527	37527		
3/8	1 1/2	4	3/8	2					37540	37540
1/2	5/8	2 1/2	1/2	2	50013	50013				
1/2	1 1/4	3	1/2	2				50025	50025	
1/2	2	4	1/2	2			50040			50040
5/8	1 5/8	3 1/2	5/8	2					62526	62526
3/4	1	4	3/4	2	75013	75013				
3/4	1 5/8	4	3/4	2			75022	75022		
3/4	3	6	3/4	2					75040	75040
1	2	5	1	2					99920	99920

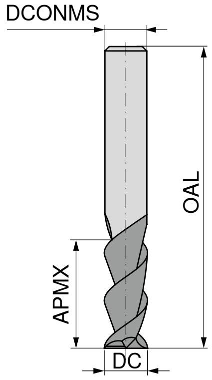
P						
M						
K						
N	●	●	●	●	●	●
S						
H						
O						

→ v_c/f_z Page 104

End milling cutter

S142 **AL** λ_s=40° γ_s=12° ZEFP

ZrN



HA HA

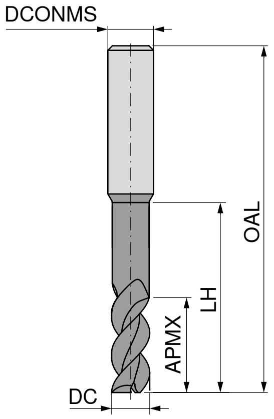
DC $_{+0.000/-0.002}$ inch	APMX inch	OAL inch	DCONMS $_{-0.0001\,/\,-0.0004}$ inch	ZEFP	59 053 ...	59 054 ...
1/4	1 1/4	3 1/2	1/4	2	**25050**	**25050**
5/16	2 1/8	4	5/16	2	**31368**	**31368**
3/8	2 1/2	6	3/8	2	**37567**	**37567**
1/2	3	6	1/2	2	**50060**	**50060**
3/4	4	7	3/4	2	**75053**	**75053**
1	3	6	1	2	**99930**	**99930**

P		
M		
K		
N	●	●
S		
H		
O		

→ v_c/f_z Page 104

End milling cutter

P109 **AL** λ_s=40° γ_s=15° ZEFP



DC $_{+0.000/-0.002}$ inch	APMX inch	OAL inch	DCONMS $_{-0.0001\ /\ -0.0004}$ inch	ZEFP	59 027 ...	59 027 ...	59 027 ...
1/8	1/4	1 1/2	1/8	3		**12520**	
5/32	3/8	2	3/16	3		**15624**	
3/16	3/8	2	3/16	3		**18820**	
7/32	3/8	2	1/4	3		**21917**	
1/4	3/8	2	1/4	3	**25015**		
1/4	3/4	2 1/2	1/4	3		**25030**	
1/4	1 1/4	3	1/4	3			**25050**
9/32	1/2	2 1/2	5/16	3		**28118**	
5/16	1/2	2 1/2	5/16	3		**31316**	
3/8	5/8	2	3/8	3	**37517**		
3/8	7/8	2 1/2	3/8	3		**37523**	
3/8	1 1/2	3 1/2	3/8	3			**37540**
7/16	1	2 3/4	7/16	3		**43823**	
1/2	5/8	2 1/2	1/2	3		**50013**	
1/2	1 1/2	3 1/2	1/2	3			**50030**
5/8	7/8	3	5/8	3		**62514**	
5/8	1 3/4	4	5/8	3			**62528**
3/4	1	3	3/4	3		**75013**	
3/4	2 1/2	5	3/4	3			**75033**
1	2 3/4	5	1	3			**99928**

P			
M			
K			
N	●	●	●
S			
H			
O			

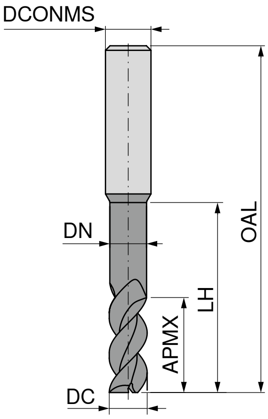
→ v_c/f_z Page 105

End milling cutter

P109 **AL**

λs=40°
γs=15°

ZEFP



ZrN ZrN

HA HA

DC +0.000/-0.002 inch	APMX inch	DN inch	LH inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 027 ...	59 027 ...
1/8	1/2			1 1/2	1/8	3	12540	
5/32	1/2			2	3/16	3	15632	
3/16	5/8			2	3/16	3	18833	
7/32	3/4			2 1/2	1/4	3	21934	
1/4	3/4	0.240	2 1/8	4	1/4	3	25130	
1/4	1 1/2			3 1/2	1/4	3		25060
9/32	3/4			2 1/2	5/16	3	28127	
5/16	3/4			2 1/2	5/16	3	31324	
3/8	1	0.360	2 3/8	6	3/8	3	37527	
3/8	2			4	3/8	3		37553
1/2	1 1/4			3	1/2	3	50025	
1/2	2			4	1/2	3		50040
9/16	1 1/4			3 1/2	9/16	3	56322	
5/8	1 1/4			3 1/2	5/8	3	62520	
5/8	2 1/2			5	5/8	3		62540
3/4	1 5/8			4	3/4	3	75022	
3/4	3 1/4			6	3/4	3		75043
1	1 3/4			4	1	3	99918	
1	3 3/8			6	1	3		99934

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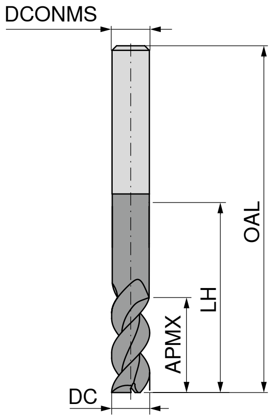
→ v_c/f_z Page 105

End milling cutter

P362 **AL** λ_s=43° 45° 48° γ_s=13° ZEFP **HPC**



DC +0.000/-0.002 inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 004 ...	59 004 ...	59 004 ...	59 004 ...
					ZrN	ZrN	ZrN	ZrN
					HA	HA	HA	HA
3/16	3/8	2	3/16	3	**18820**			
3/16	3/4	2 1/2	3/16	3			**18840**	
3/16	1	3	3/16	3				**18853**
1/4	3/8	2	1/4	3	**25015**			
1/4	3/4	2 1/2	1/4	3			**25030**	
1/4	1	3	1/4	3				**25040**
3/8	1/2	2	3/8	3	**37513**			
3/8	1	2 1/2	3/8	3			**37527**	
3/8	1 1/2	3 1/2	3/8	3				**37540**
1/2	5/8	2 1/2	1/2	3	**50013**			
1/2	1	3	1/2	3		**50020**		
1/2	1 1/4	3	1/2	3			**50025**	
1/2	1 5/8	4	1/2	3				**50033**
1/2	2	4	1/2	3				**50040**
5/8	3/4	3	5/8	3	**62512**			
5/8	1 1/4	3 1/2	5/8	3		**62520**		
5/8	1 5/8	4	5/8	3			**62526**	
3/4	1	3	3/4	3	**75013**			
3/4	1 5/8	4	3/4	3			**75022**	
3/4	2 1/4	5	3/4	3				**75030**
1	1 1/4	4	1	3	**99913**			
1	2	5	1	3			**99920**	
1	3 1/4	6	1	3				**99933**

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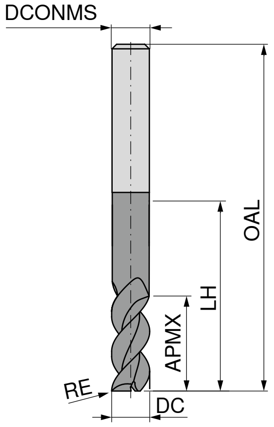
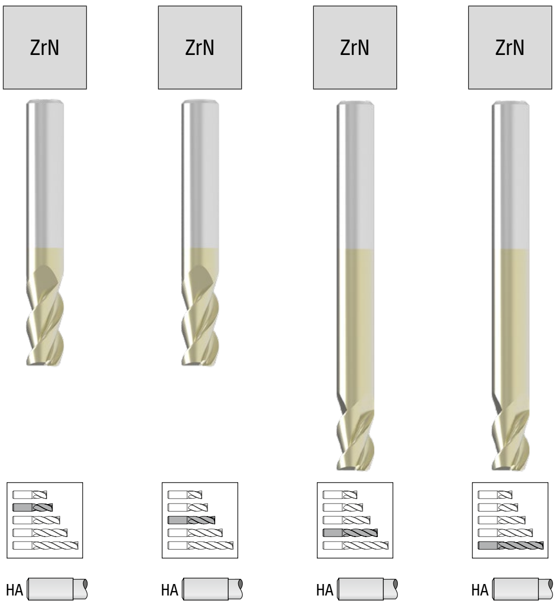
→ v_c/f_z Page 106

End milling cutter with corner radius

▲ Radius accuracy: +/- 0.001 for Ø ≤ 0.060
+/- 0.0015 for Ø > 0.060

P362 **AL** λ_s=43° 45° 48° γ_s=13° ZEFP **HPC**





DC $_{+0.000/-0.002}$ inch	RE inch	APMX inch	OAL inch	DCONMS $_{-0.0001\,/\,-0.0004}$ inch	ZEFP	59 004 ...	59 004 ...	59 004 ...	59 004 ...
3/16	0.015	3/8	2	3/16	3	90020			
3/16	0.030	3/8	2	3/16	3	90120			
3/16	0.015	3/4	2 1/2	3/16	3			90040	
3/16	0.030	3/4	2 1/2	3/16	3			90140	
3/16	0.015	1	3	3/16	3				90053
3/16	0.030	1	3	3/16	3				90153
1/4	0.015	3/8	2	1/4	3	90015			
1/4	0.030	3/8	2	1/4	3	90115			
1/4	0.060	3/8	2	1/4	3	90215			
1/4	0.015	3/4	2 1/2	1/4	3			90030	
1/4	0.030	3/4	2 1/2	1/4	3			90130	
1/4	0.060	3/4	2 1/2	1/4	3			90230	
1/4	0.015	1	3	1/4	3				90240
1/4	0.030	1	3	1/4	3				90340
1/4	0.060	1	3	1/4	3				90440
3/8	0.015	1/2	2	3/8	3	90013			
3/8	0.030	1/2	2	3/8	3	90113			
3/8	0.060	1/2	2	3/8	3	90213			
3/8	0.090	1/2	2	3/8	3	90313			
3/8	0.015	1	2 1/2	3/8	3	90027			
3/8	0.030	1	2 1/2	3/8	3	90127			
3/8	0.060	1	2 1/2	3/8	3	90227			
3/8	0.090	1	2 1/2	3/8	3	90327			
3/8	0.015	1 1/2	3 1/2	3/8	3				90540
3/8	0.030	1 1/2	3 1/2	3/8	3				90640
3/8	0.060	1 1/2	3 1/2	3/8	3				90740
3/8	0.090	1 1/2	3 1/2	3/8	3				90840
1/2	0.015	5/8	2 1/2	1/2	3	90413			
1/2	0.030	5/8	2 1/2	1/2	3	90513			
1/2	0.060	5/8	2 1/2	1/2	3	90613			
1/2	0.090	5/8	2 1/2	1/2	3	90713			
1/2	0.125	5/8	2 1/2	1/2	3	90813			
1/2	0.015	1	3	1/2	3		90220		
1/2	0.030	1	3	1/2	3		90320		
1/2	0.060	1	3	1/2	3		90420		
1/2	0.090	1	3	1/2	3		90520		
1/2	0.125	1	3	1/2	3		90620		
1/2	0.015	1 1/4	3	1/2	3			90025	
1/2	0.030	1 1/4	3	1/2	3			90125	

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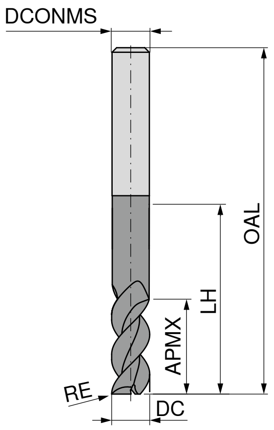
End milling cutter with corner radius

▲ Radius accuracy: +/- 0.001 for Ø ≤ 0.060
+/- 0.0015 for Ø > 0.060

P362 **AL** λ_s=43° 45° 48° γ_s=13° ZEFP **HPC**






DC +0.000/-0.002 inch	RE inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 004 ...	59 004 ...	59 004 ...	59 004 ...
						ZrN HA	ZrN HA	ZrN HA	ZrN HA
1/2	0.060	1 1/4	3	1/2	3			90225	
1/2	0.090	1 1/4	3	1/2	3			90325	
1/2	0.125	1 1/4	3	1/2	3			90425	
1/2	0.015	1 5/8	4	1/2	3				90033
1/2	0.030	1 5/8	4	1/2	3				90133
1/2	0.060	1 5/8	4	1/2	3				90233
1/2	0.090	1 5/8	4	1/2	3				90333
1/2	0.125	1 5/8	4	1/2	3				90433
1/2	0.015	2	4	1/2	3				90940
1/2	0.030	2	4	1/2	3				91040
1/2	0.060	2	4	1/2	3				91140
1/2	0.090	2	4	1/2	3				91240
1/2	0.125	2	4	1/2	3				91340
5/8	0.030	3/4	3	5/8	3	90012			
5/8	0.060	3/4	3	5/8	3	90112			
5/8	0.090	3/4	3	5/8	3	90212			
5/8	0.125	3/4	3	5/8	3	90312			
5/8	0.030	1 1/4	3 1/2	5/8	3		90720		
5/8	0.060	1 1/4	3 1/2	5/8	3		90820		
5/8	0.090	1 1/4	3 1/2	5/8	3		90920		
5/8	0.125	1 1/4	3 1/2	5/8	3		91020		
5/8	0.030	1 5/8	4	5/8	3			90026	
5/8	0.060	1 5/8	4	5/8	3			90126	
5/8	0.090	1 5/8	4	5/8	3			90226	
5/8	0.125	1 5/8	4	5/8	3			90326	
3/4	0.030	1	3	3/4	3	90913			
3/4	0.060	1	3	3/4	3	91013			
3/4	0.090	1	3	3/4	3	91113			
3/4	0.125	1	3	3/4	3	91213			
3/4	0.190	1	3	3/4	3	91313			
3/4	0.250	1	3	3/4	3	91413			
3/4	0.030	1 5/8	4	3/4	3			90022	
3/4	0.060	1 5/8	4	3/4	3			90122	
3/4	0.090	1 5/8	4	3/4	3			90222	
3/4	0.125	1 5/8	4	3/4	3			90322	
3/4	0.190	1 5/8	4	3/4	3			90422	
3/4	0.250	1 5/8	4	3/4	3			90522	
3/4	0.030	2 1/4	5	3/4	3				90330
3/4	0.060	2 1/4	5	3/4	3				90430

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→ v_c/f_z Page 106

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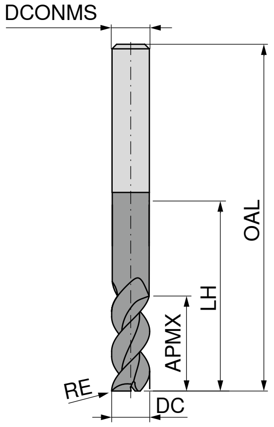
End milling cutter with corner radius

▲ Radius accuracy: +/- 0.001 for Ø ≤ 0.060
+/- 0.0015 for Ø > 0.060

P362 **AL** λ_s=43° 45° 48° γ_s=13° ZEFP **HPC**



DC +0.000/-0.002 inch	RE inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	ZrN HA 59 004 ...	ZrN HA 59 004 ...	ZrN HA 59 004 ...	ZrN HA 59 004 ...
3/4	0.090	2 1/4	5	3/4	3				90530
3/4	0.125	2 1/4	5	3/4	3				90630
3/4	0.190	2 1/4	5	3/4	3				90730
3/4	0.250	2 1/4	5	3/4	3				90830
1	0.030	1 1/4	4	1	3	91513			
1	0.060	1 1/4	4	1	3	91613			
1	0.090	1 1/4	4	1	3	91713			
1	0.125	1 1/4	4	1	3	91813			
1	0.190	1 1/4	4	1	3	91913			
1	0.250	1 1/4	4	1	3	92013			
1	0.030	2	5	1	3		91120		
1	0.060	2	5	1	3		91220		
1	0.090	2	5	1	3		91320		
1	0.125	2	5	1	3		91420		
1	0.190	2	5	1	3		91520		
1	0.250	2	5	1	3		91620		
1	0.030	3 1/4	6	1	3				90533
1	0.060	3 1/4	6	1	3				90633
1	0.090	3 1/4	6	1	3				90733
1	0.125	3 1/4	6	1	3				90833
1	0.190	3 1/4	6	1	3				90933
1	0.250	3 1/4	6	1	3				91033

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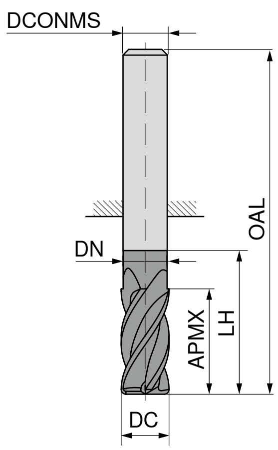
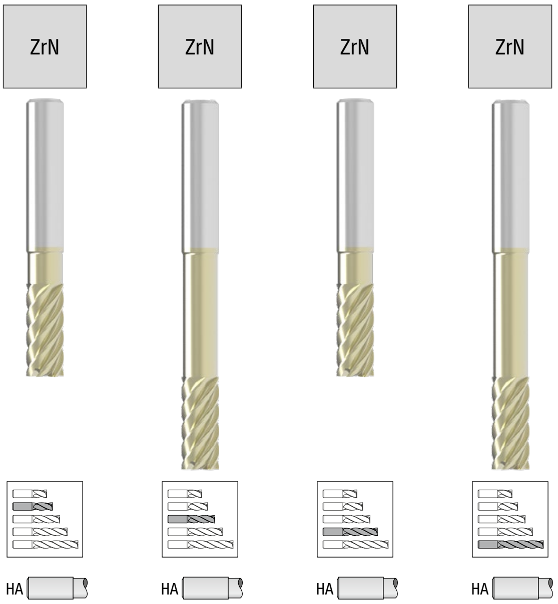
→ v_c/f_z Page 106

End milling cutter

P376 **AL** λ_s=44° 47° γ_s=21° ZEFP





DC +0.000/-0.002 inch	APMX inch	DN inch	LH inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 005 ...	59 005 ...	59 005 ...	59 005 ...
1/4	5/8	0.240	7/8	2 1/2	1/4	6			**25025**	
1/4	5/8	0.240	1 5/8	3	1/4	6				**25125**
5/16	3/4	0.300	1	2 1/2	5/16	6			**31324**	
5/16	3/4	0.300	2 3/8	4	5/16	6				**31424**
3/8	1	0.360	1 1/4	3	3/8	6			**37527**	
3/8	1	0.360	2 1/4	4	3/8	6				**37627**
1/2	1	0.480	1 1/4	3	1/2	6	**50020**			
1/2	1 1/4	0.480	1 1/2	3 1/2	1/2	6			**50025**	
1/2	1 1/4	0.480	3	5	1/2	6		**50125**		
1/2	1 7/8			5	1/2	6				**50038**
5/8	1 1/4	0.600	1 1/2	3 1/2	5/8	6			**62520**	
5/8	1 1/4	0.600	3 5/8	6	5/8	6		**62620**		
5/8	2 1/2			6	5/8	6				**62540**
3/4	1 5/8	0.720	2	4	3/4	6			**75022**	
3/4	1 5/8	0.720	3 5/8	6	3/4	6				**75122**
1	2	0.960	3 7/8	6	1	6				**99920**

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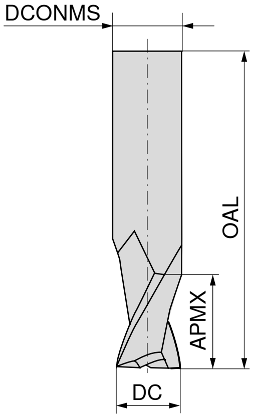
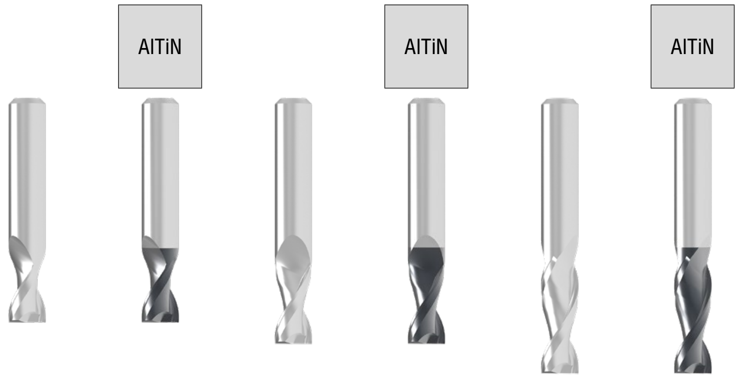
→ v_c/f_z Page 107

End milling cutter

▲ DC tolerance:
≤ Ø 7/64 inch: +/- 0.0005
≥ Ø 1/8 inch: 0 /- 0.002

S642 **UN** λ_s=38° γ_s=8° ZEFP





DC **inch**	APMX inch	OAL inch	DCONMS $_{-0.0001 / -0.0004}$ inch	ZEFP	HA 59 068 ...	HA 59 069 ...	HA 59 068 ...	HA 59 069 ...	HA 59 068 ...	HA 59 069 ...
1/16	1/8	1 1/2	1/8	2			**06320**	**06320**		
3/32	3/16	1 1/2	1/8	2			**09420**	**09420**		
1/8	1/4	1 1/2	1/8	2	**12520**	**12520**				
1/8	1/2	1 1/2	1/8	2			**12540**	**12540**		
1/8	3/4	3	1/8	2					**12660**	**12660**
5/32	3/8	2	3/16	2			**15624**	**15624**		
3/16	3/8	2	3/16	2	**18820**	**18820**				
3/16	5/8	2	3/16	2			**18833**	**18833**		
3/16	1	2 1/2	3/16	2					**18853**	**18853**
7/32	3/8	2	1/4	2			**21917**	**21917**		
1/4	3/8	2	1/4	2			**25015**	**25015**		
1/4	1 1/8	3	1/4	2					**25045**	**25045**
1/4	1	4	1/4	2					**25040**	**25040**
9/32	1/2	2	5/16	2			**28118**	**28118**		
5/16	1/2	2	5/16	2	**31316**	**31316**				
5/16	3/4	2 1/2	5/16	2			**31324**	**31324**		
5/16	1 3/8	3	5/16	2					**31344**	**31344**
5/16	1	4	5/16	2					**31332**	**31332**
3/8	5/8	2	3/8	2	**37517**	**37517**				
3/8	7/8	2 1/2	3/8	2			**37523**	**37523**		
3/8	1 3/8	3	3/8	2					**37537**	**37537**
3/8	1	4	3/8	2					**37527**	**37527**
1/2	5/8	2 1/2	1/2	2	**50013**	**50013**				
1/2	1	3	1/2	2			**50020**	**50020**		
1/2	1	4	1/2	2					**50120**	**50120**
5/8	7/8	3	5/8	2	**62514**	**62514**				
5/8	1 1/4	3 1/2	5/8	2			**62520**	**62520**		
5/8	2	6	5/8	2					**62532**	**62532**
3/4	1	3	3/4	2	**75013**	**75013**				
3/4	1 1/2	4	3/4	2			**75020**	**75020**		
3/4	2	6	3/4	2					**75027**	**75027**
1	1 3/4	4	1	2			**99918**	**99918**		
1	2	6	1	2					**99920**	**99920**

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K	●	●	●	●	●	●
N	●	●	●	●	●	●
S	●	●	●	●	●	●
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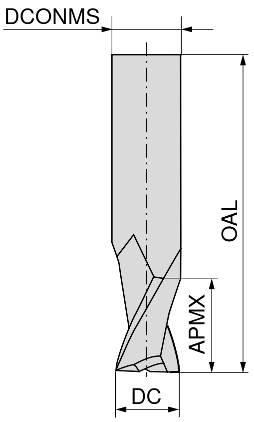
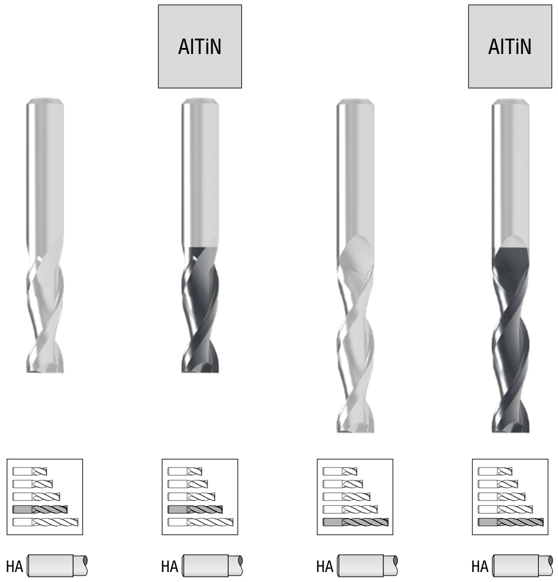
→ v_c/f_z Page 108

End milling cutter

▲ DC tolerance:
≤ Ø 7/64 inch: +/- 0.0005
≥ Ø 1/8 inch: 0 /- 0.002

S642 **UN** λ_s=38° γ_s=8° ZEFP





DC inch	APMX inch	OAL inch	DCONMS $_{-0.0001 / -0.0004}$ inch	ZEFP	59 068 ...	59 069 ...	59 068 ...	59 069 ...
1/16	3/16	1 1/2	1/8	2	06330	06330		
3/32	9/32	1 1/2	1/8	2	09430	09430		
1/8	3/4	2 1/2	1/8	2	12560	12560		
1/8	1	3	1/8	2			12580	12580
5/32	1/2	2	3/16	2	15632	15632		
5/32	3/4	2 1/2	3/16	2			15648	15648
3/16	3/4	2 1/2	3/16	2	18840	18840		
3/16	1 1/8	3	3/16	2			18860	18860
3/16	1	4	3/16	2			18953	18953
7/32	5/8	2 1/2	1/4	2	21929	21929		
7/32	1	3	1/4	2			21946	21946
1/4	3/4	2 1/2	1/4	2	25030	25030		
1/4	1 1/4	3	1/4	2			25050	25050
1/4	1 1/2	4	1/4	2			25060	25060
1/4	1 1/2	6	1/4	2			25160	25160
9/32	3/4	2 1/2	5/16	2	28127	28127		
9/32	1 1/4	3	5/16	2			28144	28144
5/16	1 1/8	3	5/16	2	31336	31336		
5/16	1 5/8	4	5/16	2			31352	31352
5/16	1 1/2	6	5/16	2			31348	31348
3/8	1 1/8	3	3/8	2	37530	37530		
3/8	1 3/4	4	3/8	2			37547	37547
3/8	1 1/2	6	3/8	2			37540	37540
3/8	3	6	3/8	2			37580	37580
1/2	1 1/2	3 1/2	1/2	2	50030	50030		
1/2	2	4	1/2	2			50040	50040
1/2	1 1/2	6	1/2	2			50130	50130
1/2	3	6	1/2	2			50060	50060
5/8	2 1/8	4 5/8	5/8	2	62534	62534		
5/8	3	6	5/8	2			62548	62548
3/4	2 1/4	5	3/4	2	75030	75030		
3/4	3	6	3/4	2			75040	75040
1	2 1/4	5	1	2	99923	99923		
1	3	6	1	2			99930	99930

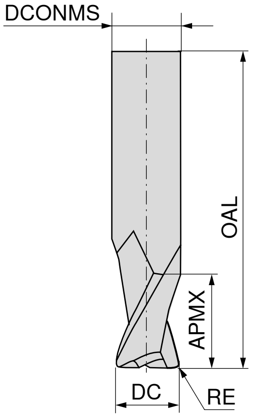
	59 068 ...	59 069 ...	59 068 ...	59 069 ...
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	●	●	●	●
S	●	●	●	●
H				
O				

→ v_c/f_z Page 108

End milling cutter with corner radius

▲ Radius accuracy: +/- 0.001

S642 **UN** λ_s=38° γ_s=8° ZEFP



DC +0.000/-0.002 inch	RE inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 068 ...	AlTiN 59 069 ...	59 068 ...	AlTiN 59 069 ...
1/8	0.010	1/2	1 1/2	1/8	2	90040	90040		
1/8	0.015	1/2	1 1/2	1/8	2	90140	90140		
1/8	0.020	1/2	1 1/2	1/8	2	90240	90240		
1/8	0.030	1/2	1 1/2	1/8	2	90340	90340		
1/8	0.045	1/2	1 1/2	1/8	2	90440	90440		
3/16	0.010	5/8	2	3/16	2	90033	90033		
3/16	0.015	5/8	2	3/16	2	90133	90133		
3/16	0.020	5/8	2	3/16	2	90233	90233		
3/16	0.030	5/8	2	3/16	2	90333	90333		
3/16	0.045	5/8	2	3/16	2	90433	90433		
3/16	0.060	5/8	2	3/16	2	90533	90533		
1/4	0.010	3/4	2 1/2	1/4	2			90030	90030
1/4	0.015	3/4	2 1/2	1/4	2			90130	90130
1/4	0.020	3/4	2 1/2	1/4	2			90230	90230
1/4	0.030	3/4	2 1/2	1/4	2			90330	90330
1/4	0.045	3/4	2 1/2	1/4	2			90430	90430
1/4	0.060	3/4	2 1/2	1/4	2			90530	90530
1/4	0.090	3/4	2 1/2	1/4	2			90630	90630
5/16	0.010	3/4	2 1/2	5/16	2	90024	90024		
5/16	0.015	3/4	2 1/2	5/16	2	90124	90124		
5/16	0.020	3/4	2 1/2	5/16	2	90224	90224		
5/16	0.030	3/4	2 1/2	5/16	2	90324	90324		
5/16	0.045	3/4	2 1/2	5/16	2	90424	90424		
5/16	0.060	3/4	2 1/2	5/16	2	90524	90524		
5/16	0.090	3/4	2 1/2	5/16	2	90624	90624		
3/8	0.010	7/8	2 1/2	3/8	2	90023	90023		
3/8	0.015	7/8	2 1/2	3/8	2	90223	90223		
3/8	0.020	7/8	2 1/2	3/8	2	90323	90323		
3/8	0.030	7/8	2 1/2	3/8	2	90423	90423		
3/8	0.045	7/8	2 1/2	3/8	2	90523	90523		
3/8	0.060	7/8	2 1/2	3/8	2	90623	90623		
3/8	0.090	7/8	2 1/2	3/8	2	90723	90723		
3/8	0.125	7/8	2 1/2	3/8	2	90123	90123		

P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	●	●	●	●
S	●	●	●	●
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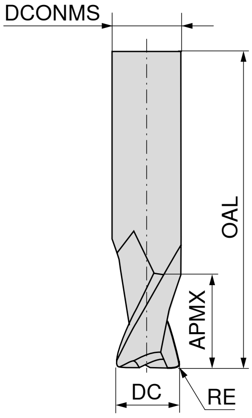
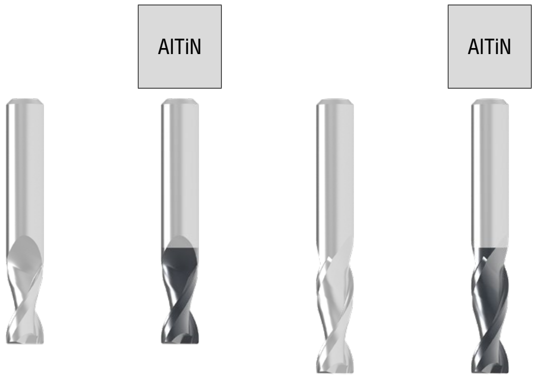
→ v_c/f_z Page 108

End milling cutter with corner radius

▲ Radius accuracy: +/- 0.001

S642 **UN** λ_s=38° γ_s=8° ZEFP





DC +0.000/-0.002 inch	RE inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	HA 59 068 ...	HA AlTiN 59 069 ...	HA 59 068 ...	HA AlTiN 59 069 ...
1/2	0.010	1	3	1/2	2	90020	90020		
1/2	0.015	1	3	1/2	2	90220	90220		
1/2	0.020	1	3	1/2	2	90320	90320		
1/2	0.030	1	3	1/2	2	90420	90420		
1/2	0.045	1	3	1/2	2	90520	90520		
1/2	0.060	1	3	1/2	2	90620	90620		
1/2	0.090	1	3	1/2	2	90720	90720		
1/2	0.125	1	3	1/2	2	90120	90120		
5/8	0.030	1 1/4	3 1/2	5/8	2			90920	90920
5/8	0.045	1 1/4	3 1/2	5/8	2			91020	91020
5/8	0.060	1 1/4	3 1/2	5/8	2			91120	91120
5/8	0.090	1 1/4	3 1/2	5/8	2			91220	91220
5/8	0.125	1 1/4	3 1/2	5/8	2			90820	90820
3/4	0.030	1 1/2	4	3/4	2			91420	91420
3/4	0.045	1 1/2	4	3/4	2			91520	91520
3/4	0.060	1 1/2	4	3/4	2			91620	91620
3/4	0.090	1 1/2	4	3/4	2			91720	91720
3/4	0.125	1 1/2	4	3/4	2			91320	91320

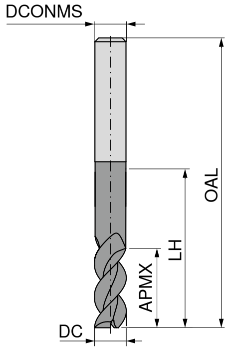
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	●	●	●	●
S	●	●	●	●
H				
O				

→ v_c/f_z Page 108

End milling cutter

▲ DC tolerance:
≤ Ø 7/64 inch: +/- 0.0005
≥ Ø 1/8 inch: 0 /- 0.002

S643 **UN** λs=38° γs=8° ZEFP



DC inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	HA 59 070 ...	AlTiN HA 59 071 ...	HA 59 070 ...	AlTiN HA 59 071 ...	HA 59 070 ...	AlTiN HA 59 071 ...
1/16	1/8	1 1/2	1/8	3			06320	06320		
5/64	1/4	1 1/2	1/8	3			07832	07832		
3/32	3/16	1 1/2	1/8	3			09420	09420		
1/8	1/4	1 1/2	1/8	3	12520	12520				
1/8	1/2	1 1/2	1/8	3			12540	12540		
1/8	3/4	3	1/8	3					12660	12660
5/32	3/8	2	3/16	3			15624	15624		
3/16	3/8	2	3/16	3	18820	18820				
3/16	5/8	2	3/16	3			18833	18833		
3/16	1	2 1/2	3/16	3					18853	18853
7/32	3/8	2	1/4	3			21917	21917		
1/4	3/8	2	1/4	3	25015	25015				
1/4	3/4	2 1/2	1/4	3			25030	25030		
1/4	1 1/8	3	1/4	3					25045	25045
9/32	1/2	2	5/16	3			28118	28118		
5/16	1/2	2	5/16	3	31316	31316				
5/16	3/4	2 1/2	5/16	3			31324	31324		
5/16	1 1/8	3	5/16	3					31336	31336
3/8	5/8	2	3/8	3	37517	37517				
3/8	7/8	2 1/2	3/8	3			37523	37523		
3/8	1 1/8	3	3/8	3					37530	37530
3/8	1 1/2	6	3/8	3					37540	37540
1/2	5/8	2 1/2	1/2	3	50013	50013				
1/2	1	3	1/2	3			50020	50020		
1/2	1 1/2	6	1/2	3					50030	50030
5/8	7/8	3	5/8	3	62514	62514				
5/8	1 1/4	3 1/2	5/8	3			62520	62520		
5/8	2 1/8	4 5/8	5/8	3					62534	62534
3/4	1	3	3/4	3	75013	75013				
3/4	1 1/2	4	3/4	3			75020	75020		
3/4	2 1/4	5	3/4	3					75030	75030
1	1 3/4	4	1	3			99918	99918		
1	2 1/4	5	1	3					99923	99923

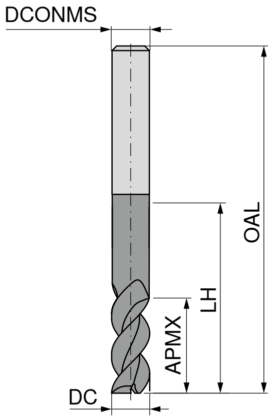
P	●	●	●	●	●	●
M	●	●	●	●	●	●
K	●	●	●	●	●	●
N	●	●	●	●	●	●
S	●	●	●	●	●	●
H						
O						

→ v_c/f_z Page 109

End milling cutter

▲ DC tolerance:
≤ Ø 7/64 inch: +/- 0.0005
≥ Ø 1/8 inch: 0 /- 0.002

S643 UN λ_s=38° γ_s=8° ZEFP



DC inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 070 ...	59 071 ... AlTiN	59 070 ...	59 071 ... AlTiN
1/16	3/16	1 1/2	1/8	3	06330	06330		
3/32	9/32	1 1/2	1/8	3	09430	09430		
1/8	3/4	2 1/2	1/8	3	12560	12560		
1/8	1	3	1/8	3			12580	12580
5/32	1/2	2	3/16	3	15632	15632		
3/16	3/4	2 1/2	3/16	3	18840	18840		
3/16	1	4	3/16	3			18953	18953
3/16	1 1/8	3	3/16	3			18860	18860
7/32	5/8	2 1/2	1/4	3	21929	21929		
1/4	1	4	1/4	3	25040	25040		
1/4	1 1/2	6	1/4	3			25160	25160
1/4	1 1/2	4	1/4	3			25060	25060
9/32	3/4	2 1/2	5/16	3	28127	28127		
5/16	1	4	5/16	3	31332	31332		
5/16	1 1/2	6	5/16	3			31348	31348
5/16	1 5/8	4	5/16	3			31352	31352
3/8	1	4	3/8	3	37527	37527		
3/8	1 3/4	4	3/8	3			37547	37547
3/8	3	6	3/8	3			37580	37580
1/2	1	4	1/2	3	50120	50120		
1/2	2	4	1/2	3			50040	50040
1/2	3	6	1/2	3			50060	50060
5/8	2	6	5/8	3	62532	62532		
5/8	3	6	5/8	3			62548	62548
3/4	2	6	3/4	3	75027	75027		
3/4	3	6	3/4	3			75040	75040
1	2	6	1	3	99920	99920		
1	3	6	1	3			99930	99930

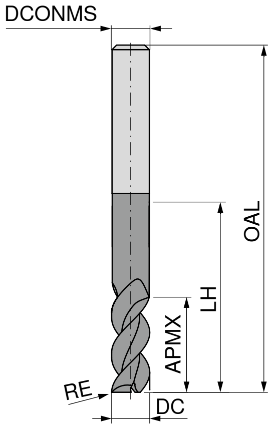
	59 070 ...	59 071 ...	59 070 ...	59 071 ...
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	●	●	●	●
S	●	●	●	●
H				
O				

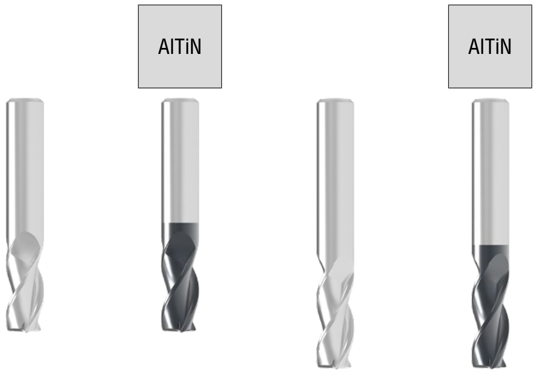
→ v_c/f_z Page 109

End milling cutter with corner radius

▲ Radius accuracy: +/- 0.001

S643 **UN** λ_s=38° γ_s=8° ZEFP





HA HA HA HA

DC +0.000/-0.002 inch	RE inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 070 ...	59 071 ...	59 070 ...	59 071 ...
1/8	0.010	1/2	1 1/2	1/8	3	90040	90040		
1/8	0.015	1/2	1 1/2	1/8	3	90140	90140		
1/8	0.020	1/2	1 1/2	1/8	3	90240	90240		
1/8	0.030	1/2	1 1/2	1/8	3	90340	90340		
1/8	0.045	1/2	1 1/2	1/8	3	90440	90440		
3/16	0.010	5/8	2	3/16	3	90033	90033		
3/16	0.015	5/8	2	3/16	3	90133	90133		
3/16	0.020	5/8	2	3/16	3	90233	90233		
3/16	0.030	5/8	2	3/16	3	90333	90333		
3/16	0.045	5/8	2	3/16	3	90433	90433		
3/16	0.060	5/8	2	3/16	3	90533	90533		
1/4	0.010	3/4	2 1/2	1/4	3			90030	90030
1/4	0.015	3/4	2 1/2	1/4	3			90130	90130
1/4	0.020	3/4	2 1/2	1/4	3			90230	90230
1/4	0.030	3/4	2 1/2	1/4	3			90330	90330
1/4	0.045	3/4	2 1/2	1/4	3			90430	90430
1/4	0.060	3/4	2 1/2	1/4	3			90530	90530
1/4	0.090	3/4	2 1/2	1/4	3			90630	90630
5/16	0.010	3/4	2 1/2	5/16	3	90024	90024		
5/16	0.015	3/4	2 1/2	5/16	3	90124	90124		
5/16	0.020	3/4	2 1/2	5/16	3	90224	90224		
5/16	0.030	3/4	2 1/2	5/16	3	90324	90324		
5/16	0.045	3/4	2 1/2	5/16	3	90424	90424		
5/16	0.060	3/4	2 1/2	5/16	3	90524	90524		
5/16	0.090	3/4	2 1/2	5/16	3	90624	90624		
3/8	0.010	7/8	2 1/2	3/8	3	90023	90023		
3/8	0.015	7/8	2 1/2	3/8	3	90223	90223		
3/8	0.020	7/8	2 1/2	3/8	3	90323	90323		
3/8	0.030	7/8	2 1/2	3/8	3	90423	90423		
3/8	0.045	7/8	2 1/2	3/8	3	90523	90523		
3/8	0.060	7/8	2 1/2	3/8	3	90623	90623		
3/8	0.090	7/8	2 1/2	3/8	3	90723	90723		
3/8	0.125	7/8	2 1/2	3/8	3	90123	90123		

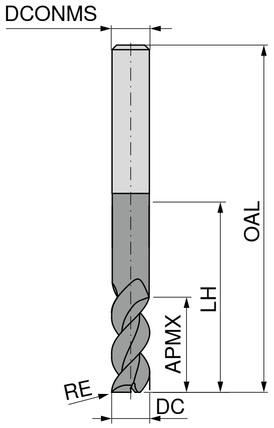
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	●	●	●	●
S	●	●	●	●
H				
O				

→ v_c/f_z Page 109

End milling cutter with corner radius

▲ Radius accuracy: +/- 0.001

S643 **UN** λ$_s$=38° γ$_s$=8° ZEFP



DC +0.000/-0.002 inch	RE inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	HA 59 070 ...	AlTiN HA 59 071 ...	HA 59 070 ...	AlTiN HA 59 071 ...
1/2	0.010	1	3	1/2	3	90020	90020		
1/2	0.015	1	3	1/2	3	90220	90220		
1/2	0.020	1	3	1/2	3	90320	90320		
1/2	0.030	1	3	1/2	3	90420	90420		
1/2	0.045	1	3	1/2	3	90520	90520		
1/2	0.060	1	3	1/2	3	90620	90620		
1/2	0.090	1	3	1/2	3	90720	90720		
1/2	0.125	1	3	1/2	3	90120	90120		
5/8	0.015	1 1/4	3 1/2	5/8	3			90920	90920
5/8	0.020	1 1/4	3 1/2	5/8	3			91020	91020
5/8	0.030	1 1/4	3 1/2	5/8	3			91120	91120
5/8	0.045	1 1/4	3 1/2	5/8	3			91220	91220
5/8	0.060	1 1/4	3 1/2	5/8	3			91320	91320
5/8	0.090	1 1/4	3 1/2	5/8	3			91420	91420
5/8	0.125	1 1/4	3 1/2	5/8	3			90820	90820
3/4	0.020	1 1/2	4	3/4	3			91620	91620
3/4	0.030	1 1/2	4	3/4	3			91720	91720
3/4	0.045	1 1/2	4	3/4	3			91820	91820
3/4	0.060	1 1/2	4	3/4	3			91920	91920
3/4	0.090	1 1/2	4	3/4	3			92020	92020
3/4	0.125	1 1/2	4	3/4	3			91520	91520
1	0.030	1 3/4	4	1	3	90118	90118		
1	0.045	1 3/4	4	1	3	90218	90218		
1	0.060	1 3/4	4	1	3	90318	90318		
1	0.090	1 3/4	4	1	3	90418	90418		
1	0.125	1 3/4	4	1	3	90018	90018		

P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	●	●	●	●
S	●	●	●	●
H				
O				

→ v_c/f_z Page 109

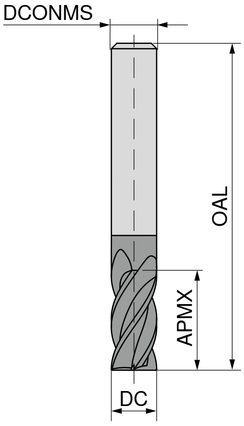
End milling cutter

- ▲ DC tolerance:
  - ≤ Ø 7/64 inch: +/- 0.0005
  - ≥ Ø 1/8 inch: 0 /- 0.002

S644 **UN**

λ_s=38°
γ_s=8°

ZEFP



DC inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 072 ...	59 073 ... AlTiN	59 072 ...	59 073 ... AlTiN	59 072 ...	59 073 ... AlTiN
1/32	1/16	1 1/2	1/8	4			03120	03120		
3/64	3/32	1 1/2	1/8	4			04720	04720		
1/16	1/8	1 1/2	1/8	4			06320	06320		
5/64	1/4	1 1/2	1/8	4			07832	07832		
3/32	3/16	1 1/2	1/8	4			09420	09420		
7/64	3/16	1 1/2	1/8	4			10917	10917		
1/8	1/4	1 1/2	1/8	4	12520	12520				
1/8	1/2	1 1/2	1/8	4			12540	12540		
1/8	3/4	3	1/8	4					12660	12660
5/32	3/8	2	3/16	4			15624	15624		
3/16	3/8	2	3/16	4	18820	18820				
3/16	5/8	2	3/16	4			18833	18833		
3/16	1	2 1/2	3/16	4					18853	18853
7/32	3/8	2	1/4	4			21917	21917		
1/4	3/8	2	1/4	4	25015	25015				
1/4	3/4	2 1/2	1/4	4			25030	25030		
1/4	1 1/4	3	1/4	4					25050	25050
1/4	1	4	1/4	4					25040	25040
9/32	1/2	2	5/16	4			28118	28118		
5/16	1/2	2	5/16	4	31316	31316				
5/16	3/4	2 1/2	5/16	4			31324	31324		
5/16	1 3/8	3	5/16	4					31344	31344
5/16	1	4	5/16	4					31332	31332
3/8	5/8	2	3/8	4	37517	37517				
3/8	7/8	2 1/2	3/8	4			37523	37523		
3/8	1 1/8	3	3/8	4					37530	37530
3/8	1 3/8	3	3/8	4					37537	37537
1/2	5/8	2 1/2	1/2	4	50013	50013				
1/2	1	3	1/2	4			50020	50020		
1/2	1 1/2	3 1/2	1/2	4					50030	50030
1/2	1 1/2	6	1/2	4					50130	50130
5/8	7/8	3	5/8	4	62514	62514				
5/8	1 1/4	3 1/2	5/8	4			62520	62520		
5/8	2 1/8	4 5/8	5/8	4					62534	62534
3/4	1	3	3/4	4	75013	75013				
3/4	1 1/2	4	3/4	4			75020	75020		
3/4	2 1/4	5	3/4	4					75030	75030
1	1 3/4	4	1	4			99918	99918		
1	2 1/4	5	1	4					99923	99923

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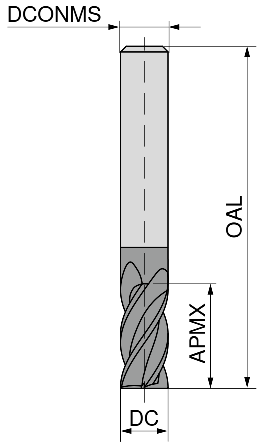
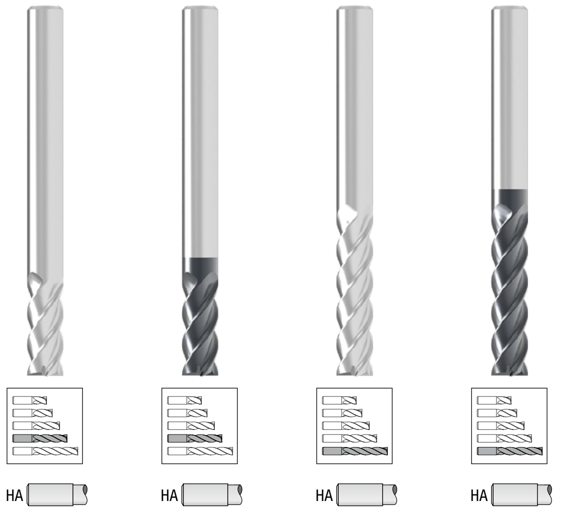
→ v_c/f_z Page 110

End milling cutter

▲ DC tolerance:
≤ Ø 7/64 inch: +/- 0.0005
≥ Ø 1/8 inch: 0 /- 0.002

S644 **UN** $\lambda_s=38°$ $\gamma_s=8°$ ZEFP





DC inch	APMX inch	OAL inch	DCONMS $_{-0.0001\,/\,-0.0004}$ inch	ZEFP	59 072 ...	AlTiN 59 073 ...	59 072 ...	AlTiN 59 073 ...
1/32	3/32	1 1/2	1/8	4	03130	03130		
3/64	9/64	1 1/2	1/8	4	04730	04730		
1/16	3/16	1 1/2	1/8	4	06330	06330		
3/32	9/32	1 1/2	1/8	4	09430	09430		
7/64	3/8	1 1/2	1/8	4	10934	10934		
1/8	3/4	2 1/2	1/8	4	12560	12560		
1/8	1	3	1/8	4			12580	12580
5/32	1/2	2	3/16	4	15632	15632		
5/32	3/4	2 1/2	3/16	4			15648	15648
3/16	3/4	2 1/2	3/16	4	18840	18840		
3/16	1 1/8	3	3/16	4			18860	18860
3/16	1	4	3/16	4			18953	18953
7/32	5/8	2 1/2	1/4	4	21929	21929		
7/32	1	3	1/4	4			21946	21946
1/4	1 1/8	3	1/4	4	25045	25045		
1/4	1 1/2	4	1/4	4			25060	25060
1/4	1 1/2	6	1/4	4			25160	25160
9/32	3/4	2 1/2	5/16	4	28127	28127		
9/32	1 1/4	3	5/16	4			28144	28144
5/16	1 1/8	3	5/16	4	31336	31336		
5/16	1 5/8	4	5/16	4			31352	31352
5/16	1 1/2	6	5/16	4			31348	31348
3/8	1	4	3/8	4	37527	37527		
3/8	1 3/4	4	3/8	4			37547	37547
3/8	1 1/2	6	3/8	4			37540	37540
3/8	3	6	3/8	4			37580	37580
1/2	1	4	1/2	4	50120	50120		
1/2	2	4	1/2	4			50040	50040
1/2	3	6	1/2	4			50060	50060
5/8	2	6	5/8	4	62532	62532		
5/8	3	6	5/8	4			62548	62548
3/4	2	6	3/4	4	75027	75027		
3/4	3	6	3/4	4			75040	75040
1	2	6	1	4	99920	99920		
1	3	6	1	4			99930	99930

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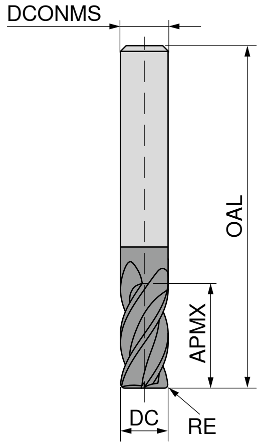
→ v_c/f_z Page 110

End milling cutter with corner radius

▲ Radius accuracy: +/- 0.001

S644 **UN** λ_s=38° γ_s=8° ZEFP



DC $_{+0.000/-0.002}$ inch	RE inch	APMX inch	OAL inch	DCONMS $_{-0.0001\,/\,-0.0004}$ inch	ZEFP	HA 59 072 ...	HA 59 073 ...	HA 59 072 ...	HA 59 073 ...
1/8	0.010	1/4	1 1/2	1/8	4			**92120**	**92120**
1/8	0.015	1/4	1 1/2	1/8	4			**92220**	**92220**
1/8	0.020	1/4	1 1/2	1/8	4			**92320**	**92320**
1/8	0.030	1/4	1 1/2	1/8	4			**92420**	**92420**
1/8	0.045	1/4	1 1/2	1/8	4			**92520**	**92520**
3/16	0.010	3/8	2	3/16	4			**92620**	**92620**
3/16	0.015	3/8	2	3/16	4			**92720**	**92720**
3/16	0.020	3/8	2	3/16	4			**92820**	**92820**
3/16	0.030	3/8	2	3/16	4			**92920**	**92920**
3/16	0.045	3/8	2	3/16	4			**93020**	**93020**
3/16	0.060	3/8	2	3/16	4			**93120**	**93120**
1/4	0.010	3/8	2	1/4	4	**90015**	**90015**		
1/4	0.015	3/8	2	1/4	4	**90115**	**90115**		
1/4	0.020	3/8	2	1/4	4	**90215**	**90215**		
1/4	0.030	3/8	2	1/4	4	**90315**	**90315**		
1/4	0.045	3/8	2	1/4	4	**90415**	**90415**		
1/4	0.060	3/8	2	1/4	4	**90515**	**90515**		
1/4	0.090	3/8	2	1/4	4	**90615**	**90615**		
1/4	0.010	3/4	2 1/2	1/4	4			**90030**	**90030**
1/4	0.015	3/4	2 1/2	1/4	4			**90130**	**90130**
1/4	0.020	3/4	2 1/2	1/4	4			**90230**	**90230**
1/4	0.030	3/4	2 1/2	1/4	4			**90330**	**90330**
1/4	0.045	3/4	2 1/2	1/4	4			**90430**	**90430**
1/4	0.060	3/4	2 1/2	1/4	4			**90530**	**90530**
1/4	0.090	3/4	2 1/2	1/4	4			**90630**	**90630**
5/16	0.010	1/2	2	5/16	4	**90016**	**90016**		
5/16	0.015	1/2	2	5/16	4	**90216**	**90216**		
5/16	0.020	1/2	2	5/16	4	**90316**	**90316**		
5/16	0.030	1/2	2	5/16	4	**90416**	**90416**		
5/16	0.045	1/2	2	5/16	4	**90516**	**90516**		
5/16	0.060	1/2	2	5/16	4	**90616**	**90616**		
5/16	0.090	1/2	2	5/16	4	**90716**	**90716**		
5/16	0.125	1/2	2	5/16	4	**90116**	**90116**		
5/16	0.010	3/4	2 1/2	5/16	4			**90024**	**90024**
5/16	0.015	3/4	2 1/2	5/16	4			**90224**	**90124**
5/16	0.020	3/4	2 1/2	5/16	4			**90324**	**90224**
5/16	0.030	3/4	2 1/2	5/16	4			**90424**	**90324**
5/16	0.045	3/4	2 1/2	5/16	4			**90524**	**90424**
5/16	0.060	3/4	2 1/2	5/16	4			**90624**	**90524**
5/16	0.090	3/4	2 1/2	5/16	4			**90724**	**90624**

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→ v_c/f_z Page 110

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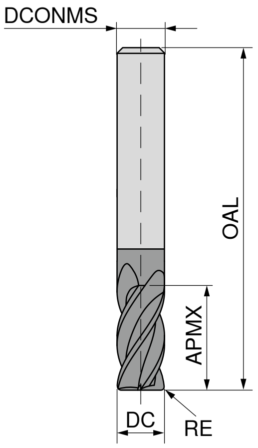
End milling cutter with corner radius

▲ Radius accuracy: +/- 0.001

S644 **UN** λ_s=38° γ_s=8° ZEFP



DC +0.000/-0.002 inch	RE inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	HA 59 072 ...	AlTiN HA 59 073 ...	HA 59 072 ...	AlTiN HA 59 073 ...
5/16	0.125	3/4	2 1/2	5/16	4			**90124**	
3/8	0.010	5/8	2	3/8	4	**90017**	**90017**		
3/8	0.015	5/8	2	3/8	4	**90217**	**90217**		
3/8	0.020	5/8	2	3/8	4	**90317**	**90317**		
3/8	0.030	5/8	2	3/8	4	**90417**	**90417**		
3/8	0.045	5/8	2	3/8	4	**90517**	**90517**		
3/8	0.060	5/8	2	3/8	4	**90617**	**90617**		
3/8	0.090	5/8	2	3/8	4	**90717**	**90717**		
3/8	0.125	5/8	2	3/8	4	**90117**	**90117**		
3/8	0.010	7/8	2 1/2	3/8	4			**90023**	**90023**
3/8	0.015	7/8	2 1/2	3/8	4			**90223**	**90223**
3/8	0.020	7/8	2 1/2	3/8	4			**90323**	**90323**
3/8	0.030	7/8	2 1/2	3/8	4			**90423**	**90423**
3/8	0.045	7/8	2 1/2	3/8	4			**90523**	**90523**
3/8	0.060	7/8	2 1/2	3/8	4			**90623**	**90623**
3/8	0.090	7/8	2 1/2	3/8	4			**90723**	**90723**
3/8	0.125	7/8	2 1/2	3/8	4			**90123**	**90123**
1/2	0.010	5/8	2 1/2	1/2	4	**90013**	**90013**		
1/2	0.015	5/8	2 1/2	1/2	4	**90213**	**90213**		
1/2	0.020	5/8	2 1/2	1/2	4	**90313**	**90313**		
1/2	0.030	5/8	2 1/2	1/2	4	**90413**	**90413**		
1/2	0.045	5/8	2 1/2	1/2	4	**90513**	**90513**		
1/2	0.060	5/8	2 1/2	1/2	4	**90613**	**90613**		
1/2	0.090	5/8	2 1/2	1/2	4	**90713**	**90713**		
1/2	0.125	5/8	2 1/2	1/2	4	**90113**	**90113**		
1/2	0.010	1	3	1/2	4			**90020**	**90020**
1/2	0.015	1	3	1/2	4			**90220**	**90220**
1/2	0.020	1	3	1/2	4			**90320**	**90320**
1/2	0.030	1	3	1/2	4			**90420**	**90420**
1/2	0.045	1	3	1/2	4			**90520**	**90520**
1/2	0.060	1	3	1/2	4			**90620**	**90620**
1/2	0.090	1	3	1/2	4			**90720**	**90720**
1/2	0.125	1	3	1/2	4			**90120**	**90120**
1/2	0.010	1	4	1/2	4			**93720**	**93720**
1/2	0.015	1	4	1/2	4			**93920**	**93920**
1/2	0.020	1	4	1/2	4			**94020**	**94020**
1/2	0.030	1	4	1/2	4			**94120**	**94120**
1/2	0.045	1	4	1/2	4			**94220**	**94220**
1/2	0.060	1	4	1/2	4			**94320**	**94320**
1/2	0.090	1	4	1/2	4			**94420**	**94420**

	59 072 ...	59 073 ...	59 072 ...	59 073 ...
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→ v_c/f_z Page 110

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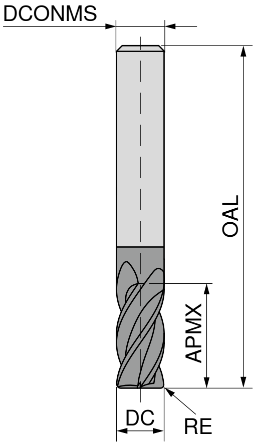
End milling cutter with corner radius

▲ Radius accuracy: +/- 0.001

S644 **UN** λ_s=38° γ_s=8° ZEFP



DC +0.000/-0.002 inch	RE inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 072 ...	59 073 ...	59 072 ...	59 073 ...
1/2	0.125	1	4	1/2	4			**93820**	**93820**
5/8	0.015	1 1/4	3 1/2	5/8	4			**90920**	**90920**
5/8	0.020	1 1/4	3 1/2	5/8	4			**91020**	**91020**
5/8	0.030	1 1/4	3 1/2	5/8	4			**91120**	**91120**
5/8	0.045	1 1/4	3 1/2	5/8	4			**91220**	**91220**
5/8	0.060	1 1/4	3 1/2	5/8	4			**91320**	**91320**
5/8	0.090	1 1/4	3 1/2	5/8	4			**91420**	**91420**
5/8	0.125	1 1/4	3 1/2	5/8	4			**90820**	**90820**
3/4	0.020	1 1/2	4	3/4	4			**91620**	**91620**
3/4	0.030	1 1/2	4	3/4	4			**91720**	**91720**
3/4	0.045	1 1/2	4	3/4	4			**91820**	**91820**
3/4	0.060	1 1/2	4	3/4	4			**91920**	**91920**
3/4	0.090	1 1/2	4	3/4	4			**92020**	**92020**
3/4	0.125	1 1/2	4	3/4	4			**91520**	**91520**
1	0.030	1 3/4	4	1	4			**90118**	**90118**
1	0.045	1 3/4	4	1	4			**90218**	**90218**
1	0.060	1 3/4	4	1	4			**90318**	**90318**
1	0.090	1 3/4	4	1	4			**90418**	**90418**
1	0.125	1 3/4	4	1	4			**90018**	**90018**

	59 072 ...	59 073 ...	59 072 ...	59 073 ...
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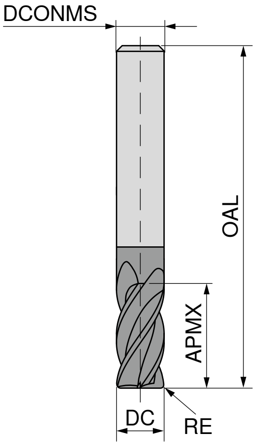
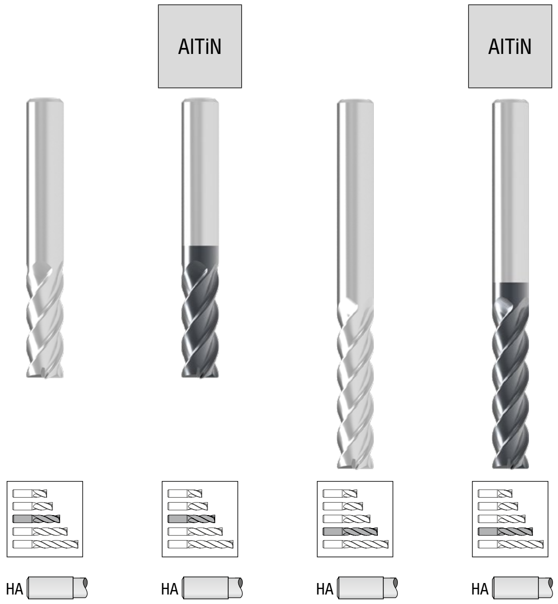
→ v_c/f_z Page 110

End milling cutter with corner radius

▲ Radius accuracy: +/- 0.001

S644 **UN** λ_s=38° γ_s=8° ZEFP





DC +0.000/-0.002 inch	RE inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 072 ...	59 073 ...	59 072 ...	59 073 ...
1/8	0.010	1/2	1 1/2	1/8	4			90040	90040
1/8	0.015	1/2	1 1/2	1/8	4			90140	90140
1/8	0.020	1/2	1 1/2	1/8	4			90240	90240
1/8	0.030	1/2	1 1/2	1/8	4			90340	90340
3/16	0.010	5/8	2	3/16	4	90033	90033		
3/16	0.015	5/8	2	3/16	4	90133	90133		
3/16	0.020	5/8	2	3/16	4	90233	90233		
3/16	0.030	5/8	2	3/16	4	90333	90333		
3/16	0.045	5/8	2	3/16	4	90433	90433		
3/16	0.060	5/8	2	3/16	4	90533	90533		
3/16	0.010	1	4	3/16	4			90053	90153
3/16	0.015	1	4	3/16	4			90153	90253
3/16	0.020	1	4	3/16	4			90253	90353
3/16	0.030	1	4	3/16	4			90353	90453
3/16	0.045	1	4	3/16	4			90453	90553
3/16	0.060	1	4	3/16	4			90553	90653
1/4	0.010	1	4	1/4	4	91840	91840		
1/4	0.015	1	4	1/4	4	91940	91940		
1/4	0.020	1	4	1/4	4	92040	92040		
1/4	0.030	1	4	1/4	4	92140	92140		
1/4	0.045	1	4	1/4	4	92240	92240		
1/4	0.060	1	4	1/4	4	92340	92340		
1/4	0.090	1	4	1/4	4	92440	92440		
1/4	0.010	1 1/8	3	1/4	4			90045	90045
1/4	0.015	1 1/8	3	1/4	4			90145	90145
1/4	0.020	1 1/8	3	1/4	4			90245	90245
1/4	0.030	1 1/8	3	1/4	4			90345	90345
1/4	0.045	1 1/8	3	1/4	4			90445	90445
1/4	0.060	1 1/8	3	1/4	4			90545	90545
1/4	0.090	1 1/8	3	1/4	4			90645	90645
5/16	0.010	1	4	5/16	4	90032	90032		
5/16	0.015	1	4	5/16	4	90232	90232		
5/16	0.020	1	4	5/16	4	90332	90332		
5/16	0.030	1	4	5/16	4	90432	90432		
5/16	0.045	1	4	5/16	4	90532	90532		
5/16	0.060	1	4	5/16	4	90632	90632		
5/16	0.090	1	4	5/16	4	90732	90732		
5/16	0.125	1	4	5/16	4	90132	90132		
5/16	0.010	1 1/8	3	5/16	4	90036	90036		
5/16	0.015	1 1/8	3	5/16	4	90236	90236		

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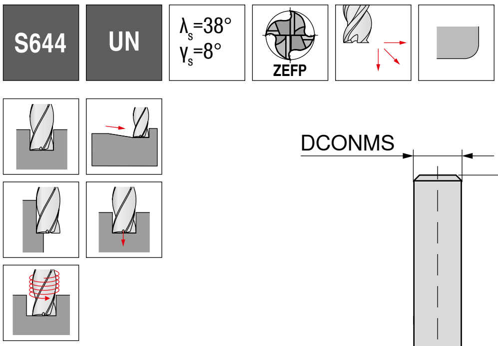
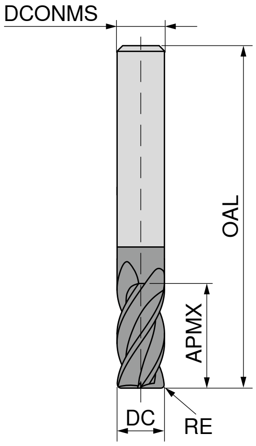
End milling cutter with corner radius

▲ Radius accuracy: +/- 0.001

S644 **UN** λ_s=38° γ_s=8° ZEFP





HA HA HA HA

DC +0.000/-0.002 inch	RE inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 072 ...	AlTiN 59 073 ...	59 072 ...	AlTiN 59 073 ...
5/16	0.020	1 1/8	3	5/16	4	90336	90336		
5/16	0.030	1 1/8	3	5/16	4	90436	90436		
5/16	0.045	1 1/8	3	5/16	4	90536	90536		
5/16	0.060	1 1/8	3	5/16	4	90636	90636		
5/16	0.090	1 1/8	3	5/16	4	90736	90736		
5/16	0.125	1 1/8	3	5/16	4	90136	90136		
5/16	0.010	1 1/2	6	5/16	4			90748	90748
5/16	0.015	1 1/2	6	5/16	4			90948	90948
5/16	0.020	1 1/2	6	5/16	4			91048	91048
5/16	0.030	1 1/2	6	5/16	4			91148	91148
5/16	0.045	1 1/2	6	5/16	4			91248	91248
5/16	0.060	1 1/2	6	5/16	4			91348	91348
5/16	0.090	1 1/2	6	5/16	4			91448	91448
5/16	0.125	1 1/2	6	5/16	4			90848	90848
3/8	0.010	1	4	3/8	4	90027	90027		
3/8	0.015	1	4	3/8	4	90227	90227		
3/8	0.020	1	4	3/8	4	90327	90327		
3/8	0.030	1	4	3/8	4	90427	90427		
3/8	0.045	1	4	3/8	4	90527	90527		
3/8	0.060	1	4	3/8	4	90627	90627		
3/8	0.090	1	4	3/8	4	90727	90727		
3/8	0.125	1	4	3/8	4	90127	90127		
3/8	0.010	1 1/8	3	3/8	4	90730	90730		
3/8	0.015	1 1/8	3	3/8	4	90930	90930		
3/8	0.020	1 1/8	3	3/8	4	91030	91030		
3/8	0.030	1 1/8	3	3/8	4	91130	91130		
3/8	0.045	1 1/8	3	3/8	4	91230	91230		
3/8	0.060	1 1/8	3	3/8	4	91330	91330		
3/8	0.090	1 1/8	3	3/8	4	91430	91430		
3/8	0.125	1 1/8	3	3/8	4	90830	90830		
3/8	0.010	1 1/2	6	3/8	4			92540	92540
3/8	0.015	1 1/2	6	3/8	4			92740	92740
3/8	0.020	1 1/2	6	3/8	4			92840	92840
3/8	0.030	1 1/2	6	3/8	4			92940	92940
3/8	0.045	1 1/2	6	3/8	4			93040	93040
3/8	0.060	1 1/2	6	3/8	4			93140	93140
3/8	0.090	1 1/2	6	3/8	4			93240	93240
3/8	0.125	1 1/2	6	3/8	4			92640	92640
3/8	0.010	1 3/4	4	3/8	4			90047	90047
3/8	0.015	1 3/4	4	3/8	4			90247	90247

	59 072 ...	59 073 ...	59 072 ...	59 073 ...
P	●	●	●	●
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N	●	●	●	●
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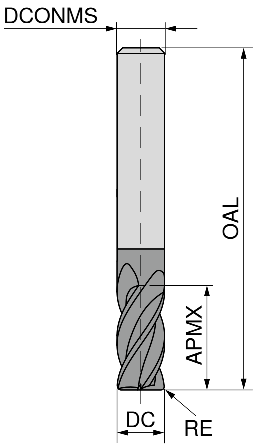
→ v_c/f_z Page 110

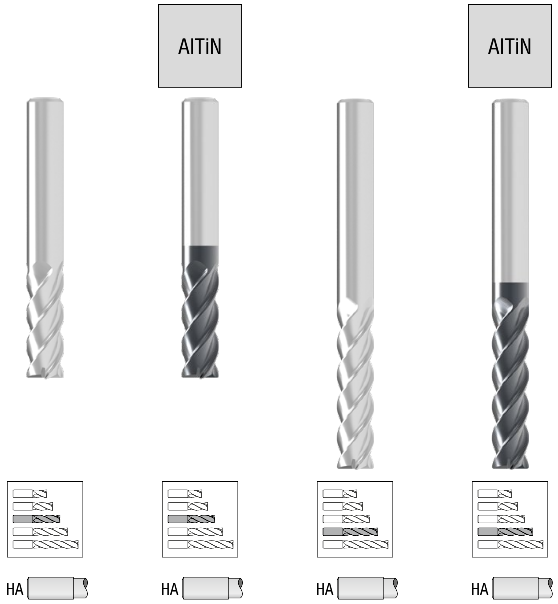
Continued on next page

End milling cutter with corner radius

▲ Radius accuracy: +/- 0.001

S644 UN λ_s=38° γ_s=8° ZEFP





DC $_{+0.000/-0.002}$ **inch**	RE inch	APMX inch	OAL inch	DCONMS $_{-0.0001\ /\ -0.0004}$ inch	ZEFP	59 072 ...	59 073 ...	59 072 ...	59 073 ...
3/8	0.020	1 3/4	4	3/8	4			90347	90347
3/8	0.030	1 3/4	4	3/8	4			90447	90447
3/8	0.045	1 3/4	4	3/8	4			90547	90547
3/8	0.060	1 3/4	4	3/8	4			90647	90647
3/8	0.090	1 3/4	4	3/8	4			90747	90747
3/8	0.125	1 3/4	4	3/8	4			90147	90147
1/2	0.010	1 1/2	6	1/2	4	92630	92630		
1/2	0.015	1 1/2	6	1/2	4	92830	92830		
1/2	0.020	1 1/2	6	1/2	4	92930	92930		
1/2	0.030	1 1/2	6	1/2	4	93030	93030		
1/2	0.045	1 1/2	6	1/2	4	93130	93130		
1/2	0.060	1 1/2	6	1/2	4	93230	93230		
1/2	0.090	1 1/2	6	1/2	4	93330	93330		
1/2	0.125	1 1/2	6	1/2	4	92730	92730		
1/2	0.010	2	4	1/2	4			90440	90440
1/2	0.015	2	4	1/2	4			90640	90640
1/2	0.020	2	4	1/2	4			90740	90740
1/2	0.030	2	4	1/2	4			90840	90840
1/2	0.045	2	4	1/2	4			90940	90940
1/2	0.060	2	4	1/2	4			91040	91040
1/2	0.090	2	4	1/2	4			91140	91140
1/2	0.125	2	4	1/2	4			90540	90540
5/8	0.015	2	6	5/8	4	90932	90932		
5/8	0.020	2	6	5/8	4	91032	91032		
5/8	0.030	2	6	5/8	4	91132	91132		
5/8	0.045	2	6	5/8	4	91232	91232		
5/8	0.060	2	6	5/8	4	91332	91332		
5/8	0.090	2	6	5/8	4	91432	91432		
5/8	0.125	2	6	5/8	4	90832	90832		
5/8	0.015	2 1/8	4 5/8	5/8	4			90134	90134
5/8	0.020	2 1/8	4 5/8	5/8	4			90234	90234
5/8	0.030	2 1/8	4 5/8	5/8	4			90334	90334
5/8	0.045	2 1/8	4 5/8	5/8	4			90434	90434
5/8	0.060	2 1/8	4 5/8	5/8	4			90534	90534
5/8	0.090	2 1/8	4 5/8	5/8	4			90634	90634
5/8	0.125	2 1/8	4 5/8	5/8	4			90034	90034
3/4	0.020	2	6	3/4	4	90927	90927		
3/4	0.030	2	6	3/4	4	91027	91027		
3/4	0.045	2	6	3/4	4	91127	91127		
3/4	0.060	2	6	3/4	4	91227	91227		

P	●	●	●	●
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K	●	●	●	●
N	●	●	●	●
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→ v_c/f_z Page 110

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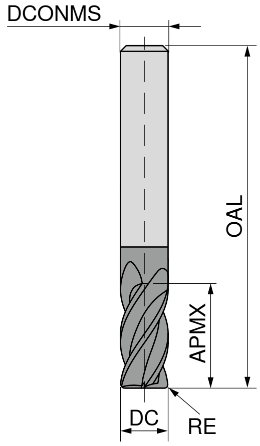
End milling cutter with corner radius

▲ Radius accuracy: +/- 0.001

S644 **UN** λ_s=38° γ_s=8° ZEFP



AlTiN

AlTiN




HA HA HA HA

DC +0.000/-0.002 inch	RE inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 072 ...	59 073 ...	59 072 ...	59 073 ...
3/4	0.090	2	6	3/4	4	**91327**	**91327**		
3/4	0.125	2	6	3/4	4	**90827**	**90827**		
3/4	0.020	2 1/4	5	3/4	4			**91630**	**91630**
3/4	0.030	2 1/4	5	3/4	4			**91730**	**91730**
3/4	0.045	2 1/4	5	3/4	4			**91830**	**91830**
3/4	0.060	2 1/4	5	3/4	4			**91930**	**91930**
3/4	0.090	2 1/4	5	3/4	4			**92030**	**92030**
3/4	0.125	2 1/4	5	3/4	4			**91530**	**91530**
1	0.030	2	6	1	4	**93320**	**93320**		
1	0.045	2	6	1	4	**93420**	**93420**		
1	0.060	2	6	1	4	**93520**	**93520**		
1	0.090	2	6	1	4	**93620**	**93620**		
1	0.125	2	6	1	4	**93220**	**93220**		
1	0.030	2 1/4	5	1	4			**90923**	**90923**
1	0.045	2 1/4	5	1	4			**91023**	**91023**
1	0.060	2 1/4	5	1	4			**91123**	**91123**
1	0.090	2 1/4	5	1	4			**91223**	**91223**
1	0.125	2 1/4	5	1	4			**90823**	**90823**

P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	●	●	●	●
S	●	●	●	●
H				
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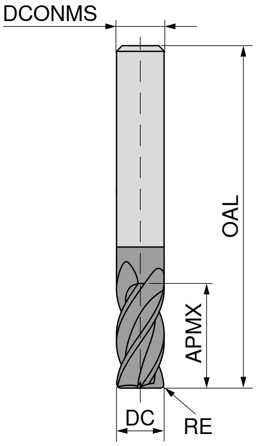
→ v_c/f_z Page 110

End milling cutter with corner radius

▲ Radius accuracy: +/- 0.001

S644 **UN** λ_s=38° γ_s=8° ZEFP

AlTiN



DC +0.000/-0.002 inch	RE inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 072 ...	59 073 ...
1/8	0.010	1	3	1/8	4	**90080**	**90180**
1/8	0.015	1	3	1/8	4	**90180**	**90280**
1/8	0.020	1	3	1/8	4	**90280**	**90380**
1/8	0.030	1	3	1/8	4	**90380**	**90480**
1/8	0.045	1	3	1/8	4	**90480**	**90580**
3/16	0.010	1 1/8	3	3/16	4	**90060**	**90160**
3/16	0.015	1 1/8	3	3/16	4	**90160**	**90260**
3/16	0.020	1 1/8	3	3/16	4	**90260**	**90360**
3/16	0.030	1 1/8	3	3/16	4	**90360**	**90460**
3/16	0.045	1 1/8	3	3/16	4	**90460**	**90560**
3/16	0.060	1 1/8	3	3/16	4	**90560**	**90660**
1/4	0.010	1 1/2	4	1/4	4	**90660**	**90760**
1/4	0.015	1 1/2	4	1/4	4	**90760**	**90860**
1/4	0.020	1 1/2	4	1/4	4	**90860**	**90960**
1/4	0.030	1 1/2	4	1/4	4	**90960**	**91060**
1/4	0.045	1 1/2	4	1/4	4	**91060**	**91160**
1/4	0.060	1 1/2	4	1/4	4	**91160**	**91260**
1/4	0.090	1 1/2	4	1/4	4	**91260**	**91360**
1/4	0.010	1 1/2	6	1/4	4	**92160**	**92260**
1/4	0.015	1 1/2	6	1/4	4	**92260**	**92360**
1/4	0.020	1 1/2	6	1/4	4	**92360**	**92460**
1/4	0.030	1 1/2	6	1/4	4	**92460**	**92560**
1/4	0.045	1 1/2	6	1/4	4	**92560**	**92660**
1/4	0.060	1 1/2	6	1/4	4	**92660**	**92760**
1/4	0.090	1 1/2	6	1/4	4	**92760**	**92860**
5/16	0.010	1 5/8	4	5/16	4	**90052**	**90152**
5/16	0.015	1 5/8	4	5/16	4	**90252**	**90352**
5/16	0.020	1 5/8	4	5/16	4	**90352**	**90452**
5/16	0.030	1 5/8	4	5/16	4	**90452**	**90552**
5/16	0.045	1 5/8	4	5/16	4	**90552**	**90652**
5/16	0.060	1 5/8	4	5/16	4	**90652**	**90752**
5/16	0.090	1 5/8	4	5/16	4	**90752**	**90852**
5/16	0.125	1 5/8	4	5/16	4	**90152**	**90252**
3/8	0.010	3	6	3/8	4	**90580**	**90680**
3/8	0.015	3	6	3/8	4	**90780**	**90880**
3/8	0.020	3	6	3/8	4	**90880**	**90980**
3/8	0.030	3	6	3/8	4	**90980**	**91080**
3/8	0.045	3	6	3/8	4	**91080**	**91180**
3/8	0.060	3	6	3/8	4	**91180**	**91280**
3/8	0.090	3	6	3/8	4	**91280**	**91380**

	59 072 ...	59 073 ...
P	●	●
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N	●	●
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→ v_c/f_z Page 110

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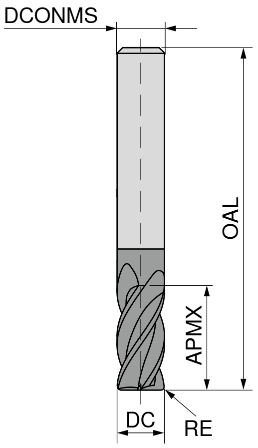
End milling cutter with corner radius

▲ Radius accuracy: +/- 0.001

S644 **UN** λ_s=38° γ_s=8° ZEFP

AlTiN



HA HA

DC +0.000/-0.002 inch	RE inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 072 ...	59 073 ...
3/8	0.125	3	6	3/8	4	90680	90780
1/2	0.010	3	6	1/2	4	91360	91460
1/2	0.015	3	6	1/2	4	91560	91660
1/2	0.020	3	6	1/2	4	91660	91760
1/2	0.030	3	6	1/2	4	91760	91860
1/2	0.045	3	6	1/2	4	91860	91960
1/2	0.060	3	6	1/2	4	91960	92060
1/2	0.090	3	6	1/2	4	92060	92160
1/2	0.125	3	6	1/2	4	91460	91560
5/8	0.015	3	6	5/8	4	90148	90148
5/8	0.020	3	6	5/8	4	90248	90248
5/8	0.030	3	6	5/8	4	90348	90348
5/8	0.045	3	6	5/8	4	90448	90448
5/8	0.060	3	6	5/8	4	90548	90548
5/8	0.090	3	6	5/8	4	90648	90648
5/8	0.125	3	6	5/8	4	90048	90048
3/4	0.020	3	6	3/4	4	91340	91340
3/4	0.030	3	6	3/4	4	91440	91440
3/4	0.045	3	6	3/4	4	91540	91540
3/4	0.060	3	6	3/4	4	91640	91640
3/4	0.090	3	6	3/4	4	91740	91740
3/4	0.125	3	6	3/4	4	91240	91240
1	0.030	3	6	1	4	92230	92230
1	0.045	3	6	1	4	92330	92330
1	0.060	3	6	1	4	92430	92430
1	0.090	3	6	1	4	92530	92530
1	0.125	3	6	1	4	92130	92130

	59 072 ...	59 073 ...
P	●	●
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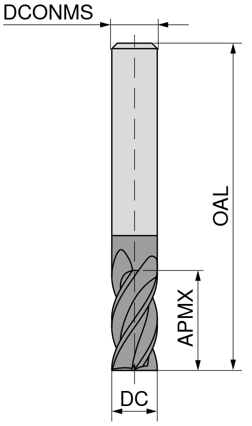
→ v_c/f_z Page 110

End milling cutter

S645 **UN** λ_s=43° γ_s=8° ZEFP



					AlTiN		AlTiN		AlTiN	
					HA	HA	HA	HA	HA	HA
					59 074 ...	59 075 ...	59 074 ...	59 075 ...	59 074 ...	59 075 ...
DC +0.000/-0.002 inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP						
1/8	1/4	1 1/2	1/8	5	**12520**	**12520**				
1/8	1/2	1 1/2	1/8	5			**12540**	**12540**		
5/32	5/16	2	3/16	5	**15620**	**15620**				
5/32	9/16	2	3/16	5			**15636**	**15636**		
3/16	5/16	2	3/16	5	**18817**	**18817**				
3/16	9/16	2	3/16	5			**18830**	**18830**		
7/32	3/8	2	1/4	5	**21917**	**21917**				
7/32	3/4	2 1/2	1/4	5			**21934**	**21934**		
1/4	3/8	2	1/4	5	**25015**	**25015**				
1/4	3/4	2 1/2	1/4	5			**25030**	**25030**		
1/4	1 1/4	4	1/4	5					**25050**	**25050**
5/16	7/16	2	5/16	5	**31314**	**31314**				
5/16	13/16	2 1/2	5/16	5			**31326**	**31326**		
3/8	1/2	2	3/8	5	**37513**	**37513**				
3/8	1	2 1/2	3/8	5			**37527**	**37527**		
3/8	1 1/2	4	3/8	5					**37540**	**37540**
1/2	5/8	2 1/2	1/2	5	**50013**	**50013**				
1/2	1 1/4	3	1/2	5			**50025**	**50025**		
1/2	2	4	1/2	5					**50040**	**50040**
5/8	3/4	3	5/8	5	**62512**	**62512**				
5/8	1 5/8	3 1/2	5/8	5			**62526**	**62526**		
5/8	2 1/2	5	5/8	5					**62540**	**62540**
3/4	1	3	3/4	5	**75013**	**75013**				
3/4	1 5/8	4	3/4	5			**75022**	**75022**		
3/4	3 1/4	6	3/4	5					**75043**	**75043**
1	1 1/4	3	1	5	**99913**	**99913**				
1	2	4	1	5			**99920**	**99920**		
1	3 1/4	6	1	5					**99933**	**99933**

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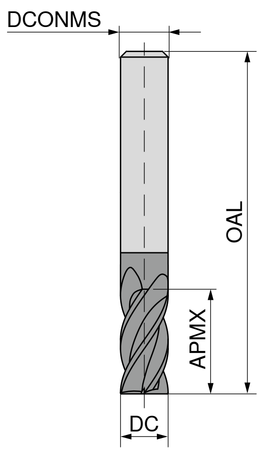
→ v_c/f_z Page 111

End milling cutter

P007 | **UN** | λ_s=35° 38° γ_s= 9° | ZEFP | **HPC**



DC +0.000/-0.002 inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	DPAU72S DRAGONSKIN HA 59 002 ...	DPAU72S DRAGONSKIN HA 59 002 ...	DPAU72S DRAGONSKIN HA 59 002 ...	DPAU72S DRAGONSKIN HA 59 002 ...
1/8	1/4	1 1/2	1/8	4	**12520**			
1/8	1/2	2 1/2	1/8	4				**12640**
3/16	5/16	2	3/16	4	**18817**			
3/16	5/8	2 1/2	3/16	4			**18833**	
1/4	3/8	2	1/4	4	**25015**			
1/4	1/2	2 1/2	1/4	4		**25020**		
1/4	3/4	2 1/2	1/4	4			**25030**	
1/4	1	3	1/4	4				**25040**
5/16	1/2	2	5/16	4	**31316**			
5/16	3/4	2 1/2	5/16	4		**31324**		
5/16	1 1/4	3	5/16	4			**31340**	
3/8	1/2	2	3/8	4	**37513**			
3/8	7/8	3	3/8	4		**37523**		
3/8	1	3	3/8	4			**37527**	
3/8	1 1/4	3	3/8	4				**37533**
1/2	5/8	2 1/2	1/2	4	**50013**			
1/2	1	3	1/2	4		**50020**		
1/2	1 1/4	3	1/2	4			**50025**	
1/2	1 5/8	4	1/2	4				**50033**
5/8	3/4	3	5/8	4	**62512**			
5/8	1 1/4	3 1/2	5/8	4		**62520**		
5/8	1 5/8	3 1/2	5/8	4			**62526**	
5/8	2	4	5/8	4				**62532**
5/8	3 1/4	6	5/8	4				**62552**
3/4	7/8	3	3/8	4	**75012**			
3/4	1 1/4	4	3/4	4		**75017**		
3/4	1 5/8	4	3/4	4			**75022**	
3/4	2 1/4	5	3/4	4				**75030**
3/4	3 1/4	6	3/4	4				**75043**
1	1 1/2	4	1	4	**99915**			
1	2	4 1/2	1	4		**99920**		
1	2 5/8	5	1	4			**99926**	
1	3	6	1	4				**99930**
1	4 1/4	7	1	4				**99943**

P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	●	●	●	●
S	●	●	●	●
H				
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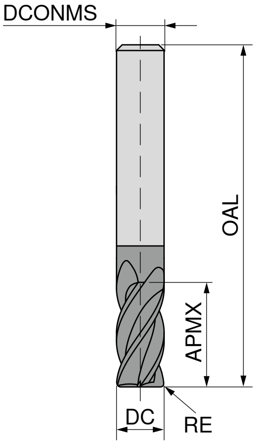
→ v_c/f_z Page 112

End milling cutter with corner radius

▲ Radius accuracy: +/- 0.001 for Ø ≤ 0.060
+/- 0.0015 for Ø > 0.060

P007 UN λ_s=35° 38° γ_s= 9° ZEFP HPC



DPAU72S	DPAU72S	DPAU72S	DPAU72S
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN	DRAGONSKIN




HA HA HA HA

DC +0.000/-0.002 inch	RE inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 002 ...	59 002 ...	59 002 ...	59 002 ...
1/8	0.010	1/4	1 1/2	1/8	4	**90020**			
1/8	0.030	1/4	1 1/2	1/8	4	**90120**			
1/8	0.010	1/2	2 1/2	1/8	4			**90040**	
1/8	0.030	1/2	2 1/2	1/8	4				**90140**
3/16	0.010	5/16	2	3/16	4	**90017**			
3/16	0.030	5/16	2	3/16	4	**90117**			
3/16	0.010	5/8	2 1/2	3/16	4			**90033**	
3/16	0.030	5/8	2 1/2	3/16	4			**90133**	
1/4	0.020	3/8	2	1/4	4	**90015**			
1/4	0.030	3/8	2	1/4	4	**90115**			
1/4	0.060	3/8	2	1/4	4	**90215**			
1/4	0.020	1/2	2 1/2	1/4	4		**90220**		
1/4	0.030	1/2	2 1/2	1/4	4		**90320**		
1/4	0.060	1/2	2 1/2	1/4	4		**90420**		
1/4	0.020	3/4	2 1/2	1/4	4			**90030**	
1/4	0.030	3/4	2 1/2	1/4	4			**90130**	
1/4	0.060	3/4	2 1/2	1/4	4			**90230**	
1/4	0.020	1	3	1/4	4				**90240**
1/4	0.030	1	3	1/4	4				**90340**
1/4	0.060	1	3	1/4	4				**90440**
5/16	0.020	1/2	2	5/16	4	**90016**			
5/16	0.030	1/2	2	5/16	4	**90116**			
5/16	0.060	1/2	2	5/16	4	**90216**			
5/16	0.020	3/4	2 1/2	5/16	4		**90024**		
5/16	0.030	3/4	2 1/2	5/16	4		**90124**		
5/16	0.060	3/4	2 1/2	5/16	4		**90224**		
5/16	0.020	1 1/4	3	5/16	4			**90540**	
5/16	0.030	1 1/4	3	5/16	4			**90640**	
5/16	0.060	1 1/4	3	5/16	4			**90740**	
3/8	0.020	1/2	2	3/8	4	**90013**			
3/8	0.030	1/2	2	3/8	4	**90113**			
3/8	0.060	1/2	2	3/8	4	**90213**			
3/8	0.090	1/2	2	3/8	4	**90313**			
3/8	0.020	7/8	3	3/8	4		**90023**		
3/8	0.030	7/8	3	3/8	4		**90123**		
3/8	0.060	7/8	3	3/8	4		**90223**		
3/8	0.090	7/8	3	3/8	4		**90323**		
3/8	0.020	1	3	3/8	4			**90027**	

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→ v_c/f_z Page 112

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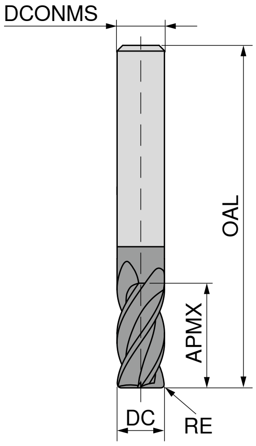
End milling cutter with corner radius

▲ Radius accuracy: +/- 0.001 for Ø ≤ 0.060
+/- 0.0015 for Ø > 0.060

P007 **UN** λ_s = 35° 38° γ_s = 9° ZEFP **HPC**



						DPAU72S DRAGONSKIN HA 59 002 ...	DPAU72S DRAGONSKIN HA 59 002 ...	DPAU72S DRAGONSKIN HA 59 002 ...	DPAU72S DRAGONSKIN HA 59 002 ...
									
DC +0.000/-0.002 inch	RE inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP				
3/8	0.030	1	3	3/8	4			**90127**	
3/8	0.060	1	3	3/8	4			**90227**	
3/8	0.090	1	3	3/8	4			**90327**	
3/8	0.020	1 1/4	3	3/8	4				**90233**
3/8	0.030	1 1/4	3	3/8	4				**90333**
3/8	0.060	1 1/4	3	3/8	4				**90433**
3/8	0.090	1 1/4	3	3/8	4				**90533**
1/2	0.020	5/8	2 1/2	1/2	4	**90413**			
1/2	0.030	5/8	2 1/2	1/2	4	**90513**			
1/2	0.060	5/8	2 1/2	1/2	4	**90613**			
1/2	0.090	5/8	2 1/2	1/2	4	**90713**			
1/2	0.125	5/8	2 1/2	1/2	4	**90813**			
1/2	0.020	1	3	1/2	4		**90520**		
1/2	0.030	1	3	1/2	4		**90620**		
1/2	0.060	1	3	1/2	4		**90720**		
1/2	0.090	1	3	1/2	4		**90820**		
1/2	0.125	1	3	1/2	4		**90920**		
1/2	0.020	1 1/4	3	1/2	4			**90025**	
1/2	0.030	1 1/4	3	1/2	4			**90125**	
1/2	0.060	1 1/4	3	1/2	4			**90225**	
1/2	0.090	1 1/4	3	1/2	4			**90325**	
1/2	0.125	1 1/4	3	1/2	4			**90425**	
1/2	0.020	1 5/8	4	1/2	4				**90633**
1/2	0.030	1 5/8	4	1/2	4				**90733**
1/2	0.060	1 5/8	4	1/2	4				**90833**
1/2	0.090	1 5/8	4	1/2	4				**90933**
1/2	0.125	1 5/8	4	1/2	4				**91033**
5/8	0.030	3/4	3	5/8	4	**90012**			
5/8	0.060	3/4	3	5/8	4	**90112**			
5/8	0.090	3/4	3	5/8	4	**90212**			
5/8	0.125	3/4	3	5/8	4	**90312**			
5/8	0.030	1 1/4	3 1/2	5/8	4		**91020**		
5/8	0.060	1 1/4	3 1/2	5/8	4		**91120**		
5/8	0.090	1 1/4	3 1/2	5/8	4		**91220**		
5/8	0.125	1 1/4	3 1/2	5/8	4		**91320**		
5/8	0.030	1 5/8	3 1/2	5/8	4			**90026**	
5/8	0.060	1 5/8	3 1/2	5/8	4			**90126**	
5/8	0.090	1 5/8	3 1/2	5/8	4			**90226**	
P						●	●	●	●
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→ v_c/f_z Page 112

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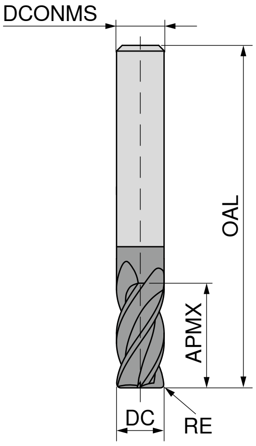
End milling cutter with corner radius

▲ Radius accuracy: +/- 0.001 for Ø ≤ 0.060
+/- 0.0015 for Ø > 0.060

P007 UN λ_s=35° 38° γ_s= 9° ZEFP HPC






DC +0.000/-0.002 inch	RE inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	DPAU72S DRAGONSKIN HA 59 002 ...	DPAU72S DRAGONSKIN HA 59 002 ...	DPAU72S DRAGONSKIN HA 59 002 ...	DPAU72S DRAGONSKIN HA 59 002 ...
5/8	0.125	1 5/8	3 1/2	5/8	4				**90326**
5/8	0.030	2	4	5/8	4				**90032**
5/8	0.060	2	4	5/8	4				**90132**
5/8	0.090	2	4	5/8	4				**90232**
5/8	0.125	2	4	5/8	4				**90332**
5/8	0.030	3 1/4	6	5/8	4				**90052**
5/8	0.060	3 1/4	6	5/8	4				**90152**
5/8	0.090	3 1/4	6	5/8	4				**90252**
5/8	0.125	3 1/4	6	5/8	4				**90352**
3/4	0.030	7/8	3	3/8	4	**90412**			
3/4	0.060	7/8	3	3/8	4	**90512**			
3/4	0.090	7/8	3	3/8	4	**90612**			
3/4	0.125	7/8	3	3/8	4	**90712**			
3/4	0.190	7/8	3	3/8	4	**90812**			
3/4	0.250	7/8	3	3/8	4	**90912**			
3/4	0.030	1 1/4	4	3/4	4		**90217**		
3/4	0.060	1 1/4	4	3/4	4		**90317**		
3/4	0.090	1 1/4	4	3/4	4		**90417**		
3/4	0.125	1 1/4	4	3/4	4		**90517**		
3/4	0.190	1 1/4	4	3/4	4		**90617**		
3/4	0.250	1 1/4	4	3/4	4		**90717**		
3/4	0.030	1 5/8	4	3/4	4			**90022**	
3/4	0.060	1 5/8	4	3/4	4			**90122**	
3/4	0.090	1 5/8	4	3/4	4			**90222**	
3/4	0.125	1 5/8	4	3/4	4			**90322**	
3/4	0.190	1 5/8	4	3/4	4			**90422**	
3/4	0.250	1 5/8	4	3/4	4			**90522**	
3/4	0.030	2 1/4	5	3/4	4				**90330**
3/4	0.060	2 1/4	5	3/4	4				**90430**
3/4	0.090	2 1/4	5	3/4	4				**90530**
3/4	0.125	2 1/4	5	3/4	4				**90630**
3/4	0.190	2 1/4	5	3/4	4				**90730**
3/4	0.250	2 1/4	5	3/4	4				**90830**
3/4	0.030	3 1/4	6	3/4	4				**90043**
3/4	0.060	3 1/4	6	3/4	4				**90143**
3/4	0.090	3 1/4	6	3/4	4				**90243**
3/4	0.125	3 1/4	6	3/4	4				**90343**
3/4	0.190	3 1/4	6	3/4	4				**90443**

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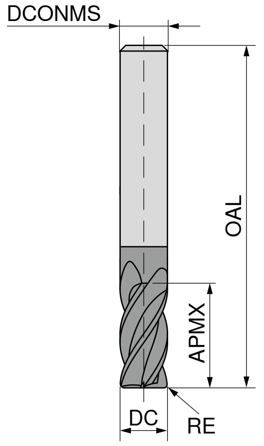
End milling cutter with corner radius

▲ Radius accuracy: +/- 0.001 for Ø ≤ 0.060
+/- 0.0015 for Ø > 0.060

P007 UN λ_s=35° 38° γ_s= 9° ZEFP HPC






DC +0.000/-0.002 inch	RE inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	DPAU72S DRAGONSKIN HA 59 002 ...	DPAU72S DRAGONSKIN HA 59 002 ...	DPAU72S DRAGONSKIN HA 59 002 ...	DPAU72S DRAGONSKIN HA 59 002 ...
3/4	0.250	3 1/4	6	3/4	4				90543
1	0.030	1 1/2	4	1	4	90315			
1	0.060	1 1/2	4	1	4	90415			
1	0.090	1 1/2	4	1	4	90515			
1	0.125	1 1/2	4	1	4	90615			
1	0.190	1 1/2	4	1	4	90715			
1	0.250	1 1/2	4	1	4	90815			
1	0.030	2	4 1/2	1	4		91420		
1	0.060	2	4 1/2	1	4		91520		
1	0.090	2	4 1/2	1	4		91620		
1	0.125	2	4 1/2	1	4		91720		
1	0.190	2	4 1/2	1	4		91820		
1	0.250	2	4 1/2	1	4		91920		
1	0.030	2 5/8	5	1	4			90426	
1	0.060	2 5/8	5	1	4			90526	
1	0.090	2 5/8	5	1	4			90626	
1	0.125	2 5/8	5	1	4			90726	
1	0.190	2 5/8	5	1	4			90826	
1	0.250	2 5/8	5	1	4			90926	
1	0.030	3	6	1	4				90930
1	0.060	3	6	1	4				91030
1	0.090	3	6	1	4				91130
1	0.125	3	6	1	4				91230
1	0.190	3	6	1	4				91330
1	0.250	3	6	1	4				91430
1	0.030	4 1/4	7	1	4				90643
1	0.060	4 1/4	7	1	4				90743
1	0.090	4 1/4	7	1	4				90843
1	0.125	4 1/4	7	1	4				90943
1	0.190	4 1/4	7	1	4				91043
1	0.250	4 1/4	7	1	4				91143

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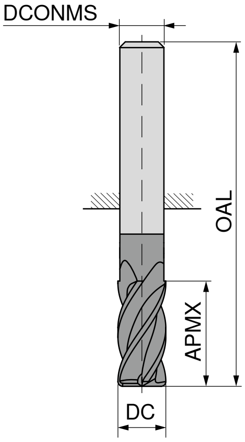
→ v_c/f_z Page 112

End milling cutter

▲ Cutting edges with irregular pitch

P556 **UN** λs=38° γs=07° ZEFP **HPC**



	DPAU72S DRAGONSKIN	DPAU72S DRAGONSKIN	DPAU72S DRAGONSKIN	DPAU72S DRAGONSKIN
				
	HA	HA	HA	HA

DC +0.000/-0.002 inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 006 ...	59 006 ...	59 006 ...	59 006 ...
1/4	3/8	2	1/4	5	**25015**			
1/4	1/2	2 1/2	1/4	5		**25020**		
1/4	3/4	2 1/2	1/4	5			**25030**	
1/4	1	3	1/4	5				**25040**
1/4	1 1/4	3	1/4	5				**25050**
3/8	1/2	2	3/8	5	**37513**			
3/8	1	3	3/8	5		**37527**		
3/8	1 1/4	3	3/8	5			**37533**	
3/8	1 1/2	3 1/2	3/8	5				**37540**
1/2	5/8	2 1/2	1/2	5	**50013**			
1/2	1	3	1/2	5		**50020**		
1/2	1 1/4	3	1/2	5			**50025**	
1/2	1 5/8	4	1/2	5				**50033**
1/2	2	4	1/2	5				**50040**
5/8	3/4	3	5/8	5	**62512**			
5/8	1 1/4	3 1/2	5/8	5		**62520**		
5/8	1 5/8	3 1/2	5/8	5			**62526**	
5/8	2 1/4	4	5/8	5				**62536**
5/8	2 1/2	5	5/8	5				**62540**
3/4	1	3	3/4	5	**75013**			
3/4	1 5/8	4	3/4	5		**75022**		
3/4	2 1/4	5	3/4	5			**75030**	
3/4	2 3/4	5	3/4	5				**75037**
3/4	3 1/4	6	3/4	5				**75043**
1	1 1/4	4	1	5	**99913**			
1	2	4 1/2	1	5		**99920**		
1	2 5/8	5	1	5			**99926**	
1	3 1/4	6	1	5				**99933**
1	4 1/4	7	1	5				**99943**
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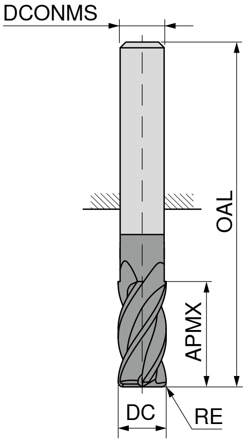
→ v_c/f_z Page 113

End milling cutter with corner radius

- Cutting edges with irregular pitch
- Radius accuracy: +/- 0.001 for Ø ≤ 0.060
  +/- 0.0015 for Ø > 0.060

P556 | UN | λ_s=38° γ_s=07° | ZEFP | HPC



DC +0.000/-0.002 inch	RE inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	HA 59 006 ...	HA 59 006 ...	HA 59 006 ...	HA 59 006 ...
1/4	0.015	3/8	2	1/4	5	**90015**			
1/4	0.030	3/8	2	1/4	5	**90115**			
1/4	0.060	3/8	2	1/4	5	**90215**			
1/4	0.015	1/2	2 1/2	1/4	5		**90020**		
1/4	0.030	1/2	2 1/2	1/4	5		**90120**		
1/4	0.060	1/2	2 1/2	1/4	5		**90220**		
1/4	0.015	3/4	2 1/2	1/4	5			**90030**	
1/4	0.030	3/4	2 1/2	1/4	5			**90130**	
1/4	0.060	3/4	2 1/2	1/4	5			**90230**	
1/4	0.015	1	3	1/4	5				**90040**
1/4	0.030	1	3	1/4	5				**90140**
1/4	0.060	1	3	1/4	5				**90240**
1/4	0.015	1 1/4	3	1/4	5				**90050**
1/4	0.030	1 1/4	3	1/4	5				**90150**
1/4	0.060	1 1/4	3	1/4	5				**90250**
3/8	0.015	1/2	2	3/8	5	**90013**			
3/8	0.030	1/2	2	3/8	5	**90113**			
3/8	0.060	1/2	2	3/8	5	**90213**			
3/8	0.090	1/2	2	3/8	5	**90313**			
3/8	0.015	1	3	3/8	5		**90027**		
3/8	0.030	1	3	3/8	5		**90127**		
3/8	0.060	1	3	3/8	5		**90227**		
3/8	0.090	1	3	3/8	5		**90327**		
3/8	0.015	1 1/4	3	3/8	5			**90033**	
3/8	0.030	1 1/4	3	3/8	5			**90133**	
3/8	0.060	1 1/4	3	3/8	5			**90233**	
3/8	0.090	1 1/4	3	3/8	5			**90333**	
3/8	0.015	1 1/2	3 1/2	3/8	5				**90340**
3/8	0.030	1 1/2	3 1/2	3/8	5				**90440**
3/8	0.060	1 1/2	3 1/2	3/8	5				**90540**
3/8	0.090	1 1/2	3 1/2	3/8	5				**90640**
1/2	0.015	5/8	2 1/2	1/2	5	**90413**			
1/2	0.030	5/8	2 1/2	1/2	5	**90513**			
1/2	0.060	5/8	2 1/2	1/2	5	**90613**			
1/2	0.090	5/8	2 1/2	1/2	5	**90713**			
1/2	0.125	5/8	2 1/2	1/2	5	**90813**			
1/2	0.015	1	3	1/2	5		**90320**		

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→ v_c/f_z Page 113

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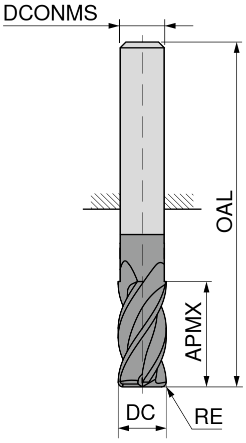
End milling cutter with corner radius

- ▲ Cutting edges with irregular pitch
- ▲ Radius accuracy: +/- 0.001 for Ø ≤ 0.060
  +/- 0.0015 for Ø > 0.060

P556 **UN** λ_s=38° γ_s=07° ZEFP **HPC**



DPAU72S DRAGONSKIN

DPAU72S DRAGONSKIN

DPAU72S DRAGONSKIN

DPAU72S DRAGONSKIN

DC +0.000/-0.002 inch	RE inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 006 ...	59 006 ...	59 006 ...	59 006 ...
1/2	0.030	1	3	1/2	5		90420		
1/2	0.060	1	3	1/2	5		90520		
1/2	0.090	1	3	1/2	5		90620		
1/2	0.125	1	3	1/2	5		90720		
1/2	0.015	1 1/4	3	1/2	5			90025	
1/2	0.030	1 1/4	3	1/2	5			90125	
1/2	0.060	1 1/4	3	1/2	5			90225	
1/2	0.090	1 1/4	3	1/2	5			90325	
1/2	0.125	1 1/4	3	1/2	5			90425	
1/2	0.015	1 5/8	4	1/2	5				90433
1/2	0.030	1 5/8	4	1/2	5				90533
1/2	0.060	1 5/8	4	1/2	5				90633
1/2	0.090	1 5/8	4	1/2	5				90733
1/2	0.125	1 5/8	4	1/2	5				90833
1/2	0.015	2	4	1/2	5				90740
1/2	0.030	2	4	1/2	5				90840
1/2	0.060	2	4	1/2	5				90940
1/2	0.090	2	4	1/2	5				91040
1/2	0.125	2	4	1/2	5				91140
5/8	0.030	3/4	3	5/8	5	90012			
5/8	0.060	3/4	3	5/8	5	90112			
5/8	0.090	3/4	3	5/8	5	90212			
5/8	0.125	3/4	3	5/8	5	90312			
5/8	0.030	1 1/4	3 1/2	5/8	5		90820		
5/8	0.060	1 1/4	3 1/2	5/8	5		90920		
5/8	0.090	1 1/4	3 1/2	5/8	5		91020		
5/8	0.125	1 1/4	3 1/2	5/8	5		91120		
5/8	0.030	1 5/8	3 1/2	5/8	5			90026	
5/8	0.060	1 5/8	3 1/2	5/8	5			90126	
5/8	0.090	1 5/8	3 1/2	5/8	5			90226	
5/8	0.125	1 5/8	3 1/2	5/8	5			90326	
5/8	0.030	2 1/4	4	5/8	5				90036
5/8	0.060	2 1/4	4	5/8	5				90136
5/8	0.090	2 1/4	4	5/8	5				90236
5/8	0.125	2 1/4	4	5/8	5				90336
5/8	0.030	2 1/2	5	5/8	5				91240
5/8	0.060	2 1/2	5	5/8	5				91340

P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N				
S	●	●	●	●
H				
O				

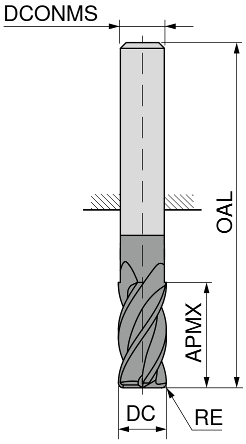
→ v_c/f_z Page 113

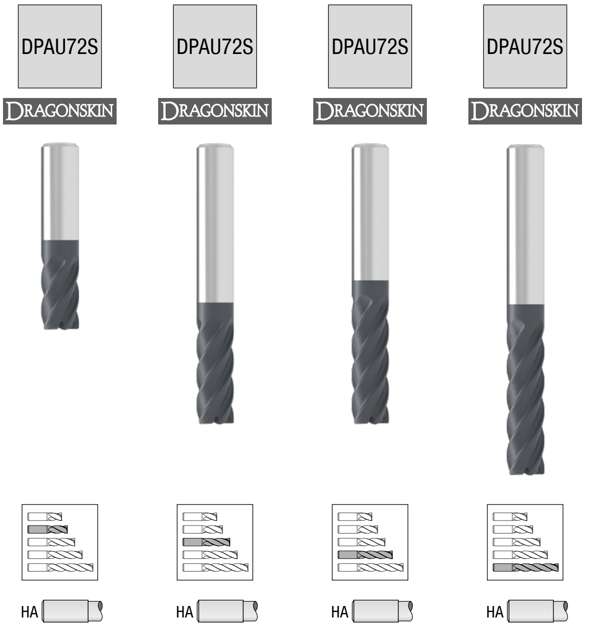
Continued on next page

End milling cutter with corner radius

- ▲ Cutting edges with irregular pitch
- ▲ Radius accuracy: +/- 0.001 for Ø ≤ 0.060
  +/- 0.0015 for Ø > 0.060

P556 | UN | λ_s=38° γ_s=07° | ZEFP | HPC





DC +0.000/-0.002 inch	RE inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 006 ...	59 006 ...	59 006 ...	59 006 ...
5/8	0.090	2 1/2	5	5/8	5				**91440**
5/8	0.125	2 1/2	5	5/8	5				**91540**
3/4	0.030	1	3	3/4	5	**90913**			
3/4	0.060	1	3	3/4	5	**91013**			
3/4	0.090	1	3	3/4	5	**91113**			
3/4	0.125	1	3	3/4	5	**91213**			
3/4	0.190	1	3	3/4	5	**91313**			
3/4	0.250	1	3	3/4	5	**91413**			
3/4	0.030	1 5/8	4	3/4	5		**90022**		
3/4	0.060	1 5/8	4	3/4	5		**90122**		
3/4	0.090	1 5/8	4	3/4	5		**90222**		
3/4	0.125	1 5/8	4	3/4	5		**90322**		
3/4	0.190	1 5/8	4	3/4	5		**90422**		
3/4	0.250	1 5/8	4	3/4	5		**90522**		
3/4	0.030	2 1/4	5	3/4	5			**90330**	
3/4	0.060	2 1/4	5	3/4	5			**90430**	
3/4	0.090	2 1/4	5	3/4	5			**90530**	
3/4	0.125	2 1/4	5	3/4	5			**90630**	
3/4	0.190	2 1/4	5	3/4	5			**90730**	
3/4	0.250	2 1/4	5	3/4	5			**90830**	
3/4	0.030	2 3/4	5	3/4	5				**90037**
3/4	0.060	2 3/4	5	3/4	5				**90137**
3/4	0.090	2 3/4	5	3/4	5				**90237**
3/4	0.125	2 3/4	5	3/4	5				**90337**
3/4	0.190	2 3/4	5	3/4	5				**90437**
3/4	0.250	2 3/4	5	3/4	5				**90537**
3/4	0.030	3 1/4	6	3/4	5				**90043**
3/4	0.060	3 1/4	6	3/4	5				**90143**
3/4	0.090	3 1/4	6	3/4	5				**90243**
3/4	0.125	3 1/4	6	3/4	5				**90343**
3/4	0.190	3 1/4	6	3/4	5				**90443**
3/4	0.250	3 1/4	6	3/4	5				**90543**
1	0.030	1 1/4	4	1	5	**91513**			
1	0.060	1 1/4	4	1	5	**91613**			
1	0.090	1 1/4	4	1	5	**91713**			
1	0.125	1 1/4	4	1	5	**91813**			
1	0.190	1 1/4	4	1	5	**91913**			
P						●	●	●	●
M						●	●	●	●
K						●	●	●	●
N									
S						●	●	●	●
H									
O									

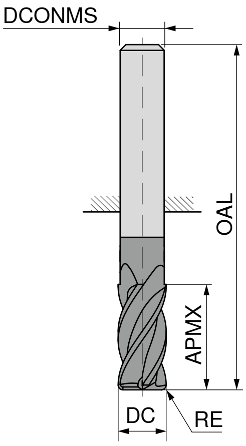
→ v_c/f_z Page 113

Continued on next page

End milling cutter with corner radius

- Cutting edges with irregular pitch
- Radius accuracy: +/- 0.001 for Ø ≤ 0.060
  +/- 0.0015 for Ø > 0.060

P556 **UN** λ_s=38° γ_s=07° ZEFP **HPC**



DC +0.000/-0.002 inch	RE inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	DPAU72S DRAGONSKIN HA 59 006 ...	DPAU72S DRAGONSKIN HA 59 006 ...	DPAU72S DRAGONSKIN HA 59 006 ...	DPAU72S DRAGONSKIN HA 59 006 ...
1	0.250	1 1/4	4	1	5	**92013**			
1	0.030	2	4 1/2	1	5		**91220**		
1	0.060	2	4 1/2	1	5		**91320**		
1	0.090	2	4 1/2	1	5		**91420**		
1	0.125	2	4 1/2	1	5		**91520**		
1	0.190	2	4 1/2	1	5		**91620**		
1	0.250	2	4 1/2	1	5		**91720**		
1	0.030	2 5/8	5	1	5			**90426**	
1	0.060	2 5/8	5	1	5			**90526**	
1	0.090	2 5/8	5	1	5			**90626**	
1	0.125	2 5/8	5	1	5			**90726**	
1	0.190	2 5/8	5	1	5			**90826**	
1	0.250	2 5/8	5	1	5			**90926**	
1	0.030	3 1/4	6	1	5				**90933**
1	0.060	3 1/4	6	1	5				**91033**
1	0.090	3 1/4	6	1	5				**91133**
1	0.125	3 1/4	6	1	5				**91233**
1	0.190	3 1/4	6	1	5				**91333**
1	0.250	3 1/4	6	1	5				**91433**
1	0.030	4 1/4	7	1	5				**90643**
1	0.060	4 1/4	7	1	5				**90743**
1	0.090	4 1/4	7	1	5				**90843**
1	0.125	4 1/4	7	1	5				**90943**
1	0.190	4 1/4	7	1	5				**91043**
1	0.250	4 1/4	7	1	5				**91143**

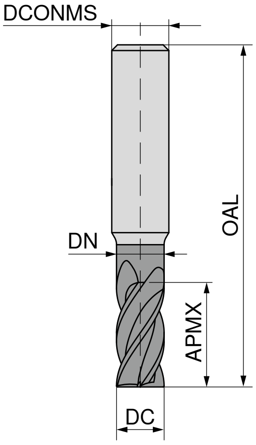
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N				
S	●	●	●	●
H				
O				

→ v_c/f_z Page 113

End milling cutter

▲ Cutting edges with irregular pitch

P160 **UN** λ_s=38° γ_s=10° ZEFP HPC



DC $_{+0.000/-0.002}$ inch	APMX inch	DN inch	LH inch	OAL inch	DCONMS $_{-0.0001\,/\,-0.0004}$ inch	ZEFP	DPXU72S DRAGONSKIN HA 59 057 ...	DPXU72S DRAGONSKIN HA 59 057 ...	DPXU72S DRAGONSKIN HA 59 057 ...
1/4	3/4			2 1/2	1/4	7	**25030**		
3/8	7/8			2 1/2	3/8	7	**37523**		
3/8	1 1/4			3	3/8	7		**37533**	
3/8	1/2	0.360	3 1/8	6	3/8	7			**37513**
1/2	1 1/4			3	1/2	7	**50025**		
1/2	1 5/8			4	1/2	7		**50033**	
1/2	5/8	0.480	3 1/8	6	1/2	7			**50013**
5/8	1 5/8			3 1/2	5/8	7	**62526**		
5/8	2 1/8			4	5/8	7		**62534**	
5/8	3/4	0.600	3 1/8	6	5/8	7			**62512**
3/4	1 5/8			4	3/4	7	**75022**		
3/4	2 1/4			5	3/4	7		**75030**	
3/4	1	0.720	3 1/8	6	3/4	7			**75013**
1	2			4	1	7	**99920**		
1	2 5/8			5	1	7			**99926**

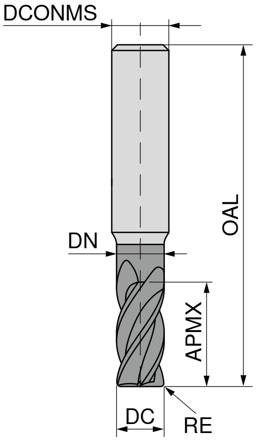
P	●	●	●
M	●	●	●
K	●	●	●
N	●	●	●
S	●	●	●
H			
O			

→ v_c/f_z Page 114

End milling cutter with corner radius

▲ Cutting edges with irregular pitch

P161 **UN** λ_s=38° γ_s=10° ZEFP



DPXU72S	DPXU72S	DPXU72S
DRAGONSKIN	DRAGONSKIN	DRAGONSKIN



HA HA HA

DC +0.000/-0.002 inch	RE inch	APMX inch	DN inch	LH inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 058 ...	59 058 ...	59 058 ...
1/4	0.020	3/4			2 1/2	1/4	7	25030		
1/4	0.030	3/4			2 1/2	1/4	7	90030		
1/4	0.020	1 1/8			3	1/4	7		25045	
1/4	0.030	3/8	0.240	2 1/2	4	1/4	7			90015
1/4	0.020	3/8	0.240	2 1/2	4	1/4	7			25015
3/8	0.020	7/8			2 1/2	3/8	7	37523		
3/8	0.030	7/8			2 1/2	3/8	7	90023		
3/8	0.030	1 1/4			3	3/8	7		90033	
3/8	0.020	1 1/4			3	3/8	7		37533	
3/8	0.020	1/2	0.360	3 1/8	6	3/8	7			37513
1/2	0.020	1 1/4			3	1/2	7	50025		
1/2	0.030	1 1/4			3	1/2	7	90025		
1/2	0.030	1 5/8			4	1/2	7		90133	
1/2	0.020	1 5/8			4	1/2	7		50033	
1/2	0.030	5/8	0.480	3 1/8	6	1/2	7			90013
1/2	0.020	5/8	0.480	3 1/8	6	1/2	7			50013
5/8	0.030	1 5/8			3 1/2	5/8	7	62526		
5/8	0.030	2 1/8			4	5/8	7		62534	
5/8	0.030	3/4	0.600	3 1/8	6	5/8	7			62512
3/4	0.030	1 5/8			4	3/4	7	75022		
3/4	0.030	2 1/4			5	3/4	7		75030	
3/4	0.030	1	0.720	3 1/8	6	3/4	7			75013
1	0.030	2 5/8			5	1	7		99926	

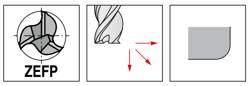
P	●	●	●
M	●	●	●
K	●	●	●
N	●	●	●
S	●	●	●
H			
O			

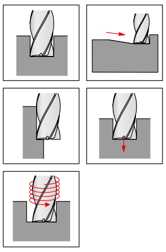
→ v_c/f_z Page 114

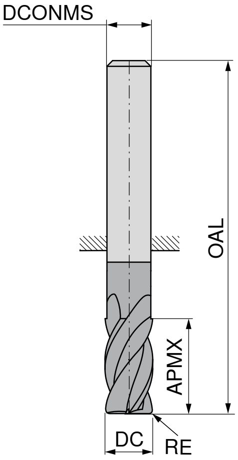
End milling cutter with corner radius

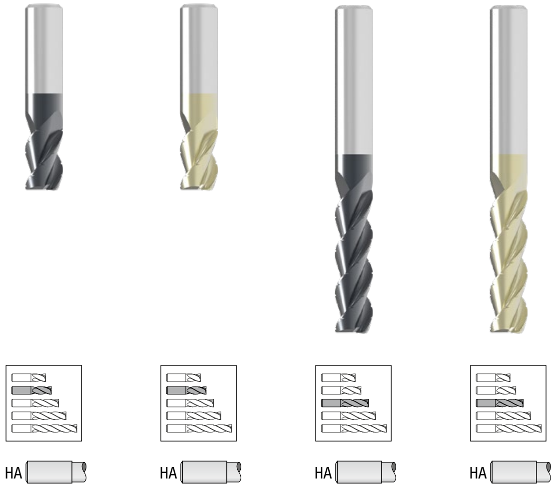
▲ with chip breaker

P119 **AL** λ_s=40° γ_s=15°









DC +0.000/-0.002 inch	RE ±0.001 inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	AlTiN 59 029 ...	ZrN 59 030 ...	AlTiN 59 029 ...	ZrN 59 030 ...
1/8	0.010	1/4	1 1/2	1/8	3	12520	12520		
5/32	0.010	3/8	2	3/16	3	15624	15624		
3/16	0.010	3/8	2	3/16	3	18820	18820		
7/32	0.020	3/8	2	1/4	3	21917	21917		
1/4	0.020	3/8	2	1/4	3	25015	25015		
1/4	0.020	1 1/4	3	1/4	3			25050	25050
9/32	0.020	1/2	2 1/2	5/16	3	28118	28118		
5/16	0.020	1/2	2 1/2	5/16	3	31316	31316		
11/32	0.020	5/8	2	3/8	3	34418	34418		
3/8	0.020	5/8	2	3/8	3	37517	37517		
3/8	0.020	1 1/2	3 1/2	3/8	3			37540	37540
7/16	0.020	1	2 3/4	7/16	3	43823	43823		
1/2	0.020	5/8	2 1/2	1/2	3	50013	50013		
1/2	0.020	1 1/2	3 1/2	1/2	3			50030	50030
5/8	0.030	7/8	3	5/8	3	62514	62514		
5/8	0.030	1 3/4	4	5/8	3			62528	62528
3/4	0.030	1	3	3/4	3	75013	75013		
3/4	0.030	2 1/2	5	3/4	3			75033	75033
1	0.030	2 3/4	5	1	3			99928	99928

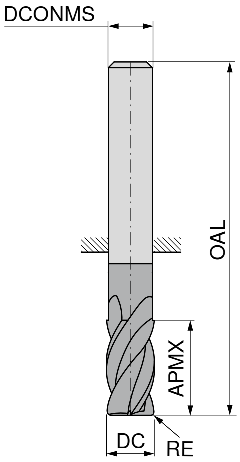
P				
M				
K				
N	●	●	●	●
S				
H				
O				

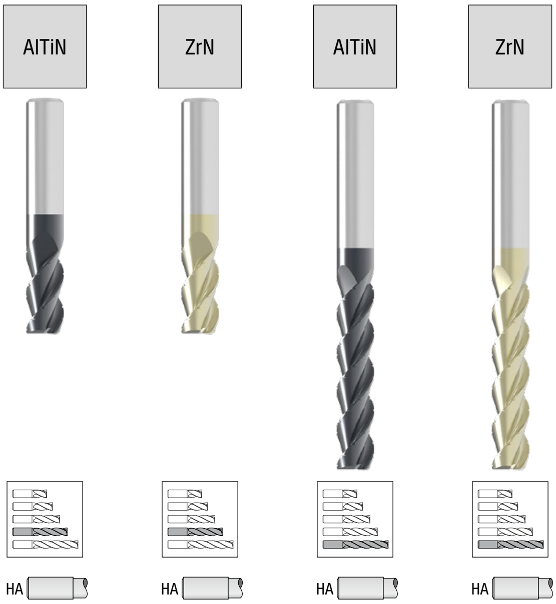
→ v_c/f_z Page 115

End milling cutter with corner radius

▲ with chip breaker

P119 **AL** λ_s=40° γ_s=15° ZEFP





DC +0.000/-0.002 inch	RE ±0.001 inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 029 ...	59 030 ...	59 029 ...	59 030 ...
1/8	0.010	1/2	1 1/2	1/8	3	12540	12540		
5/32	0.010	1/2	2	3/16	3	15632	15632		
3/16	0.010	5/8	2	3/16	3	18833	18833		
7/32	0.020	3/4	2 1/2	1/4	3	21934	21934		
1/4	0.020	3/4	2 1/2	1/4	3	25030	25030		
1/4	0.020	1 1/2	3 1/2	1/4	3			25060	25060
9/32	0.020	3/4	2 1/2	5/16	3	28127	28127		
5/16	0.020	3/4	2 1/2	5/16	3	31324	31324		
11/32	0.020	7/8	2 1/2	3/8	3	34425	34425		
3/8	0.020	7/8	2 1/2	3/8	3	37523	37523		
3/8	0.020	2	4	3/8	3			37553	37553
1/2	0.020	1 1/4	3	1/2	3	50025	50025		
1/2	0.020	2	4	1/2	3			50040	50040
9/16	0.030	1 1/4	3 1/2	9/16	3	56322	56322		
5/8	0.030	1 1/4	3 1/2	5/8	3	62520	62520		
5/8	0.030	2 1/2	5	5/8	3			62540	62540
3/4	0.030	1 5/8	4	3/4	3	75022	75022		
3/4	0.030	3 1/4	6	3/4	3			75043	75043
1	0.030	1 3/4	4	1	3	99918	99918		
1	0.030	3 3/8	6	1	3			99934	99934

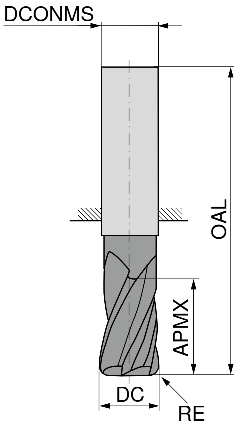
P				
M				
K				
N	●	●	●	●
S				
H				
O				

→ v_c/f_z Page 115

End milling cutter with corner radius

▲ with chip breaker

P117 **UN** λ_s=35° γ_s=8° ZEFP



DC +0.000/-0.002 inch	RE ±0.001 inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	AlTiN 59 028 ...	AlTiN 59 028 ...
1/8	0.010	1/2	1 1/2	1/8	3	**12540**	
3/16	0.010	5/16	2	3/16	3	**18817**	
3/16	0.010	5/8	2	3/16	3		**18833**
1/4	0.020	3/8	2	1/4	3	**25015**	
1/4	0.020	3/4	2 1/2	1/4	3		**25030**
5/16	0.020	13/16	2 1/2	5/16	3	**31326**	
3/8	0.020	1	2 1/2	3/8	3	**37527**	
7/16	0.020	5/8	2 3/4	7/16	3	**43814**	
7/16	0.020	1	2 3/4	7/16	3		**43823**
1/2	0.020	5/8	2 1/2	1/2	3	**50013**	
1/2	0.020	1 1/4	3	1/2	3		**50025**
5/8	0.030	1 1/4	3 1/2	5/8	3		**62520**
3/4	0.030	1 5/8	4	3/4	3		**75022**

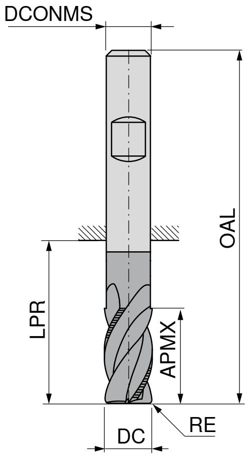
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H		
O		

→ v_c/f_z Page 116

End milling cutter with corner radius

▲ with chip breaker

P120 UN λ_s=40° γ_s=10° ZEFP



AlTiN

AlTiN

AlTiN

HB HA HB

DC +0.000/-0.002 inch	RE ±0.001 inch	APMX inch	LPR inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 032 ...	59 031 ...	59 032 ...
1/8	0.010	1/4		1 1/2	1/8	4		**12520**	
5/32	0.010	3/8		2	3/16	4		**15624**	
3/16	0.010	3/8		2	3/16	4		**18820**	
7/32	0.020	3/8		2	1/4	4		**21917**	
1/4	0.020	3/8		2	1/4	4		**25015**	
9/32	0.020	1/2		2 1/2	5/16	4		**28118**	
5/16	0.020	1/2		2 1/2	5/16	4		**31316**	
11/32	0.020	5/8	0.825	2	3/8	4			**34418**
3/8	0.020	5/8	0.825	2	3/8	4	**37517**		
3/8	0.020	7/8	0.960	2 1/2	3/8	4			**37523**
7/16	0.020	1	1.165	2 3/4	7/16	4			**43823**
1/2	0.020	5/8	0.735	2 1/2	1/2	4	**50013**		
1/2	0.020	1 1/4	1.235	3	1/2	4			**50025**
5/8	0.030	7/8	1.113	3	5/8	4			**62514**
3/4	0.030	1	1.228	3	3/4	4			**75013**

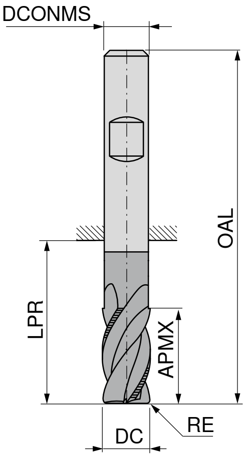
	59 032 ...	59 031 ...	59 032 ...
P	●	●	●
M			
K	●	●	●
N			
S			
H			
O			

→ v_c/f_z Page 117

End milling cutter with corner radius

▲ with chip breaker

P120 **UN** λ_s=40° γ_s=10° ZEFP



DC +0.000/-0.002 **inch**	RE ±0.001 inch	APMX inch	LPR inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 031 ...	59 032 ...	59 031 ...	59 032 ...
1/8	0.010	1/2		1 1/2	1/8	4			**12540**	
5/32	0.010	1/2		2	3/16	4			**15632**	
3/16	0.010	5/8		2	3/16	4			**18833**	
7/32	0.020	3/4		2 1/2	1/4	4			**21934**	
1/4	0.020	3/4		2 1/2	1/4	4	**25030**			
1/4	0.020	1 1/4		3	1/4	4			**25050**	
9/32	0.020	3/4		2 1/2	5/16	4			**28127**	
5/16	0.020	3/4		2 1/2	5/16	4			**31324**	
11/32	0.020	7/8	0.960	2 1/2	3/8	4				**34425**
3/8	0.020	1 1/2	1.960	3 1/2	3/8	4		**37540**		
3/8	0.020	2	2.460	4	3/8	4				**37553**
1/2	0.020	1 1/2	1.735	3 1/2	1/2	4		**50030**		
1/2	0.020	2	2.235	4	1/2	4				**50040**
9/16	0.030	1 1/4	1.675	3 1/2	9/16	4				**56322**
5/8	0.030	1 1/4	1.613	3 1/2	5/8	4		**62520**		
5/8	0.030	1 3/4	2.113	4	5/8	4				**62528**
3/4	0.030	1 5/8	1.978	4	3/4	4				**75022**

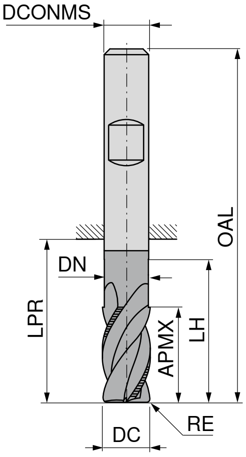
	59 031 ...	59 032 ...	59 031 ...	59 032 ...
P	●	●	●	●
M				
K	●	●	●	●
N				
S				
H				
O				

→ v_c/f_z Page 117

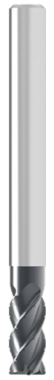
End milling cutter with corner radius

▲ with chip breaker

P120 **UN** λ_s=40° γ_s=10° ZEFP



AlTiN



HA

AlTiN

HB

DC +0.000/-0.002 inch	RE ±0.001 inch	APMX inch	DN inch	LH inch	LPR inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 031 ...	59 032 ...
1/4	0.020	3/4	0.240	2 1/8		4	1/4	4	**25130**	
1/4	0.020	1 1/2				3 1/2	1/4	4	**25060**	
3/8	0.020	7/8	0.360	2 1/8		4	3/8	4	**37523**	
3/8	0.020	7/8	0.360	3 3/8		6	3/8	4	**37623**	
1/2	0.020	1	0.480	2 3/8		6	1/2	4	**50020**	
1/2	0.020	1	0.480	3 3/8		6	1/2	4	**50120**	
5/8	0.030	2 1/2			3.1	5	5/8	4		**62540**
3/4	0.030	1 5/8	0.720	2 1/2		6	3/4	4	**75022**	
1	0.030	1 3/4			1.7	4	1	4		**99918**

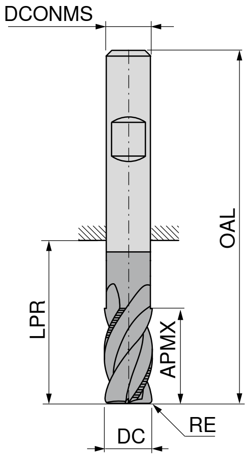
	59 031 ...	59 032 ...
P	●	●
M		
K	●	●
N		
S		
H		
O		

→ v_c/f_z Page 117

End milling cutter with corner radius

▲ with chip breaker

P121 **UN** λ_s=40° γ_s=10° ZEFP



DC +0.000/-0.002 inch	RE ±0.001 inch	APMX inch	LPR inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	AlTiN HB 59 035 ...	AlTiN HB 59 035 ...	AlTiN HB 59 035 ...	AlTiN HB 59 035 ...
3/4	0.030	2 1/2	2.9	5	3/4	5	**75033**			
3/4	0.030	3 1/4	3.9	6	3/4	5		**75043**		
1	0.030	2 3/4	2.7	5	1	5			**99928**	
1	0.030	3 3/8	3.7	6	1	5				**99934**

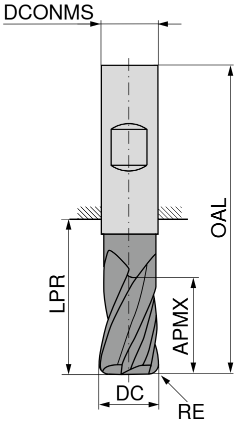
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N				
S	●	●	●	●
H				
O				

→ v_c/f_z Page 118

End milling cutter with corner radius

- ▲ with coarse pitch profile
- ▲ Radius accuracy: +/- 0.001

P102 **AL** λ_s=40° γ_s=5° ZEFP






DC +0.000/-0.002 inch	RE +/-0.001 inch	APMX inch	LPR inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 023 ... ZrN HA	59 024 ... ZrN HB	59 025 ... AlTiN HA	59 026 ... AlTiN HB
3/16	0.030	3/8		2	3/16	3	**18820**		**18820**	
1/4	0.045	3/8		2	1/4	3	**25015**		**25015**	
5/16	0.045	1/2		2	5/16	3	**31316**		**31316**	
3/8	0.060	5/8	0.825	2	3/8	3		**37517**		**37517**
7/16	0.060	1	1.165	2 3/4	7/16	3		**43823**		**43823**
1/2	0.060	5/8	0.735	2 1/2	1/2	3		**50013**		**50013**

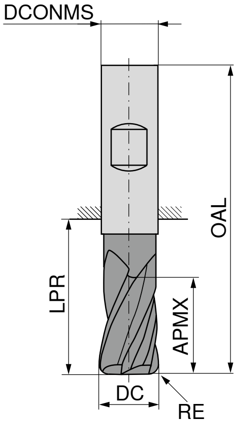
	59 023 ...	59 024 ...	59 025 ...	59 026 ...
P				
M				
K				
N	●	●	●	●
S				
H				
O				

→ v_c/f_z Page 119

End milling cutter with corner radius

- ▲ with coarse pitch profile
- ▲ Radius accuracy: +/- 0.001

P102 **AL** λ_s=40° γ_s=5° ZEFP



	59 023 ...	59 024 ...	59 025 ...	59 026 ...
	ZrN	ZrN	AlTiN	AlTiN
	HA	HB	HA	HB

DC +0.000/-0.002 inch	RE +/-0.001 inch	APMX inch	LPR inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 023 ...	59 024 ...	59 025 ...	59 026 ...
3/16	0.030	5/8		2	3/16	3	**18833**		**18833**	
1/4	0.045	3/4		2 1/2	1/4	3	**25030**		**25030**	
5/16	0.045	3/4		2 1/2	5/16	3	**31324**		**31324**	
3/8	0.060	7/8	0.960	2 1/2	3/8	3		**37523**		**37523**
1/2	0.060	1 1/4	1.235	3	1/2	3		**50025**		**50025**
9/16	0.060	1 1/4	1.675	3 1/2	9/16	3		**56322**		**56322**
5/8	0.060	1 1/4	1.613	3 1/2	5/8	3		**62520**		**62520**
3/4	0.060	1 5/8	1.978	4	3/4	3		**75022**		**75022**
1	0.060	1 3/4	1.733	4	1	3		**99918**		**99918**

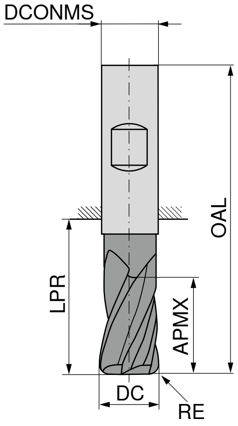
	59 023 ...	59 024 ...	59 025 ...	59 026 ...
P				
M				
K				
N	●	●	●	●
S				
H				
O				

→ v_c/f_z Page 119

End milling cutter with corner radius

- with coarse pitch profile
- Radius accuracy: +/- 0.001

P102 **AL** λ_s=40° γ_s=5° ZEFP



ZrN

AlTiN

DC +0.000/-0.002 inch	RE +/-0.001 inch	APMX inch	LPR inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 024 ...	59 026 ...
1/2	0.060	1 1/2	1.735	3 1/2	1/2	3	**50030**	**50030**
3/4	0.060	2 1/4	2.978	5	3/4	3	**75030**	**75030**
1	0.060	2 5/8	2.733	5	1	3	**99926**	**99926**

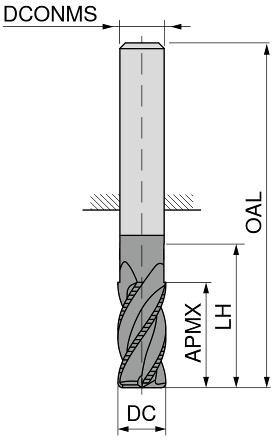
	59 024 ...	59 026 ...
P		
M		
K		
N	●	●
S		
H		
O		

→ v_c/f_z Page 119

End milling cutter

▲ with chip breaker

P190 **UN** λ_s=40° γ_s=10° ZEFP



AlTiN	AlTiN	AlTiN	AlTiN




HA HA HA HA

DC +0.000/-0.002 inch	APMX inch	LH inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 059 ...	59 059 ...	59 059 ...	59 059 ...
3/16	5/8		2	3/16	4	**18833**			
1/4	3/8		2	1/4	4	**25015**			
1/4	3/4		2 1/2	1/4	4			**25030**	
5/16	3/4		2 1/2	5/16	4	**31324**			
3/8	5/8		2	3/8	4	**37517**			
3/8	7/8		2 1/2	3/8	4			**37523**	
3/8	7/8	2.125	4	3/8	4				**37623**
1/2	5/8		2 1/2	1/2	4	**50013**			
1/2	1	2.375	6	1/2	4				**50020**
1/2	1 1/4		3	1/2	4			**50025**	
1/2	2		4	1/2	4		**50040**		
5/8	7/8		3	5/8	4	**62514**			
5/8	1 1/4		3 1/2	5/8	4			**62520**	
3/4	1		3	3/4	4	**75013**			
3/4	1 5/8		4	3/4	4			**75022**	
1	1 3/4		4	1	4			**99918**	

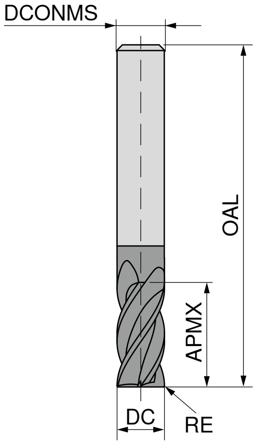
P	●	●	●	●
M				
K	●	●	●	●
N				
S				
H				
O				

→ v_c/f_z Page 120

End milling cutter with corner radius

▲ with chip breaker

P191 **UN** λ_s=40° γ_s=10° ZEFP



AlTiN	AlTiN	AlTiN



DC +0.000/-0.002 inch	RE +/- 0.001 inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 061 ...	59 061 ...	59 061 ...
3/16	0.010	5/8	2	3/16	4	**18833**		
1/4	0.020	3/4	2 1/2	1/4	4	**25030**		
5/16	0.020	3/4	2 1/2	5/16	4	**31324**		
3/8	0.020	7/8	2 1/2	3/8	4	**37523**		
3/8	0.030	7/8	2 1/2	3/8	4	**90023**		
1/2	0.030	5/8	2 1/2	1/2	4	**90013**		
1/2	0.020	5/8	2 1/2	1/2	4	**50013**		
1/2	0.030	1 1/4	3	1/2	4		**90025**	
1/2	0.020	1 1/4	3	1/2	4		**50025**	
1/2	0.030	2	4	1/2	4			**90040**
1/2	0.020	2	4	1/2	4			**50040**
5/8	0.030	1 1/4	3 1/2	5/8	4		**62520**	
3/4	0.030	1 5/8	4	3/4	4		**75022**	
1	0.030	1 3/4	4	1	4		**99918**	

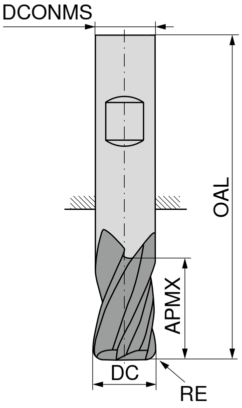
P	●	●	●
M			
K	●	●	●
N			
S			
H			
O			

→ v_c/f_z Page 120

End milling cutter with corner radius

- ▲ with coarse pitch profile
- ▲ Radius accuracy: +/- 0.001

P100 **UN** λ_s=30° γ_s= 5° ZEFP



AlTiN	AlTiN
	
HA	HA

DC +0.000/-0.002 inch	RE +/-0.001/+/-0.001 inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 011 ...	59 011 ...
3/16	0.030	3/8	2	3/16	3	**18820**	
3/16	0.030	5/8	2	3/16	3		**18833**

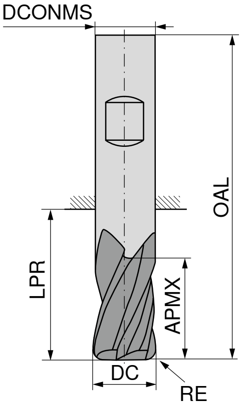
P	●	●
M		
K	●	●
N		
S		
H		
O		

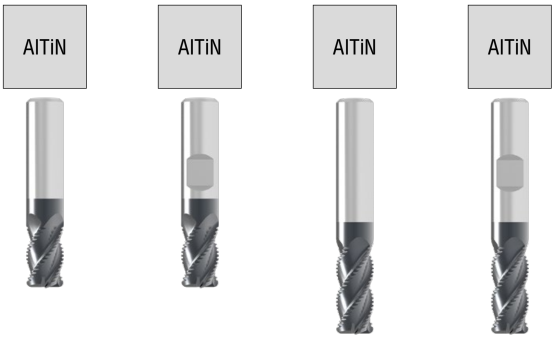
→ v_c/f_z Page 121

End milling cutter with corner radius

- with coarse pitch profile
- Radius accuracy: +/- 0.001

P100 **UN** λ_s=30° γ_s= 5° ZEFP





DC +0.000/-0.002 inch	RE +/- 0.001 inch	APMX inch	LPR inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	HA 59 012 ...	HB 59 013 ...	HA 59 012 ...	HB 59 013 ...
1/4	0.045	3/8		2	1/4	4	**25015**			
1/4	0.045	3/4		2 1/2	1/4	4			**25030**	
5/16	0.045	1/2		2 1/2	5/16	4	**31316**			
5/16	0.045	3/4		2 1/2	5/16	4			**31324**	
3/8	0.060	5/8	0.8	2	3/8	4		**37517**		
3/8	0.060	7/8	0.9	2 1/2	3/8	4				**37523**
7/16	0.060	1	1.1	2 3/4	7/16	4		**43823**		
1/2	0.060	5/8	0.7	2 1/2	1/2	4		**50013**		
1/2	0.060	1 1/4	1.2	3	1/2	4				**50025**
9/16	0.060	1 1/4	1.6	3 1/2	9/16	4				**56322**
5/8	0.060	7/8	1.1	3	5/8	4		**62514**		
5/8	0.060	1 1/4	1.6	3 1/2	5/8	4				**62520**
3/4	0.060	1	1.2	3	3/4	4		**75013**		
3/4	0.060	1 5/8	1.9	4	3/4	4				**75022**

P	●	●	●	●
M				
K	●	●	●	●
N				
S				
H				
O				

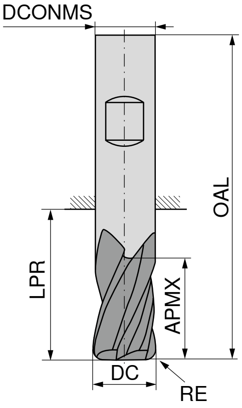
→ v_c/f_z Page 121

End milling cutter with corner radius

- ▲ with coarse pitch profile
- ▲ Radius accuracy: +/- 0.001

P100 **UN** λ_s=30° γ_s= 5° ZEFP

AlTiN



HB

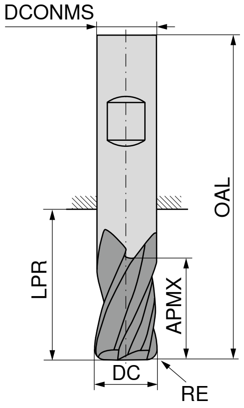
DC +0.000/-0.002 inch	RE +/- 0.001 inch	APMX inch	LPR inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 013 ...
1/2	0.060	1 1/2	1.735	3 1/2	1/2	4	**50030**
5/8	0.060	2	2.113	4	5/8	4	**62532**
3/4	0.060	2 1/4	2.978	5	3/4	4	**75030**
P							●
M							
K							●
N							
S							
H							
O							

→ v_c/f_z Page 121

End milling cutter with corner radius

- with coarse pitch profile
- Radius accuracy: +/- 0.001

P100 **UN** λ_s=30° γ_s= 5° ZEFP



HB HB

DC +0.000/-0.002 inch	RE +/- 0.001 inch	APMX inch	LPR inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 014 ... AlTiN	59 014 ... AlTiN
1	0.060	1 3/4	1.733	4	1	5	99918	
1	0.060	2 5/8	2.733	5	1	5		99926

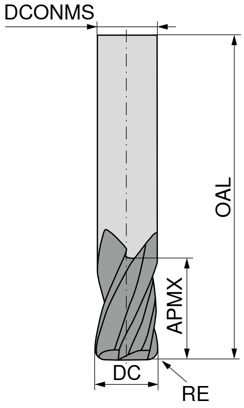
P	●	●
M		
K	●	●
N		
S		
H		
O		

→ v_c/f_z Page 121

End milling cutter with corner radius

- ▲ with fine pitch profile
- ▲ Radius accuracy: +/- 0.001

P101 **Ti** λ_s=40° γ_s=5° ZEFP



						AlTiN	AlTiN
							
						HA	HA
						59 015 ...	59 015 ...
DC +0.000/-0.002 **inch**	RE +/- 0.001 inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP		
3/16	0.030	3/8	2	3/16	3	**18820**	
3/16	0.030	5/8	2	3/16	3		**18833**

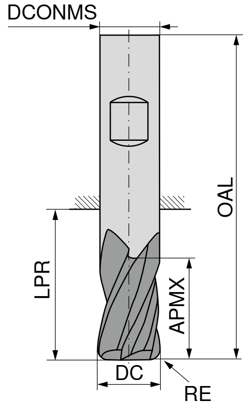
P	●	●
M		
K	●	●
N		
S		
H		
O		

→ v_c/f_z Page 122

End milling cutter with corner radius

- ▲ with fine pitch profile
- ▲ Radius accuracy: +/- 0.001

P101 Ti λ_s=40° γ_s=5° ZEFP






DC +0.000/-0.002 inch	RE +/- 0.001 inch	APMX inch	LPR inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	AlTiN HA 59 016 ...	AlTiN HB 59 017 ...	AlTiN HA 59 016 ...	AlTiN HB 59 017 ...
1/4	0.045	3/8		2	1/4	4	25015			
1/4	0.045	3/4		2 1/2	1/4	4			25030	
5/16	0.045	1/2		2 1/2	5/16	4	31316			
5/16	0.045	3/4		2 1/2	5/16	4			31324	
3/8	0.060	5/8	0.825	2	3/8	4		37517		
3/8	0.060	7/8	0.960	2 1/2	3/8	4				37523
7/16	0.060	1	1.165	2 3/4	7/16	4		43823		
1/2	0.060	5/8	0.735	2 1/2	1/2	4		50013		
1/2	0.060	1 1/4	1.235	3	1/2	4				50025
9/16	0.060	1 1/4	1.675	3 1/2	9/16	4				56322
5/8	0.060	7/8	1.113	3	5/8	4		62514		
5/8	0.060	1 1/4	1.613	3 1/2	5/8	4				62520
3/4	0.060	1	1.228	3	3/4	4		75013		
3/4	0.060	1 5/8	1.978	4	3/4	4				75022

	59 016 ...	59 017 ...	59 016 ...	59 017 ...
P	●	●	●	●
M				
K	●	●	●	●
N				
S				
H				
O				

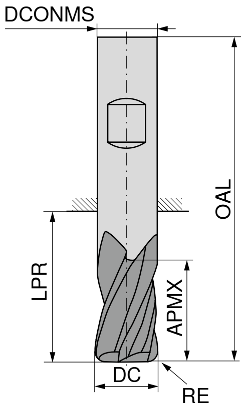
→ v_c/f_z Page 122

End milling cutter with corner radius

- with fine pitch profile
- Radius accuracy: +/- 0.001

P101 **Ti** λ_s=40° γ_s=5° ZEFP

AlTiN



HB

DC $_{+0.000/-0.002}$ inch	RE $_{+/-0.001}$ inch	APMX inch	LPR inch	OAL inch	DCONMS $_{-0.0001/-0.0004}$ inch	ZEFP	59 017 ...
1/2	0.060	1 1/2	1.735	3 1/2	1/2	4	**50030**
5/8	0.060	2	2.113	4	5/8	4	**62532**
3/4	0.060	2 1/4	2.978	5	3/4	4	**75030**

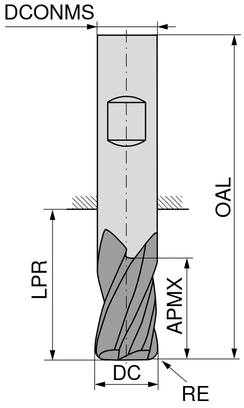
P	●
M	
K	●
N	
S	
H	
O	

→ v_c/f_z Page 122

End milling cutter with corner radius

- ▲ with fine pitch profile
- ▲ Radius accuracy: +/- 0.001

P101 **Ti** λ_s=40° γ_s=5° ZEFP



DC +0.000/-0.002 inch	RE +/- 0.001 inch	APMX inch	LPR inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	AlTiN HB 59 022 ...	AlTiN HB 59 022 ...
1	0.060	1 3/4	1.733	4	1	5	99918	
1	0.060	2 5/8	2.733	5	1	5		99926

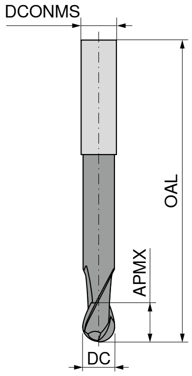
P	●	●
M		
K	●	●
N		
S		
H		
O		

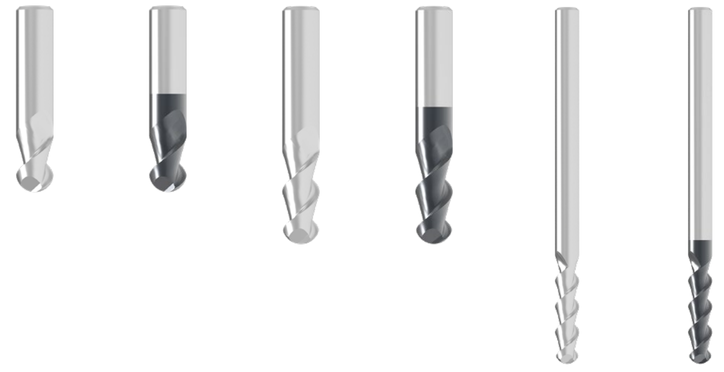
→ v_c/f_z Page 122

Ball Nosed Cutter

- ▲ DC tolerance:
  ≤ Ø 7/64 inch: +/- 0.0005
  ≥ Ø 1/8 inch: 0 /- 0.002
- ▲ Radius accuracy: +/- 0.001

S662 **UN** λ_s=38° γ_s=8° ZEFP





DC inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	HA 59 076 ...	AlTiN HA 59 077 ...	HA 59 076 ...	AlTiN HA 59 077 ...	HA 59 076 ...	AlTiN HA 59 077 ...
1/16	1/8	1 1/2	1/8	2			06320	06320		
1/8	1/4	1 1/2	1/8	2	12520	12520				
1/8	1/2	1 1/2	1/8	2			12540	12540		
1/8	3/4	3	1/8	2					12660	12660
3/16	3/8	2	3/16	2	18820	18820				
3/16	5/8	2	3/16	2			18833	18833		
3/16	1	4	3/16	2					18853	18853
1/4	3/8	2	1/4	2	25015	25015				
1/4	3/4	2 1/2	1/4	2			25030	25030		
1/4	1 1/8	3	1/4	2					25045	25045
5/16	1/2	2	5/16	2	31316	31316				
5/16	3/4	2 1/2	5/16	2			31324	31324		
5/16	1 1/8	3	5/16	2					31336	31336
3/8	5/8	2	3/8	2	37517	37517				
3/8	7/8	2 1/2	3/8	2			37523	37523		
3/8	1 1/2	6	3/8	2					37540	37540
1/2	5/8	2 1/2	1/2	2	50013	50013				
1/2	1	3	1/2	2			50020	50020		
1/2	1 1/2	6	1/2	2					50030	50030
5/8	7/8	3	5/8	2	62514	62514				
5/8	1 1/4	3 1/2	5/8	2			62520	62520		
5/8	2 1/8	4 5/8	5/8	2					62534	62534
3/4	1	3	3/4	2	75013	75013				
3/4	1 1/2	4	3/4	2			75020	75020		
3/4	2 1/4	5	3/4	2					75030	75030
1	2	6	1	2					99920	99920
1	2 1/4	5	1	2			99923	99923		

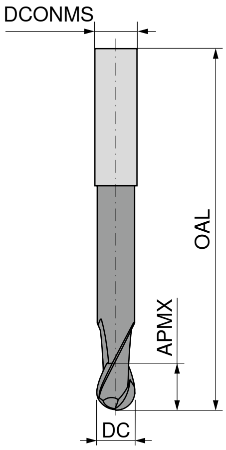
P	●	●	●	●	●	●
M	●	●	●	●	●	●
K	●	●	●	●	●	●
N	●	●	●	●	●	●
S	●	●	●	●	●	●
H						
O						

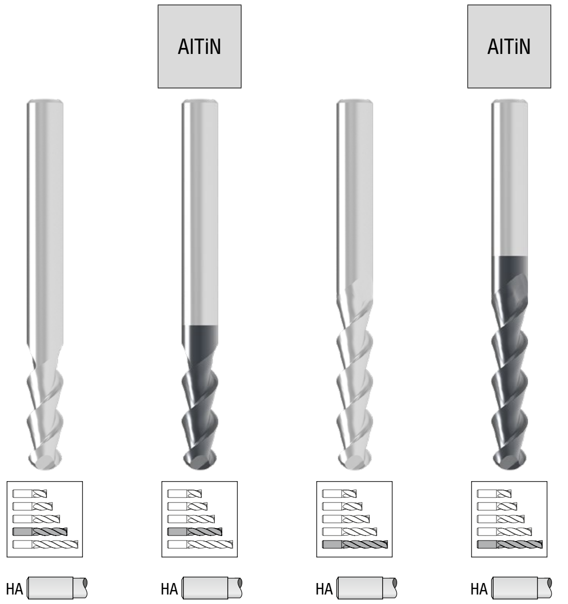
→ v_c/f_z Page 123

Ball Nosed Cutter

- DC tolerance:
  ≤ Ø 7/64 inch: +/- 0.0005
  ≥ Ø 1/8 inch: 0 /- 0.002
- Radius accuracy: +/- 0.001

S662 **UN** λ_s=38° γ_s=8° ZEFP





DC inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 076 ...	59 077 ...	59 076 ...	59 077 ...
1/16	3/16	1 1/2	1/8	2	06330	06330		
1/8	3/4	2 1/2	1/8	2	12560	12560		
1/8	1	3	1/8	2			12580	12580
3/16	3/4	2 1/2	3/16	2	18840	18840		
3/16	1 1/8	3	3/16	2			18860	18860
1/4	1	4	1/4	2	25040	25040		
1/4	1 1/2	4	1/4	2			25060	25060
1/4	1 1/2	6	1/4	2			25160	25160
5/16	1	4	5/16	2	31332	31332		
5/16	1 1/2	6	5/16	2			31348	31348
5/16	1 5/8	4	5/16	2			31352	31352
3/8	1	4	3/8	2	37527	37527		
3/8	1 1/8	3	3/8	2	37530	37530		
3/8	1 3/4	4	3/8	2			37547	37547
3/8	3	6	3/8	2			37580	37580
1/2	1	4	1/2	2	50120	50120		
1/2	2	4	1/2	2			50040	50040
1/2	3	6	1/2	2			50060	50060
5/8	2	6	5/8	2	62532	62532		
5/8	3	6	5/8	2			62548	62548
3/4	2	6	3/4	2	75027	75027		
3/4	3	6	3/4	2			75040	75040
1	1 3/4	4	1	2	99918	99918		
1	3	6	1	2			99930	99930

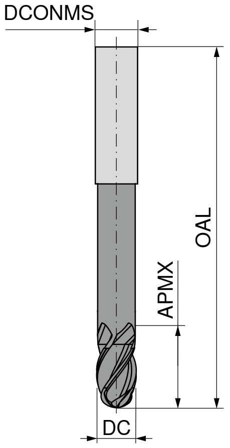
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	●	●	●	●
S	●	●	●	●
H				
O				

→ v_c/f_z Page 123

Ball Nosed Cutter

▲ Radius accuracy: +/- 0.001

S663 **UN** λ_s=38° γ_s=8° ZEFP



AlTiN

AlTiN

DC +0.000/-0.002 inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 078 ...	59 079 ...	59 078 ...	59 079 ...
1/8	1/4	1 1/2	1/8	3	**12520**	**12520**		
1/8	1/2	1 1/2	1/8	3			**12540**	**12540**
3/16	3/8	2	3/16	3	**18820**	**18820**		
3/16	5/8	2	3/16	3			**18833**	**18833**
1/4	3/8	2	1/4	3	**25015**	**25015**		
1/4	3/4	2 1/2	1/4	3			**25030**	**25030**
5/16	3/4	2 1/2	5/16	3			**31324**	**31324**
3/8	5/8	2	3/8	3	**37517**	**37517**		
3/8	7/8	2 1/2	3/8	3			**37523**	**37523**
1/2	5/8	2 1/2	1/2	3	**50013**	**50013**		
1/2	1	3	1/2	3			**50020**	**50020**
5/8	1 1/4	3 1/2	5/8	3			**62520**	**62520**
3/4	1 1/2	4	3/4	3			**75020**	**75020**
1	1 3/4	4	1	3			**99918**	**99918**

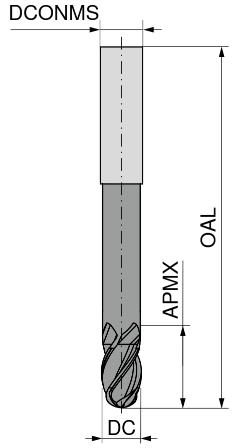
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	●	●	●	●
S	●	●	●	●
H				
O				

→ v_c/f_z Page 124

Ball Nosed Cutter

▲ Radius accuracy: +/- 0.001

S663 **UN** λ_s=38° γ_s=8° ZEFP



DC +0.000/-0.002 inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 078 ...	59 079 ...	59 078 ...	59 079 ...
					HA	AlTiN HA	HA	AlTiN HA
1/8	3/4	2 1/2	1/8	3			**12560**	**12560**
1/8	3/4	3	1/8	3	**12660**	**12660**		
3/16	1	2 1/2	3/16	3	**18853**	**18853**		
3/16	3/4	2 1/2	3/16	3			**18840**	**18840**
1/4	1 1/8	3	1/4	3			**25045**	**25045**
1/4	1	4	1/4	3	**25040**	**25040**		
5/16	1	4	5/16	3			**31332**	**31332**
3/8	1 1/8	3	3/8	3	**37530**	**37530**		
3/8	1	4	3/8	3			**37527**	**37527**
3/8	1 1/2	6	3/8	3	**37540**	**37540**		
1/2	1	4	1/2	3			**50120**	**50120**
1/2	1 1/2	6	1/2	3	**50030**	**50030**		
5/8	2 1/8	4 5/8	5/8	3	**62534**	**62534**		
5/8	2	6	5/8	3			**62532**	**62532**
3/4	2 1/4	5	3/4	3	**75030**	**75030**		
3/4	2	6	3/4	3			**75027**	**75027**
1	2 1/4	5	1	3	**99923**	**99923**		
1	2	6	1	3			**99920**	**99920**

P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	●	●	●	●
S	●	●	●	●
H				
O				

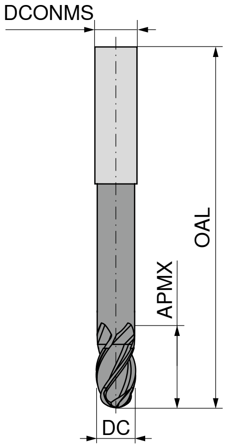
→ v_c/f_z Page 124

Ball Nosed Cutter

▲ Radius accuracy: +/- 0.001

S663 **UN** λ_s=38° γ_s=8° ZEFP

AlTiN



HA HA

DC +0.000/-0.002 inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 078 ...	59 079 ...
1/8	1	3	1/8	3	**12580**	**12580**
3/16	1 1/8	3	3/16	3	**18860**	**18860**
3/16	1	4	3/16	3	**18953**	**18953**
1/4	1 1/2	4	1/4	3	**25060**	**25060**
1/4	1 1/2	6	1/4	3	**25160**	**25160**
5/16	1 1/2	6	5/16	3	**31348**	**31348**
3/8	1 3/4	4	3/8	3	**37547**	**37547**
3/8	3	6	3/8	3	**37580**	**37580**
1/2	2	4	1/2	3	**50040**	**50040**
1/2	3	6	1/2	3	**50060**	**50060**
5/8	3	6	5/8	3	**62548**	**62548**
3/4	3	6	3/4	3	**75040**	**75040**
1	3	6	1	3	**99930**	**99930**

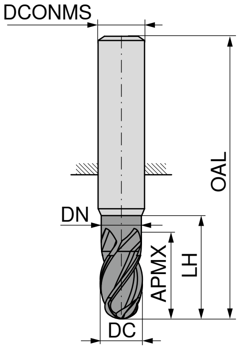
	59 078 ...	59 079 ...
P	●	●
M	●	●
K	●	●
N	●	●
S	●	●
H		
O		

→ v_c/f_z Page 124

Ball Nosed Cutter

- Cutting edges with irregular pitch
- Radius accuracy: +/- 0.001"

P157 **UN** λ_s=40° γ_s=10° ZEFP



DC +0.000/-0.002 inch	APMX inch	DN inch	LH inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	AlTiN HA 59 055 ...	AlTiN HA 59 055 ...	AlTiN HA 59 055 ...	AlTiN HA 59 055 ...
1/8	1/4			1 1/2	1/8	4	12520			
1/8	1/2			1 1/2	1/8	4			12540	
5/32	1/2			2	3/16	4	15632			
3/16	3/8			2	3/16	4	18820			
3/16	5/8			2	3/16	4			18833	
7/32	3/8			2	1/4	4	21917			
7/32	3/4			2 1/2	1/4	4			21934	
1/4	3/8			2	1/4	4	25015			
1/4	3/4			2 1/2	1/4	4			25030	
1/4	3/4	0.240	2 1/8	4	1/4	4				25130
5/16	3/4			2 1/2	5/16	4			31324	
5/16	1/2			2 1/2	5/16	4	31316			
3/8	5/8			2	3/8	4	37517			
3/8	7/8			2 1/2	3/8	4			37523	
3/8	7/8	0.360	2 3/8	4	3/8	4				37623
1/2	5/8			2 1/2	1/2	4	50013			
1/2	1			3	1/2	4			50020	
1/2	1	0.480	2 3/8	6	1/2	4		50120		
1/2	1	0.480	3 3/8	6	1/2	4				50220
9/16	1 1/4			3 1/2	9/16	4			56322	
5/8	1 1/4			3 1/2	5/8	4			62520	
5/8	1 1/4	0.600	3 3/8	6	5/8	4				62620
3/4	1 5/8			4	3/4	4			75022	
1	1 3/4			4	1	4			99918	
1	2 3/4			5	1	4		99928		
1	1 7/8	0.960	3 3/8	6	1	4				99919

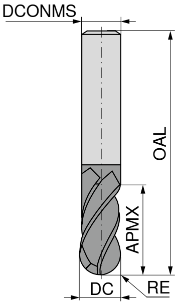
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	●	●	●	●
S				
H				
O				

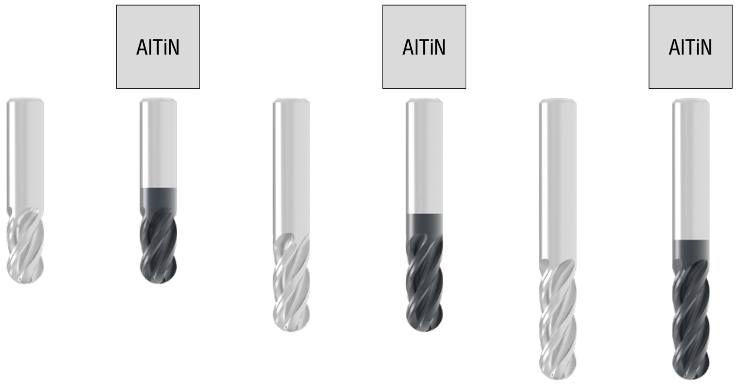
→ v_c/f_z Page 128

Ball Nosed Cutter

- ▲ DC tolerance:
  - ≤ Ø 7/64 inch: +/- 0.0005
  - ≥ Ø 1/8 inch: 0 /- 0.002
- ▲ Radius accuracy: +/- 0.001

S664 **UN** λ_s=38° γ_s=8° ZEFP





DC inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	HA 59 080 ...	HA 59 081 ...	HA 59 080 ...	HA 59 081 ...	HA 59 080 ...	HA 59 081 ...
1/32	3/32	1 1/2	1/8	4			03130	03130		
3/64	9/64	1 1/2	1/8	4			04730	04730		
1/16	1/8	1 1/2	1/8	4			06320	06320		
3/32	3/16	1 1/2	1/8	4			09420	09420		
1/8	1/4	1 1/2	1/8	4	12520	12520				
1/8	1/2	1 1/2	1/8	4			12540	12540		
1/8	3/4	3	1/8	4					12660	12660
5/32	3/8	2	3/16	4			15624	15624		
3/16	3/8	2	3/16	4	18820	18820				
3/16	5/8	2	3/16	4			18833	18833		
3/16	1	4	3/16	4					18853	18853
1/4	3/8	2	1/4	4	25015	25015				
1/4	3/4	2 1/2	1/4	4			25030	25030		
1/4	1 1/8	3	1/4	4					25045	25045
5/16	1/2	2	5/16	4	31316	31316				
5/16	3/4	2 1/2	5/16	4			31324	31324		
5/16	1 1/8	3	5/16	4					31336	31336
3/8	5/8	2	3/8	4	37517	37517				
3/8	7/8	2 1/2	3/8	4			37523	37523		
3/8	1 1/8	3	3/8	4					37530	37530
3/8	1 1/2	6	3/8	4					37540	37540
1/2	5/8	2 1/2	1/2	4	50013	50013				
1/2	1	3	1/2	4			50020	50020		
1/2	1 1/2	6	1/2	4					50030	50030
5/8	7/8	3	5/8	4	62514	62514				
5/8	1 1/4	3 1/2	5/8	4			62520	62520		
5/8	2 1/8	4 5/8	5/8	4					62534	62534
3/4	1	3	3/4	4	75013	75013				
3/4	1 1/2	4	3/4	4			75020	75020		
3/4	2 1/4	5	3/4	4					75030	75030
1	1 3/4	4	1	4			99918	99918		
1	2 1/4	5	1	4					99923	99923

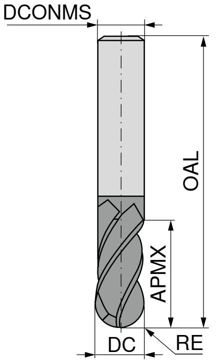
P	●	●	●	●	●	●
M	●	●	●	●	●	●
K	●	●	●	●	●	●
N	●	●	●	●	●	●
S						
H						
O						

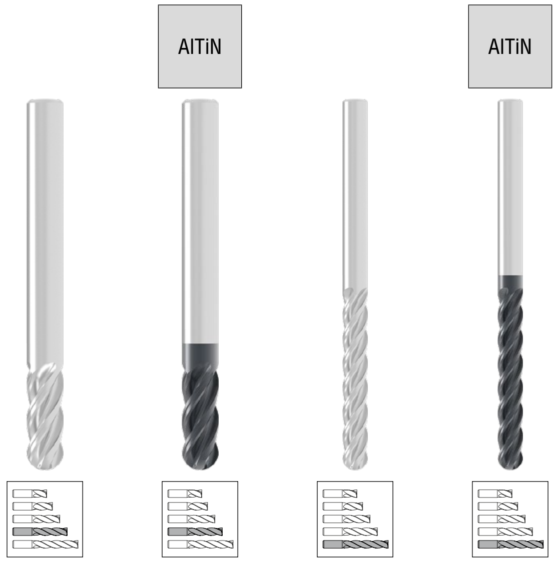
→ v_c/f_z Page 126

Ball Nosed Cutter

- ▲ DC tolerance:
  ≤ Ø 7/64 inch: +/- 0.0005
  ≥ Ø 1/8 inch: 0 /- 0.002
- ▲ Radius accuracy: +/- 0.001

S664 UN λ_s=38° γ_s=8° ZEFP





DC inch	APMX inch	OAL inch	DCONMS $_{-0.0001\,/\,-0.0004}$ inch	ZEFP	HA 59 080 ...	AlTiN HA 59 081 ...	HA 59 080 ...	AlTiN HA 59 081 ...
1/16	3/16	1 1/2	1/8	4	06330	06330		
3/32	9/32	1 1/2	1/8	4	09430	09430		
1/8	3/4	2 1/2	1/8	4	12560	12560		
1/8	1	3	1/8	4			12580	12580
5/32	1/2	2	3/16	4	15632	15632		
3/16	3/4	2 1/2	3/16	4	18840	18840		
3/16	1 1/8	3	3/16	4			18860	18860
1/4	1 1/2	4	1/4	4			25060	25060
1/4	1	4	1/4	4	25040	25040		
1/4	1 1/2	6	1/4	4			25160	25160
5/16	1 5/8	4	5/16	4			31352	31352
5/16	1	4	5/16	4	31332	31332		
5/16	1 1/2	6	5/16	4			31348	31348
3/8	1 3/4	4	3/8	4			37547	37547
3/8	1	4	3/8	4	37527	37527		
3/8	3	6	3/8	4			37580	37580
1/2	2	4	1/2	4			50040	50040
1/2	1	4	1/2	4	50120	50120		
1/2	3	6	1/2	4			50060	50060
5/8	3	6	5/8	4			62548	62548
5/8	2	6	5/8	4	62532	62532		
3/4	3	6	3/4	4			75040	75040
3/4	2	6	3/4	4	75027	75027		
1	3	6	1	4			99930	99930
1	2	6	1	4	99920	99920		

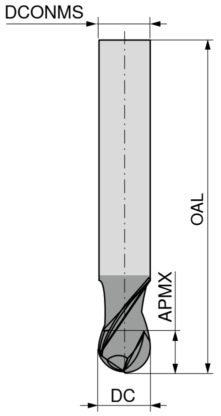
P	●	●	●	●
M	●	●	●	●
K	●	●	●	●
N	●	●	●	●
S				
H				
O				

→ v_c/f_z Page 126

Ball Nosed Cutter

▲ Radius accuracy: + 0.000 / - 0.0004

P250 ST λ_s=30° γ_s= 8° ZEFP



DC +0.000/-0.002 inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	AlTiN HA 59 063 ...	AlTiN HA 59 063 ...
1/8	1/8	3	1/8	2		**12510**
3/16	3/16	3	3/16	2		**18810**
1/4	1/4	4	1/4	2		**25010**
3/8	3/8	4	3/8	2	**37510**	
3/8	3/8	6	3/8	2		**37610**
1/2	1/2	4	1/2	2	**50010**	
1/2	1/2	6	1/2	2		**50110**

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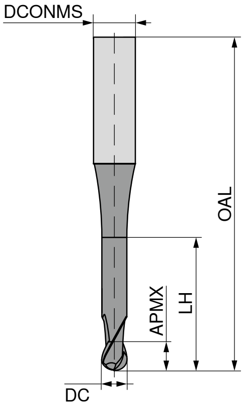
→ v_c/f_z Page 127

Ball Nosed Cutter

▲ Radius accuracy: + 0.000 / - 0.0004

P251 **UN** λ_s=30° γ_s= 8° ZEFP

AlTiN



HA

DC +/-0.0005 inch	APMX inch	LH inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 064 ...
0.031	0.031	5/8	4	1/4	2	**03110**
0.060	0.060	1 1/4	4	1/4	2	**06010**
0.080	0.080	1 5/8	4	1/4	2	**08010**
0.094	0.094	1 7/8	4	1/4	2	**09410**
0.125	0.125	2 1/2	4	1/4	2	**12510**
0.188	0.188	2.265	4	1/4	2	**18810**

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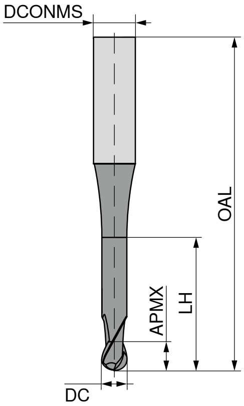
→ v_c/f_z Page 128

Ball Nosed Cutter

▲ Radius accuracy: + 0.000 / - 0.0004

P252 **UN** λ_s=30° γ_s= 8° ZEFP

AlTiN



HA

DC +/-0.0005 **inch**	APMX inch	LH inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	**59 065 ...**
0.031	0.031	2.125	4	1/4	2	**03110**
0.060	0.060	1.875	4	1/4	2	**06010**
0.080	0.080	1.704	4	1/4	2	**08010**
0.094	0.094	1.584	4	1/4	2	**09410**
0.125	0.125	1.324	4	1/4	2	**12510**
0.188	0.188	0.785	4	1/4	2	**18810**

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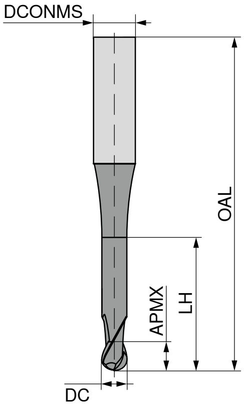
→ v_c/f_z Page 128

Ball Nosed Cutter

▲ Radius accuracy: + 0.000 / - 0.0004

P253 **UN** λ_s=30° γ_s= 8° ZEFP

AlTiN



HA

59 066 ...

DC +/-0.0005 inch	APMX inch	LH inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	
0.031	0.031	1.282	4	1/4	2	**03110**
0.060	0.060	1.175	4	1/4	2	**06010**
0.080	0.080	1.084	4	1/4	2	**08010**
0.094	0.094	1.018	4	1/4	2	**09410**
0.125	0.125	0.897	4	1/4	2	**12510**
0.188	0.188	0.687	4	1/4	2	**18810**

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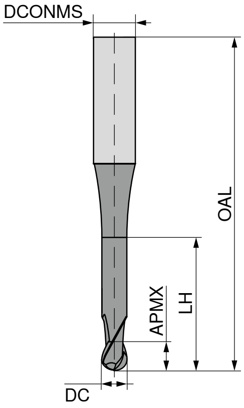
→ v_c/f_z Page 128

Ball Nosed Cutter

▲ Radius accuracy: + 0.000 / - 0.0004

P254 **UN** λ_s=30° γ_s= 8° ZEFP

AlTiN



HA

DC +/-0.0005 inch	APMX inch	LH inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 067 ...
0.031	0.031	0.773	4	1/4	2	**03110**
0.060	0.060	0.726	4	1/4	2	**06010**
0.080	0.080	0.690	4	1/4	2	**08010**
0.094	0.094	0.750	4	1/4	2	**09410**
0.125	0.125	0.636	4	1/4	2	**12510**
0.188	0.188	0.454	4	1/4	2	**18810**

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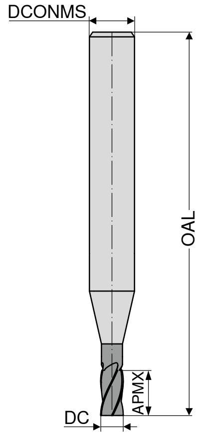
→ v_c/f_z Page 128

Micro end milling cutter

P501 **UN** λ_s=30° γ_s=13° ZEFP

AlTiN



HA

DC $_{+/-0.0005}$ inch	APMX inch	OAL inch	DCONMS $_{-0.0001\ /\ -0.0004}$ inch	ZEFP	59 007 ...
0.005	0.015	1 1/2	1/8	4	**00530**
0.006	0.018	1 1/2	1/8	4	**00630**
0.007	0.021	1 1/2	1/8	4	**00730**
0.008	0.024	1 1/2	1/8	4	**00830**
0.009	0.027	1 1/2	1/8	4	**00930**
0.010	0.030	1 1/2	1/8	4	**01030**
0.011	0.033	1 1/2	1/8	4	**01130**
0.012	0.036	1 1/2	1/8	4	**01230**
0.013	0.039	1 1/2	1/8	4	**01330**
0.014	0.042	1 1/2	1/8	4	**01430**
0.015	0.045	1 1/2	1/8	4	**01530**
0.016	0.048	1 1/2	1/8	4	**01630**
0.017	0.051	1 1/2	1/8	4	**01730**
0.018	0.054	1 1/2	1/8	4	**01830**
0.019	0.057	1 1/2	1/8	4	**01930**
0.020	0.060	1 1/2	1/8	4	**02030**
0.021	0.063	1 1/2	1/8	4	**02130**
0.022	0.066	1 1/2	1/8	4	**02230**
0.023	0.069	1 1/2	1/8	4	**02330**
0.024	0.072	1 1/2	1/8	4	**02430**
0.025	0.075	1 1/2	1/8	4	**02530**
0.026	0.078	1 1/2	1/8	4	**02630**
0.027	0.081	1 1/2	1/8	4	**02730**
0.028	0.084	1 1/2	1/8	4	**02830**
0.029	0.087	1 1/2	1/8	4	**02930**
0.030	0.090	1 1/2	1/8	4	**03030**
0.031	0.093	1 1/2	1/8	4	**03130**
0.032	0.096	1 1/2	1/8	4	**03230**
0.033	0.099	1 1/2	1/8	4	**03330**
0.034	0.102	1 1/2	1/8	4	**03430**
0.035	0.105	1 1/2	1/8	4	**03530**
0.036	0.108	1 1/2	1/8	4	**03630**
0.037	0.111	1 1/2	1/8	4	**03730**
0.038	0.114	1 1/2	1/8	4	**03830**
0.039	0.117	1 1/2	1/8	4	**03930**
0.040	0.120	1 1/2	1/8	4	**04030**
0.041	0.123	1 1/2	1/8	4	**04130**
0.042	0.126	1 1/2	1/8	4	**04230**
0.043	0.129	1 1/2	1/8	4	**04330**
0.044	0.132	1 1/2	1/8	4	**04430**
0.045	0.135	1 1/2	1/8	4	**04530**

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→ v_c/f_z Page 130

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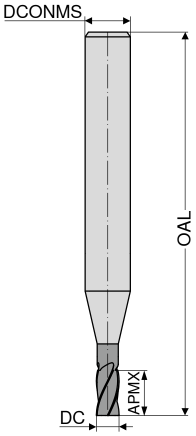
Micro end milling cutter

P501 **UN** λ_s=30° γ_s=13° ZEFP

AlTiN



HA

DC +/-0.0005 inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 007 ...
0.046	0.138	1 1/2	1/8	4	**04630**
0.047	0.141	1 1/2	1/8	4	**04730**
0.048	0.144	1 1/2	1/8	4	**04830**
0.049	0.147	1 1/2	1/8	4	**04930**
0.050	0.150	1 1/2	1/8	4	**05030**
0.051	0.153	1 1/2	1/8	4	**05130**
0.052	0.156	1 1/2	1/8	4	**05230**
0.053	0.159	1 1/2	1/8	4	**05330**
0.054	0.162	1 1/2	1/8	4	**05430**
0.055	0.165	1 1/2	1/8	4	**05530**
0.056	0.168	1 1/2	1/8	4	**05630**
0.057	0.171	1 1/2	1/8	4	**05730**
0.058	0.174	1 1/2	1/8	4	**05830**
0.059	0.177	1 1/2	1/8	4	**05930**
0.060	0.180	1 1/2	1/8	4	**06030**
0.061	0.183	1 1/2	1/8	4	**06130**
0.062	0.186	1 1/2	1/8	4	**06230**
0.063	0.189	1 1/2	1/8	4	**06330**
0.064	0.192	1 1/2	1/8	4	**06430**
0.065	0.195	1 1/2	1/8	4	**06530**
0.066	0.198	1 1/2	1/8	4	**06630**
0.067	0.201	1 1/2	1/8	4	**06730**
0.068	0.204	1 1/2	1/8	4	**06830**
0.069	0.207	1 1/2	1/8	4	**06930**
0.070	0.210	1 1/2	1/8	4	**07030**
0.071	0.213	1 1/2	1/8	4	**07130**
0.072	0.216	1 1/2	1/8	4	**07230**
0.073	0.219	1 1/2	1/8	4	**07330**
0.074	0.222	1 1/2	1/8	4	**07430**
0.075	0.225	1 1/2	1/8	4	**07530**
0.076	0.228	1 1/2	1/8	4	**07630**
0.077	0.231	1 1/2	1/8	4	**07730**
0.078	0.234	1 1/2	1/8	4	**07830**
0.079	0.237	1 1/2	1/8	4	**07930**
0.080	0.240	1 1/2	1/8	4	**08030**
0.081	0.243	1 1/2	1/8	4	**08130**
0.082	0.246	1 1/2	1/8	4	**08230**
0.083	0.249	1 1/2	1/8	4	**08330**
0.084	0.252	1 1/2	1/8	4	**08430**
0.085	0.255	1 1/2	1/8	4	**08530**
0.086	0.258	1 1/2	1/8	4	**08630**

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→ v_c/f_z Page 130

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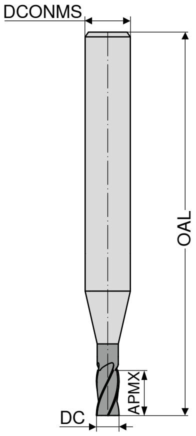
Micro end milling cutter

P501 **UN** λ_s=30° γ_s=13° ZEFP

AlTiN



HA

DC +/-0.0005 inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 007 ...
0.087	0.261	1 1/2	1/8	4	**08730**
0.088	0.264	1 1/2	1/8	4	**08830**
0.089	0.267	1 1/2	1/8	4	**08930**
0.090	0.270	1 1/2	1/8	4	**09030**
0.091	0.273	1 1/2	1/8	4	**09130**
0.092	0.276	1 1/2	1/8	4	**09230**
0.093	0.279	1 1/2	1/8	4	**09330**
0.094	0.282	1 1/2	1/8	4	**09430**
0.095	0.285	1 1/2	1/8	4	**09530**
0.096	0.288	1 1/2	1/8	4	**09630**
0.097	0.291	1 1/2	1/8	4	**09730**
0.098	0.294	1 1/2	1/8	4	**09830**
0.099	0.297	1 1/2	1/8	4	**09930**
0.100	0.300	1 1/2	1/8	4	**10030**
0.101	0.303	1 1/2	1/8	4	**10130**
0.102	0.306	1 1/2	1/8	4	**10230**
0.103	0.309	1 1/2	1/8	4	**10330**
0.104	0.312	1 1/2	1/8	4	**10430**
0.105	0.315	1 1/2	1/8	4	**10530**
0.106	0.318	1 1/2	1/8	4	**10630**
0.107	0.321	1 1/2	1/8	4	**10730**
0.108	0.324	1 1/2	1/8	4	**10830**
0.109	0.327	1 1/2	1/8	4	**10930**
0.110	0.330	1 1/2	1/8	4	**11030**
0.111	0.333	1 1/2	1/8	4	**11130**
0.112	0.336	1 1/2	1/8	4	**11230**
0.113	0.339	1 1/2	1/8	4	**11330**
0.114	0.341	1 1/2	1/8	4	**11430**
0.115	0.345	1 1/2	1/8	4	**11530**
0.116	0.348	1 1/2	1/8	4	**11630**
0.117	0.351	1 1/2	1/8	4	**11730**
0.118	0.354	1 1/2	1/8	4	**11830**
0.119	0.357	1 1/2	1/8	4	**11930**
0.120	0.360	1 1/2	1/8	4	**12030**

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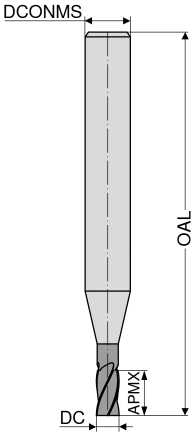
Micro end milling cutter

P504 **UN** λ_s=30° γ_s=13° ZEFP

AlTiN



HA

DC $_{+/-0.0005}$ inch	APMX inch	OAL inch	DCONMS $_{-0.0001\ /\ -0.0004}$ inch	ZEFP	59 009 ...
0.005	0.008	1 1/2	1/8	4	**00516**
0.006	0.009	1 1/2	1/8	4	**00615**
0.007	0.011	1 1/2	1/8	4	**00716**
0.008	0.012	1 1/2	1/8	4	**00815**
0.009	0.014	1 1/2	1/8	4	**00916**
0.010	0.015	1 1/2	1/8	4	**01015**
0.011	0.017	1 1/2	1/8	4	**01115**
0.012	0.018	1 1/2	1/8	4	**01215**
0.013	0.020	1 1/2	1/8	4	**01315**
0.014	0.021	1 1/2	1/8	4	**01415**
0.015	0.023	1 1/2	1/8	4	**01515**
0.016	0.024	1 1/2	1/8	4	**01615**
0.017	0.026	1 1/2	1/8	4	**01715**
0.018	0.027	1 1/2	1/8	4	**01815**
0.019	0.029	1 1/2	1/8	4	**01915**
0.020	0.030	1 1/2	1/8	4	**02015**
0.021	0.032	1 1/2	1/8	4	**02115**
0.022	0.033	1 1/2	1/8	4	**02215**
0.023	0.035	1 1/2	1/8	4	**02315**
0.024	0.036	1 1/2	1/8	4	**02415**
0.025	0.038	1 1/2	1/8	4	**02515**
0.026	0.039	1 1/2	1/8	4	**02615**
0.027	0.041	1 1/2	1/8	4	**02715**
0.028	0.042	1 1/2	1/8	4	**02815**
0.029	0.044	1 1/2	1/8	4	**02915**
0.030	0.045	1 1/2	1/8	4	**03015**
0.031	0.047	1 1/2	1/8	4	**03115**
0.032	0.048	1 1/2	1/8	4	**03215**
0.033	0.050	1 1/2	1/8	4	**03315**
0.034	0.051	1 1/2	1/8	4	**03415**
0.035	0.053	1 1/2	1/8	4	**03515**
0.036	0.054	1 1/2	1/8	4	**03615**
0.037	0.056	1 1/2	1/8	4	**03715**
0.038	0.057	1 1/2	1/8	4	**03815**
0.039	0.059	1 1/2	1/8	4	**03915**
0.040	0.060	1 1/2	1/8	4	**04015**
0.041	0.062	1 1/2	1/8	4	**04115**
0.042	0.063	1 1/2	1/8	4	**04215**
0.043	0.065	1 1/2	1/8	4	**04315**
0.044	0.066	1 1/2	1/8	4	**04415**
0.045	0.068	1 1/2	1/8	4	**04515**

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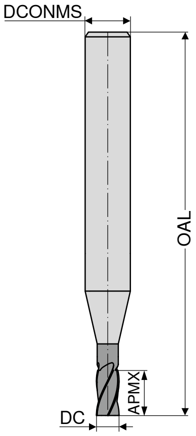
Micro end milling cutter

P504 UN λ_s=30° γ_s=13° ZEFP

AlTiN



HA

59 009 ...

DC +/-0.0005 inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 009 ...
0.046	0.069	1 1/2	1/8	4	**04615**
0.047	0.071	1 1/2	1/8	4	**04715**
0.048	0.072	1 1/2	1/8	4	**04815**
0.049	0.074	1 1/2	1/8	4	**04915**
0.050	0.075	1 1/2	1/8	4	**05015**
0.051	0.077	1 1/2	1/8	4	**05115**
0.052	0.078	1 1/2	1/8	4	**05215**
0.053	0.080	1 1/2	1/8	4	**05315**
0.054	0.081	1 1/2	1/8	4	**05415**
0.055	0.083	1 1/2	1/8	4	**05515**
0.056	0.084	1 1/2	1/8	4	**05615**
0.057	0.086	1 1/2	1/8	4	**05715**
0.058	0.087	1 1/2	1/8	4	**05815**
0.059	0.089	1 1/2	1/8	4	**05915**
0.060	0.090	1 1/2	1/8	4	**06015**
0.061	0.092	1 1/2	1/8	4	**06115**
0.062	0.093	1 1/2	1/8	4	**06215**
0.063	0.095	1 1/2	1/8	4	**06315**
0.064	0.096	1 1/2	1/8	4	**06415**
0.065	0.098	1 1/2	1/8	4	**06515**
0.066	0.099	1 1/2	1/8	4	**06615**
0.067	0.101	1 1/2	1/8	4	**06715**
0.068	0.102	1 1/2	1/8	4	**06815**
0.069	0.104	1 1/2	1/8	4	**06915**
0.070	0.105	1 1/2	1/8	4	**07015**
0.071	0.107	1 1/2	1/8	4	**07115**
0.072	0.108	1 1/2	1/8	4	**07215**
0.073	0.110	1 1/2	1/8	4	**07315**
0.074	0.111	1 1/2	1/8	4	**07415**
0.075	0.113	1 1/2	1/8	4	**07515**
0.076	0.114	1 1/2	1/8	4	**07615**
0.077	0.116	1 1/2	1/8	4	**07715**
0.078	0.117	1 1/2	1/8	4	**07815**
0.079	0.119	1 1/2	1/8	4	**07915**
0.080	0.120	1 1/2	1/8	4	**08015**
0.081	0.122	1 1/2	1/8	4	**08115**
0.082	0.123	1 1/2	1/8	4	**08215**
0.083	0.125	1 1/2	1/8	4	**08315**
0.084	0.126	1 1/2	1/8	4	**08415**
0.085	0.128	1 1/2	1/8	4	**08515**
0.086	0.129	1 1/2	1/8	4	**08615**

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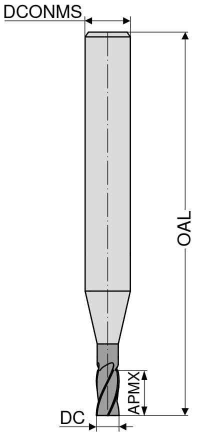
Micro end milling cutter

P504 UN λ_s=30° γ_s=13° ZEFP

AlTiN



HA

DC $_{+/-0.0005}$ **inch**	APMX inch	OAL inch	DCONMS $_{-0.0001 / -0.0004}$ inch	ZEFP	**59 009 ...**
0.087	0.131	1 1/2	1/8	4	**08715**
0.088	0.132	1 1/2	1/8	4	**08815**
0.089	0.134	1 1/2	1/8	4	**08915**
0.090	0.135	1 1/2	1/8	4	**09015**
0.091	0.137	1 1/2	1/8	4	**09115**
0.092	0.138	1 1/2	1/8	4	**09215**
0.093	0.140	1 1/2	1/8	4	**09315**
0.094	0.141	1 1/2	1/8	4	**09415**
0.095	0.143	1 1/2	1/8	4	**09515**
0.096	0.144	1 1/2	1/8	4	**09615**
0.097	0.146	1 1/2	1/8	4	**09715**
0.098	0.147	1 1/2	1/8	4	**09815**
0.099	0.149	1 1/2	1/8	4	**09915**
0.100	0.150	1 1/2	1/8	4	**10015**
0.101	0.152	1 1/2	1/8	4	**10115**
0.102	0.153	1 1/2	1/8	4	**10215**
0.103	0.155	1 1/2	1/8	4	**10315**
0.104	0.156	1 1/2	1/8	4	**10415**
0.105	0.158	1 1/2	1/8	4	**10515**
0.106	0.159	1 1/2	1/8	4	**10615**
0.107	0.161	1 1/2	1/8	4	**10715**
0.108	0.162	1 1/2	1/8	4	**10815**
0.109	0.164	1 1/2	1/8	4	**10915**
0.110	0.165	1 1/2	1/8	4	**11015**
0.111	0.167	1 1/2	1/8	4	**11115**
0.112	0.168	1 1/2	1/8	4	**11215**
0.113	0.170	1 1/2	1/8	4	**11315**
0.114	0.171	1 1/2	1/8	4	**11415**
0.115	0.173	1 1/2	1/8	4	**11515**
0.116	0.174	1 1/2	1/8	4	**11615**
0.117	0.176	1 1/2	1/8	4	**11715**
0.118	0.177	1 1/2	1/8	4	**11815**
0.119	0.179	1 1/2	1/8	4	**11915**
0.120	0.180	1 1/2	1/8	4	**12015**

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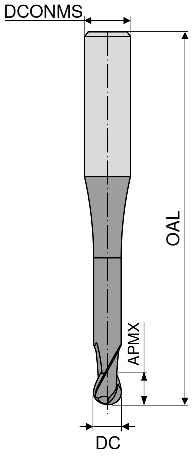
Micro ball nosed cutter

P503 UN λ_s=30° γ_s=13° ZEFP

AlTiN



HA

DC $_{+/-0.0005}$ inch	APMX inch	OAL inch	DCONMS $_{-0.0001\ /\ -0.0004}$ inch	ZEFP	59 008 ...
0.005	0.015	1 1/2	1/8	4	**00530**
0.006	0.018	1 1/2	1/8	4	**00630**
0.007	0.021	1 1/2	1/8	4	**00730**
0.008	0.024	1 1/2	1/8	4	**00830**
0.009	0.027	1 1/2	1/8	4	**00930**
0.010	0.030	1 1/2	1/8	4	**01030**
0.011	0.033	1 1/2	1/8	4	**01130**
0.012	0.036	1 1/2	1/8	4	**01230**
0.013	0.039	1 1/2	1/8	4	**01330**
0.014	0.042	1 1/2	1/8	4	**01430**
0.015	0.045	1 1/2	1/8	4	**01530**
0.016	0.048	1 1/2	1/8	4	**01630**
0.017	0.051	1 1/2	1/8	4	**01730**
0.018	0.054	1 1/2	1/8	4	**01830**
0.019	0.057	1 1/2	1/8	4	**01930**
0.020	0.060	1 1/2	1/8	4	**02030**
0.021	0.063	1 1/2	1/8	4	**02130**
0.022	0.066	1 1/2	1/8	4	**02230**
0.023	0.069	1 1/2	1/8	4	**02330**
0.024	0.072	1 1/2	1/8	4	**02430**
0.025	0.075	1 1/2	1/8	4	**02530**
0.026	0.078	1 1/2	1/8	4	**02630**
0.027	0.081	1 1/2	1/8	4	**02730**
0.028	0.084	1 1/2	1/8	4	**02830**
0.029	0.087	1 1/2	1/8	4	**02930**
0.030	0.090	1 1/2	1/8	4	**03030**
0.031	0.093	1 1/2	1/8	4	**03130**
0.032	0.096	1 1/2	1/8	4	**03230**
0.033	0.099	1 1/2	1/8	4	**03330**
0.034	0.102	1 1/2	1/8	4	**03430**
0.035	0.105	1 1/2	1/8	4	**03530**
0.036	0.108	1 1/2	1/8	4	**03630**
0.037	0.111	1 1/2	1/8	4	**03730**
0.038	0.114	1 1/2	1/8	4	**03830**
0.039	0.117	1 1/2	1/8	4	**03930**
0.040	0.120	1 1/2	1/8	4	**04030**
0.041	0.123	1 1/2	1/8	4	**04130**
0.042	0.126	1 1/2	1/8	4	**04230**
0.043	0.129	1 1/2	1/8	4	**04330**
0.044	0.132	1 1/2	1/8	4	**04430**
0.045	0.135	1 1/2	1/8	4	**04530**

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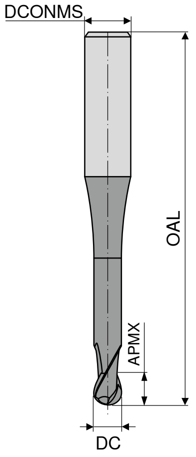
Micro ball nosed cutter

P503 **UN** λ_s=30° γ_s=13° ZEFP

AlTiN



HA

DC +/-0.0005 inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 008 ...
0.046	0.138	1 1/2	1/8	4	**04630**
0.047	0.141	1 1/2	1/8	4	**04730**
0.048	0.144	1 1/2	1/8	4	**04830**
0.049	0.147	1 1/2	1/8	4	**04930**
0.050	0.150	1 1/2	1/8	4	**05030**
0.051	0.153	1 1/2	1/8	4	**05130**
0.052	0.156	1 1/2	1/8	4	**05230**
0.053	0.159	1 1/2	1/8	4	**05330**
0.054	0.162	1 1/2	1/8	4	**05430**
0.055	0.165	1 1/2	1/8	4	**05530**
0.056	0.168	1 1/2	1/8	4	**05630**
0.057	0.171	1 1/2	1/8	4	**05730**
0.058	0.174	1 1/2	1/8	4	**05830**
0.059	0.177	1 1/2	1/8	4	**05930**
0.060	0.180	1 1/2	1/8	4	**06030**
0.061	0.183	1 1/2	1/8	4	**06130**
0.062	0.186	1 1/2	1/8	4	**06230**
0.063	0.189	1 1/2	1/8	4	**06330**
0.064	0.192	1 1/2	1/8	4	**06430**
0.065	0.195	1 1/2	1/8	4	**06530**
0.066	0.198	1 1/2	1/8	4	**06630**
0.067	0.201	1 1/2	1/8	4	**06730**
0.068	0.204	1 1/2	1/8	4	**06830**
0.069	0.207	1 1/2	1/8	4	**06930**
0.070	0.210	1 1/2	1/8	4	**07030**
0.071	0.213	1 1/2	1/8	4	**07130**
0.072	0.216	1 1/2	1/8	4	**07230**
0.073	0.219	1 1/2	1/8	4	**07330**
0.074	0.222	1 1/2	1/8	4	**07430**
0.075	0.225	1 1/2	1/8	4	**07530**
0.076	0.228	1 1/2	1/8	4	**07630**
0.077	0.231	1 1/2	1/8	4	**07730**
0.078	0.234	1 1/2	1/8	4	**07830**
0.079	0.237	1 1/2	1/8	4	**07930**
0.080	0.240	1 1/2	1/8	4	**08030**
0.081	0.243	1 1/2	1/8	4	**08130**
0.082	0.246	1 1/2	1/8	4	**08230**
0.083	0.249	1 1/2	1/8	4	**08330**
0.084	0.252	1 1/2	1/8	4	**08430**
0.085	0.255	1 1/2	1/8	4	**08530**
0.086	0.258	1 1/2	1/8	4	**08630**

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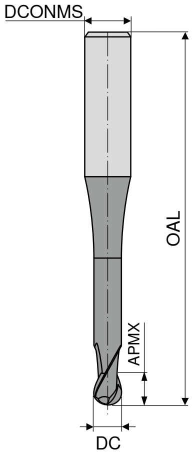
Micro ball nosed cutter

P503 **UN** λ_s=30° γ_s=13° ZEFP

AlTiN



HA

DC +/-0.0005 inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 008 ...
0.087	0.261	1 1/2	1/8	4	**08730**
0.088	0.264	1 1/2	1/8	4	**08830**
0.089	0.267	1 1/2	1/8	4	**08930**
0.090	0.270	1 1/2	1/8	4	**09030**
0.091	0.273	1 1/2	1/8	4	**09130**
0.092	0.276	1 1/2	1/8	4	**09230**
0.093	0.279	1 1/2	1/8	4	**09330**
0.094	0.282	1 1/2	1/8	4	**09430**
0.095	0.285	1 1/2	1/8	4	**09530**
0.096	0.288	1 1/2	1/8	4	**09630**
0.097	0.291	1 1/2	1/8	4	**09730**
0.098	0.294	1 1/2	1/8	4	**09830**
0.099	0.297	1 1/2	1/8	4	**09930**
0.100	0.300	1 1/2	1/8	4	**10030**
0.101	0.303	1 1/2	1/8	4	**10130**
0.102	0.306	1 1/2	1/8	4	**10230**
0.103	0.309	1 1/2	1/8	4	**10330**
0.104	0.312	1 1/2	1/8	4	**10430**
0.105	0.315	1 1/2	1/8	4	**10530**
0.106	0.318	1 1/2	1/8	4	**10630**
0.107	0.321	1 1/2	1/8	4	**10730**
0.108	0.324	1 1/2	1/8	4	**10830**
0.109	0.327	1 1/2	1/8	4	**10930**
0.110	0.330	1 1/2	1/8	4	**11030**
0.111	0.333	1 1/2	1/8	4	**11130**
0.112	0.336	1 1/2	1/8	4	**11230**
0.113	0.339	1 1/2	1/8	4	**11330**
0.114	0.341	1 1/2	1/8	4	**11430**
0.115	0.345	1 1/2	1/8	4	**11530**
0.116	0.348	1 1/2	1/8	4	**11630**
0.117	0.351	1 1/2	1/8	4	**11730**
0.118	0.354	1 1/2	1/8	4	**11830**
0.119	0.357	1 1/2	1/8	4	**11930**
0.120	0.360	1 1/2	1/8	4	**12030**

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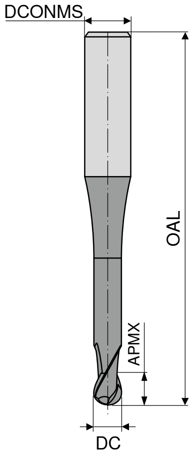
Micro ball nosed cutter

P506 | UN | λ_s=30° γ_s=13° | ZEFP

AlTiN



HA

DC +/-0.0005 inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 010 ...
0.005	0.008	1 1/2	1/8	4	**00516**
0.006	0.009	1 1/2	1/8	4	**00615**
0.007	0.011	1 1/2	1/8	4	**00716**
0.008	0.012	1 1/2	1/8	4	**00815**
0.009	0.014	1 1/2	1/8	4	**00916**
0.010	0.015	1 1/2	1/8	4	**01015**
0.011	0.017	1 1/2	1/8	4	**01115**
0.012	0.018	1 1/2	1/8	4	**01215**
0.013	0.020	1 1/2	1/8	4	**01315**
0.014	0.021	1 1/2	1/8	4	**01415**
0.015	0.023	1 1/2	1/8	4	**01515**
0.016	0.024	1 1/2	1/8	4	**01615**
0.017	0.026	1 1/2	1/8	4	**01715**
0.018	0.027	1 1/2	1/8	4	**01815**
0.019	0.029	1 1/2	1/8	4	**01915**
0.020	0.030	1 1/2	1/8	4	**02015**
0.021	0.032	1 1/2	1/8	4	**02115**
0.022	0.033	1 1/2	1/8	4	**02215**
0.023	0.035	1 1/2	1/8	4	**02315**
0.024	0.036	1 1/2	1/8	4	**02415**
0.025	0.038	1 1/2	1/8	4	**02515**
0.026	0.039	1 1/2	1/8	4	**02615**
0.027	0.041	1 1/2	1/8	4	**02715**
0.028	0.042	1 1/2	1/8	4	**02815**
0.029	0.044	1 1/2	1/8	4	**02915**
0.030	0.045	1 1/2	1/8	4	**03015**
0.031	0.047	1 1/2	1/8	4	**03115**
0.032	0.048	1 1/2	1/8	4	**03215**
0.033	0.050	1 1/2	1/8	4	**03315**
0.034	0.051	1 1/2	1/8	4	**03415**
0.035	0.053	1 1/2	1/8	4	**03515**
0.036	0.054	1 1/2	1/8	4	**03615**
0.037	0.056	1 1/2	1/8	4	**03715**
0.038	0.057	1 1/2	1/8	4	**03815**
0.039	0.059	1 1/2	1/8	4	**03915**
0.040	0.060	1 1/2	1/8	4	**04015**
0.041	0.062	1 1/2	1/8	4	**04115**
0.042	0.063	1 1/2	1/8	4	**04215**
0.043	0.065	1 1/2	1/8	4	**04315**
0.044	0.066	1 1/2	1/8	4	**04415**
0.045	0.068	1 1/2	1/8	4	**04515**

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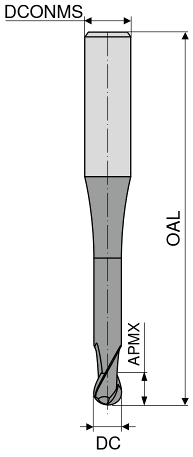
Micro ball nosed cutter

P506 **UN** λ_s=30° γ_s=13° ZEFP

AlTiN



HA

DC +/-0.0005 inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 010 ...
0.046	0.069	1 1/2	1/8	4	**04615**
0.047	0.071	1 1/2	1/8	4	**04715**
0.048	0.072	1 1/2	1/8	4	**04815**
0.049	0.074	1 1/2	1/8	4	**04915**
0.050	0.075	1 1/2	1/8	4	**05015**
0.051	0.077	1 1/2	1/8	4	**05115**
0.052	0.078	1 1/2	1/8	4	**05215**
0.053	0.080	1 1/2	1/8	4	**05315**
0.054	0.081	1 1/2	1/8	4	**05415**
0.055	0.083	1 1/2	1/8	4	**05515**
0.056	0.084	1 1/2	1/8	4	**05615**
0.057	0.086	1 1/2	1/8	4	**05715**
0.058	0.087	1 1/2	1/8	4	**05815**
0.059	0.089	1 1/2	1/8	4	**05915**
0.060	0.090	1 1/2	1/8	4	**06015**
0.061	0.092	1 1/2	1/8	4	**06115**
0.062	0.093	1 1/2	1/8	4	**06215**
0.063	0.095	1 1/2	1/8	4	**06315**
0.064	0.096	1 1/2	1/8	4	**06415**
0.065	0.098	1 1/2	1/8	4	**06515**
0.066	0.099	1 1/2	1/8	4	**06615**
0.067	0.101	1 1/2	1/8	4	**06715**
0.068	0.102	1 1/2	1/8	4	**06815**
0.069	0.104	1 1/2	1/8	4	**06915**
0.070	0.105	1 1/2	1/8	4	**07015**
0.071	0.107	1 1/2	1/8	4	**07115**
0.072	0.108	1 1/2	1/8	4	**07215**
0.073	0.110	1 1/2	1/8	4	**07315**
0.074	0.111	1 1/2	1/8	4	**07415**
0.075	0.113	1 1/2	1/8	4	**07515**
0.076	0.114	1 1/2	1/8	4	**07615**
0.077	0.116	1 1/2	1/8	4	**07715**
0.078	0.117	1 1/2	1/8	4	**07815**
0.079	0.119	1 1/2	1/8	4	**07915**
0.080	0.120	1 1/2	1/8	4	**08015**
0.081	0.122	1 1/2	1/8	4	**08115**
0.082	0.123	1 1/2	1/8	4	**08215**
0.083	0.125	1 1/2	1/8	4	**08315**
0.084	0.126	1 1/2	1/8	4	**08415**
0.085	0.128	1 1/2	1/8	4	**08515**
0.086	0.129	1 1/2	1/8	4	**08615**

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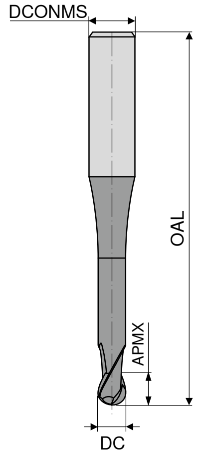
Micro ball nosed cutter

P506 **UN** λ_s=30° γ_s=13° ZEFP

AlTiN



HA

DC +/-0.0005 inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	59 010 ...
0.087	0.131	1 1/2	1/8	4	**08715**
0.088	0.132	1 1/2	1/8	4	**08815**
0.089	0.134	1 1/2	1/8	4	**08915**
0.090	0.135	1 1/2	1/8	4	**09015**
0.091	0.137	1 1/2	1/8	4	**09115**
0.092	0.138	1 1/2	1/8	4	**09215**
0.093	0.140	1 1/2	1/8	4	**09315**
0.094	0.141	1 1/2	1/8	4	**09415**
0.095	0.143	1 1/2	1/8	4	**09515**
0.096	0.144	1 1/2	1/8	4	**09615**
0.097	0.146	1 1/2	1/8	4	**09715**
0.098	0.147	1 1/2	1/8	4	**09815**
0.099	0.149	1 1/2	1/8	4	**09915**
0.100	0.150	1 1/2	1/8	4	**10015**
0.101	0.152	1 1/2	1/8	4	**10115**
0.102	0.153	1 1/2	1/8	4	**10215**
0.103	0.155	1 1/2	1/8	4	**10315**
0.104	0.156	1 1/2	1/8	4	**10415**
0.105	0.158	1 1/2	1/8	4	**10515**
0.106	0.159	1 1/2	1/8	4	**10615**
0.107	0.161	1 1/2	1/8	4	**10715**
0.108	0.162	1 1/2	1/8	4	**10815**
0.109	0.164	1 1/2	1/8	4	**10915**
0.110	0.165	1 1/2	1/8	4	**11015**
0.111	0.167	1 1/2	1/8	4	**11115**
0.112	0.168	1 1/2	1/8	4	**11215**
0.113	0.170	1 1/2	1/8	4	**11315**
0.114	0.171	1 1/2	1/8	4	**11415**
0.115	0.173	1 1/2	1/8	4	**11515**
0.116	0.174	1 1/2	1/8	4	**11615**
0.117	0.176	1 1/2	1/8	4	**11715**
0.118	0.177	1 1/2	1/8	4	**11815**
0.119	0.179	1 1/2	1/8	4	**11915**
0.120	0.180	1 1/2	1/8	4	**12015**

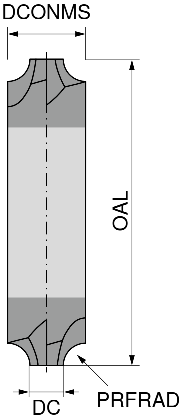
P	●
M	●
K	●
N	●
S	●
H	
O	

→ v_c/f_z Page 129

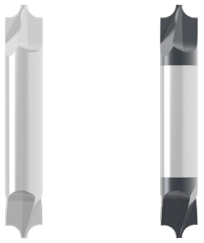
Profile end milling cutter

- ▲ PRFRAD ≤ 1.397 [Inch] Tol. = ± 0.01
- ▲ PRFRAD > 1.397 [Inch] Tol. = ± 0.015

P137 **UN** $\lambda_s = 0°$ $\gamma_s = -5°$ ZEFP



AlTiN



PRFRAD inch	DC $_{+0.000/-0.002}$ inch	OAL inch	DCONMS $_{-0.0001/-0.0004}$ inch	ZEFP	59 049 ...	59 050 ...
0.010	0.125	1 1/2	1/8	2	**12510**	
0.010	0.125	1 1/2	1/8	2		**12510**
0.015	0.125	1 1/2	1/8	2	**12515**	
0.015	0.125	1 1/2	1/8	2		**12515**
0.020	0.125	1 1/2	1/8	2	**12520**	
0.020	0.125	1 1/2	1/8	2		**12520**
0.025	0.125	1 1/2	1/8	2	**12525**	
0.025	0.125	1 1/2	1/8	2		**12525**
0.031	0.125	1 1/2	1/8	2	**12531**	
0.031	0.125	1 1/2	1/8	2		**12531**
0.035	0.125	1 1/2	1/8	2	**12535**	
0.035	0.125	1 1/2	1/8	2		**12535**
0.040	0.125	1 1/2	1/8	2	**12540**	
0.040	0.125	1 1/2	1/8	2		**12540**
0.046	0.125	1 1/2	1/8	2	**12546**	
0.046	0.125	1 1/2	1/8	2		**12546**
0.050	0.188	2	3/16	2	**18850**	
0.050	0.188	2	3/16	2		**18850**
0.055	0.188	2	3/16	2	**18855**	
0.055	0.188	2	3/16	2		**18855**
0.062	0.188	2	3/16	2	**18862**	
0.062	0.188	2	3/16	2		**18862**
0.072	0.250	2 1/2	1/4	2	**25072**	
0.072	0.250	2 1/2	1/4	2		**25072**
0.078	0.250	2 1/2	1/4	2	**25078**	
0.078	0.250	2 1/2	1/4	2		**25078**
0.085	0.250	2 1/2	1/4	2	**25085**	
0.085	0.250	2 1/2	1/4	2		**25085**
0.094	0.250	2 1/2	1/4	2	**25094**	
0.094	0.250	2 1/2	1/4	2		**25094**
0.100	0.250	2 1/2	1/4	2	**25000**	
0.100	0.250	2 1/2	1/4	2		**25000**
0.109	0.250	2 1/2	1/4	2	**25009**	
0.109	0.250	2 1/2	1/4	2		**25009**
0.118	0.313	2 1/2	5/16	2	**31318**	
0.118	0.313	2 1/2	5/16	2		**31318**
0.125	0.313	2 1/2	5/16	2	**31325**	
0.125	0.313	2 1/2	5/16	2		**31325**
0.140	0.375	2 1/2	3/8	2	**37540**	
0.140	0.375	2 1/2	3/8	2		**37540**
0.156	0.375	2 1/2	3/8	2	**37556**	
0.156	0.375	2 1/2	3/8	2		**37556**

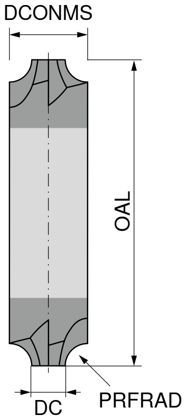
P	●	●
M		
K	●	●
N		
S		
H		
O		

→ v_c/f_z Page 132

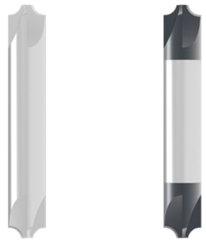
Profile end milling cutter

- ▲ PRFRAD ≤ 1.397 [Inch] Tol. = ± 0.01
- ▲ PRFRAD > 1.397 [Inch] Tol. = ± 0.015

P139 **UN** λ_s=0° γ_s=3,5° ZEFP



AlTiN



PRFRAD inch	DC +0.000/-0.002 inch	APMX inch	OAL inch	DCONMS -0.0001 / -0.0004 inch	ZEFP	HA 59 051 ...	HA 59 052 ...
0.010	3/16	3/16	2	3/16	4	**18810**	**18810**
0.015	3/16	3/16	2	3/16	4	**18910**	**18910**
0.020	3/16	3/16	2	3/16	4	**19010**	**19010**
0.025	3/16	3/16	2	3/16	4	**19110**	**19110**
0.031	3/16	3/16	2	3/16	4	**19210**	**19210**
0.035	3/16	3/16	2	3/16	4	**19310**	**19310**
0.040	1/4	1/4	2 1/2	1/4	4	**25010**	**25010**
0.046	1/4	1/4	2 1/2	1/4	4	**25110**	**25110**
0.050	1/4	1/4	2 1/2	1/4	4	**25210**	**25210**
0.055	1/4	1/4	2 1/2	1/4	4	**25410**	**25410**
0.062	1/4	1/4	2 1/2	1/4	4	**25310**	**25310**
0.078	3/8	3/8	2 1/2	3/8	4	**37510**	**37510**
0.094	3/8	3/8	2 1/2	3/8	4	**37610**	**37610**
0.100	3/8	3/8	2 1/2	3/8	4	**37710**	**37710**
0.118	3/8	3/8	2 1/2	3/8	4	**37810**	**37810**
0.125	3/8	3/8	2 1/2	3/8	4	**37910**	**37910**
0.156	1/2	1/2	3	1/2	4	**50010**	**50010**

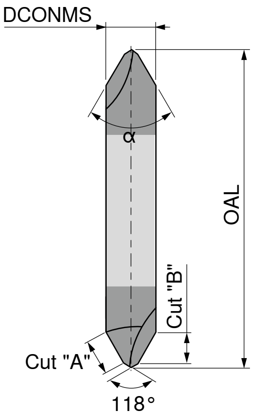
	59 051 ...	59 052 ...
P	●	●
M		
K	●	●
N		
S		
H		
O		

→ v_c/f_z Page 133

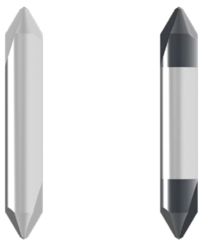
8

Chamfer milling cutter 60°

P132 **UN** λ_s=0° γ_s=0° ZEFP



AlTiN



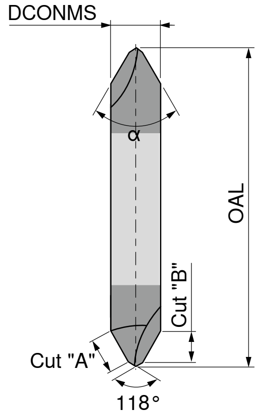
						α = 60° HA 59 041 ...	α = 60° HA 59 042 ...
DC inch	Cut "A" inch	Cut "B" inch	OAL inch	DCONMS inch	ZEFP		
1/8	0.098	0.085	1 1/2	1/8	2	**12506**	**12506**
3/16	0.147	0.127	2	3/16	2	**18806**	**18806**
1/4	0.200	0.173	2 1/2	1/4	2	**25006**	**25006**
3/8	0.313	0.271	2 1/2	3/8	2	**37506**	**37506**
1/2	0.430	0.372	3	1/2	2	**50006**	**50006**

	59 041 ...	59 042 ...
P	●	●
M		
K	●	●
N		
S		
H		
O		

→ v_c/f_z Page 134–135

Chamfer milling cutter 60°

P133 **UN** λ_s=0° γ_s=0° ZEFP



AlTiN

α = 60° HA | α = 60° HA

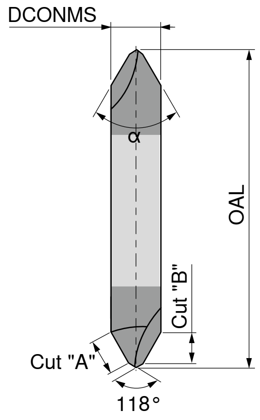
DC inch	Cut "A" inch	Cut "B" inch	OAL inch	DCONMS inch	ZEFP	59 043 ...	59 044 ...
1/4	0.200	0.173	2 1/2	1/4	4	**25006**	**25006**
3/8	0.313	0.271	2 1/2	3/8	4	**37506**	**37506**
1/2	0.430	0.372	3	1/2	4	**50006**	**50006**

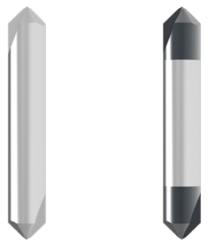
	59 043 ...	59 044 ...
P	●	●
M		
K	●	●
N		
S		
H		
O		

→ v_c/f_z Page 136–137

Chamfer milling cutter 90°

P134 **UN** λ_s=0° γ_s=0° ZEFP





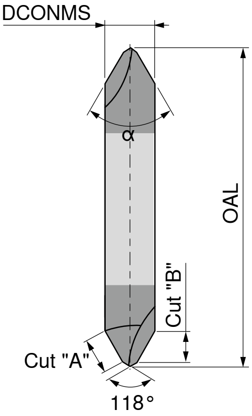
DC inch	Cut "A" inch	Cut "B" inch	OAL inch	DCONMS inch	ZEFP	α = 90° HA 59 045 ...	AlTiN α = 90° HA 59 046 ...
1/8	0.071	0.050	1 1/2	1/8	2	**12509**	**12509**
3/16	0.107	0.076	2	3/16	2	**18809**	**18809**
1/4	0.141	0.100	2 1/2	1/4	2	**25009**	**25009**
3/8	0.221	0.157	2 1/2	3/8	2	**37509**	**37509**
1/2	0.304	0.215	3	1/2	2	**50009**	**50009**

	59 045 ...	59 046 ...
P	●	●
M		
K	●	●
N		
S		
H		
O		

→ v_c/f_z Page 134–135

Chamfer milling cutter 90°

P135 **UN** λ_s=0° γ_s=0° ZEFP



AlTiN

	α = 90°	α = 90°
	HA	HA

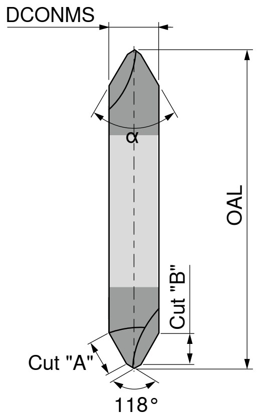
DC inch	Cut "A" inch	Cut "B" inch	OAL inch	DCONMS inch	ZEFP	59 047 ...	59 048 ...
1/4	0.141	0.100	2 1/2	1/4	4	**25009**	**25009**
3/8	0.221	0.157	2 1/2	3/8	4	**37509**	**37509**
1/2	0.304	0.215	3	1/2	4	**50009**	**50009**

	59 047 ...	59 048 ...
P	●	●
M		
K	●	●
N		
S		
H		
O		

→ v_c/f_z Page 136–137

Chamfer milling cutter 120°

P130 UN λ_s=0° γ_s=0° ZEFP



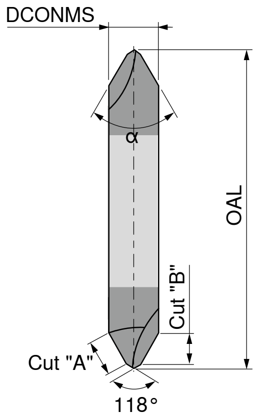
AlTiN

DC inch	Cut "A" inch	Cut "B" inch	OAL inch	DCONMS inch	ZEFP	α = 120° HA 59 037 ...	α = 120° HA 59 038 ...
1/4	0.124	0.062	2 1/2	1/4	2	**25012**	**25012**
3/8	0.199	0.100	2 1/2	3/8	2	**37512**	**37512**
1/2	0.266	0.133	3	1/2	2	**50012**	**50012**
P						●	●
M							
K						●	●
N							
S							
H							
O							

→ v_c/f_z Page 134–135

Chamfer milling cutter 120°

P131 **UN** λ_s=0° γ_s=0° ZEFP



AlTiN

DC inch	Cut "A" inch	Cut "B" inch	OAL inch	DCONMS inch	ZEFP	α = 120° HA 59 039 ...	α = 120° HA 59 040 ...
1/4	0.144	0.072	2 1/2	1/4	4	**25012**	**25012**
3/8	0.217	0.108	2 1/2	3/8	4	**37512**	**37512**
1/2	0.289	0.144	3	1/2	4	**50012**	**50012**

	59 039 ...	59 040 ...
P	●	●
M		
K	●	●
N		
S		
H		
O		

→ v_c/f_z Page 136–137

8

Material examples for cutting data tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength lbf/in^2* / HB / HRC	Material number	Material designation	Material number	Material designation
P	**Unalloyed steel**	**P.1.1**	< 0.15 % C	Annealed	60900 lbf/in^2 / 125 HB	1.0401	1015	1.0301	1010
		P.1.2	< 0.45 % C	Annealed	92800 lbf/in^2 / 190 HB	1.1191	1045	1.0737	12L14
		P.1.3		Tempered	121800 lbf/in^2 / 250 HB	1.1191	1045	1.0503	1043
		P.1.4	< 0.75 % C	Annealed	132000 lbf/in^2 / 270 HB	1.1223	1060	1.0535	1055
		P.1.5		Tempered	146500 lbf/in^2 / 300 HB	1.1223	1060	1.1274	1095
	Low-alloy steel	**P.2.1**		Annealed	88500 lbf/in^2 / 180 HB	1.7131	5115	1.6523	8620
		P.2.2		Tempered	134900 lbf/in^2 / 275 HB	1.7131	5115	1.6582	4340
		P.2.3		Tempered	146500 lbf/in^2 / 300 HB	1.7225	4142	1.7131	5115
		P.2.4		Tempered	174000 lbf/in^2 / 375 HB	1.7225	4142	17223	4140
	High-alloy steel and high-alloy tool steel	**P.3.1**		Annealed	98600 lbf/in^2 / 200 HB	1.4021	420	1.2379	D2
		P.3.2		Hardened and tempered	159500 lbf/in^2 / 300 HB	1.2343	H11	1.3343	M2
		P.3.3		Hardened and tempered	188500 lbf/in^2 / 400 HB	1.2343	H11	1.2363	A2
	Stainless steel	**P.4.1**	Ferritic / martensitic	Annealed	98600 lbf/in^2 / 200 HB	1.4016	430	1.4125	440C
		P.4.2	Martensitic	Tempered	117500 lbf/in^2 / 250 HB	1.4112	S44003	1.4021	420
M	**Stainless steel**	**M.1.1**	Austenitic / austenitic-ferritic	Quenched	88500 lbf/in^2 / 200 HB	1.4301	304	1.4401	316
		M.2.1	Austenitic	Tempered	300 HB	1.4841	314	1.4568	17-7 PH
		M.3.1	Austenitic / ferritic (Duplex)		113100 lbf/in^2 / 230 HB	1.4462	S32205	1.4410	S32750
K	**Grey cast iron**	**K.1.1**	Pearlitic / ferritic		88500 lbf/in^2 / 180 HB	0.6010	A48-20B	0.6025	A48-40 B
		K.1.2	Pearlitic (martensitic)		127600 lbf/in^2 / 260 HB	0.6030	A48-45B	0.6040	A48-60 B
	Spherulitic graphite cast iron	**K.2.1**	Ferritic		78300 lbf/in^2 / 160 HB	0.7040	60-40-18	0.7050	65-45-12
		K.2.2	Pearlitic		122600 lbf/in^2 / 250 HB	0.7070	100-70-03	0.7660	A439 Type D2
	Malleable iron	**K.3.1**	Ferritic		63800 lbf/in^2 / 130 HB	0.8035	GTW-35-04		
		K.3.2	Pearlitic		113100 lbf/in^2 / 230 HB	0.8170	70003		
N	**Aluminium wrought alloy**	**N.1.1**	Non-hardenable		60 HB	3.0255	A91060	3.0255	A91060
		N.1.2	Hardenable		49300 lbf/in^2 / 100 HB	3.1355	2024	3.1355	2024
	Cast aluminium alloy	**N.2.1**	≤ 12 % Si, non-hardenable		36300 lbf/in^2 / 75 HB	3.2581	A04130 / A413-0	3.2581	A04130 / A413-0
		N.2.2	≤ 12 % Si, hardenable		43500 lbf/in^2 / 90 HB	3.2134	G-AlSi5Cu1Mg		
		N.2.3	> 12 % Si, non-hardenable		63800 lbf/in^2 / 130 HB		G-AlSi17Cu4Mg		
	Copper and copper alloys (bronze/brass)	**N.3.1**	Free-machining alloys, PB > 1 %		54400 lbf/in^2 / 110 HB	2.0380	CuZn39Pb2 (Ms58)	2.0380	C37700
		N.3.2	CuZn, CuSnZn		43500 lbf/in^2 / 90 HB	2.0331	CuZn15	2.0331	C34000
		N.3.3	CuSn, lead-free copper and electrolytic copper		49300 lbf/in^2 / 100 HB	2.0060	E-Cu57		
	Magnesium alloys	**N.4.1**	Magnesium and magnesium alloys		70 HB	3.5612	MgAl6Zn		
S	**Heat-resistant alloys**	**S.1.1**	Fe - basis	Annealed	98600 lbf/in^2 / 200 HB	1.4864	X12NiCrSi 36-16	1.4864	330
		S.1.2			137800 lbf/in^2 / 280 HB	1.4980	X6NiCrTiMoVB25-15-2	1.4980	S66286
		S.2.1	Ni or Co basis	Annealed	121800 lbf/in^2 / 250 HB	2.4856	Inconel 625	2.4812	Hastelloy C
		S.2.2			171100 lbf/in^2 / 350 HB	2.4952	Nimonic 80A	2.4668	Inconel 718
		S.2.3		Cast	156600 lbf/in^2 / 320 HB	2.4674	Nimocast PK24	2.4670	Nimocast 713
	Titanium alloys	**S.3.1**	Pure titanium		5800 lbf/in^2	3.7025	Ti99,8		
		S.3.2	Alpha + beta alloys		152300 lbf/in^2	3.7165	TiAl6V4		
		S.3.3	Beta alloys		203100 lbf/in^2 / 410 HB	Ti555.3	Ti-5Al-5V-5Mo-3Cr		
H	**Hardened steel**	**H.1.1**		Hardened and tempered	46-55 HRC				
		H.1.2		Hardened and tempered	56-60 HRC				
		H.1.3		Hardened and tempered	61-65 HRC				
		H.1.4		Hardened and tempered	66-70 HRC				
	Chilled iron	**H.2.1**		Cast	400 HB				
	Hardened cast iron	**H.3.1**		Hardened and tempered	55 HRC				
O	**Non-metal materials**	**O.1.1**	Plastics, duroplastic		≤ 21800 lbf/in^2				
		O.1.2	Plastics, thermoplastic		≤ 14500 lbf/in^2				
		O.2.1	Aramid fibre-reinforced		≤ 145000 lbf/in^2				
		O.2.2	Glass/carbon-fibre reinforced		≤ 145000 lbf/in^2				
		O.3.1	Graphite						

*** Tensile Strength at Rupture (Rm)**

Cutting Data – P220 – End Milling Cutter, short – long

● 1st choice
○ suitable

		59 003 ...										
		Ø DC =	1/8"	3/16"	1/4–5/16"	3/8"	1/2"	5/8"	3/4"			
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	Emulsion	Compressed air	MMS
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch			
P.1.1												
P.1.2												
P.1.3												
P.1.4												
P.1.5												
P.2.1												
P.2.2												
P.2.3												
P.2.4												
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1												
K.1.2												
K.2.1												
K.2.2												
K.3.1												
K.3.2												
N.1.1	1970	1.0	0.0015	0.0019	0.0029	0.0036	0.0050	0.0053	0.0060	●	○	○
N.1.2	1970	1.0	0.0015	0.0019	0.0029	0.0036	0.0050	0.0053	0.0060	●	○	○
N.2.1	1180	1.0	0.0012	0.0015	0.0025	0.0031	0.0044	0.0047	0.0054	●	○	○
N.2.2	1180	1.0	0.0012	0.0015	0.0025	0.0031	0.0044	0.0047	0.0054	●	○	○
N.2.3	790	1.0	0.0012	0.0015	0.0025	0.0031	0.0044	0.0047	0.0054	●	○	○
N.3.1	790	1.0	0.0010	0.0013	0.0020	0.0026	0.0036	0.0039	0.0044	●	○	○
N.3.2	790	1.0	0.0010	0.0013	0.0020	0.0026	0.0036	0.0039	0.0044	●	○	○
N.3.3	560	1.0	0.0010	0.0013	0.0020	0.0026	0.0036	0.0039	0.0044	●	○	○
N.4.1	720	1.0	0.0012	0.0015	0.0025	0.0031	0.0044	0.0047	0.0054	●	○	○
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

Cutting Data – S142 – End Milling Cutter, short – extra long

● 1st choice
○ suitable

			59 053 ... / 59 054 ...										
		Ø DC =	5/32"	3/16"	1/4–5/16"	11/32–3/8"	1/2"	5/8"	3/4"	1"			
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC			
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	Emulsion	Compressed air	MMS
P.1.1													
P.1.2													
P.1.3													
P.1.4													
P.1.5													
P.2.1													
P.2.2													
P.2.3													
P.2.4													
P.3.1													
P.3.2													
P.3.3													
P.4.1													
P.4.2													
M.1.1													
M.2.1													
M.3.1													
K.1.1													
K.1.2													
K.2.1													
K.2.2													
K.3.1													
K.3.2													
N.1.1	980	1.0	0.0015	0.0019	0.0029	0.0036	0.0050	0.0053	0.0060	0.0069	●	○	○
N.1.2	980	1.0	0.0015	0.0019	0.0029	0.0036	0.0050	0.0053	0.0060	0.0069	●	○	○
N.2.1	590	1.0	0.0012	0.0015	0.0025	0.0031	0.0044	0.0047	0.0054	0.0062	●	○	○
N.2.2	590	1.0	0.0012	0.0015	0.0025	0.0031	0.0044	0.0047	0.0054	0.0062	●	○	○
N.2.3	390	1.0	0.0012	0.0015	0.0025	0.0031	0.0044	0.0047	0.0054	0.0062	●	○	○
N.3.1	390	1.0	0.0010	0.0013	0.0020	0.0026	0.0036	0.0039	0.0044	0.0050	●	○	○
N.3.2	390	1.0	0.0010	0.0013	0.0020	0.0026	0.0036	0.0039	0.0044	0.0050	●	○	○
N.3.3	280	1.0	0.0010	0.0013	0.0020	0.0026	0.0036	0.0039	0.0044	0.0050	●	○	○
N.4.1	360	1.0	0.0012	0.0015	0.0025	0.0031	0.0044	0.0047	0.0054	0.0062	●	○	○
S.1.1													
S.1.2													
S.2.1													
S.2.2													
S.2.3													
S.3.1													
S.3.2													
S.3.3													
H.1.1													
H.1.2													
H.1.3													
H.1.4													
H.2.1													
H.3.1													
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

Cutting Data – P109 – End Milling Cutter, extra short – extra long

● 1st choice
○ suitable

			59 027 ...												
		Ø DC =	1/8–5/32"	3/16"	7/32"	1/4–9/32–5/16"	3/8"	7/16"	1/2"	9/16–5/8"	3/4"	1"			
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC			
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	Emulsion	Compressed air	MMS
P.1.1															
P.1.2															
P.1.3															
P.1.4															
P.1.5															
P.2.1															
P.2.2															
P.2.3															
P.2.4															
P.3.1															
P.3.2															
P.3.3															
P.4.1															
P.4.2															
M.1.1															
M.2.1															
M.3.1															
K.1.1															
K.1.2															
K.2.1															
K.2.2															
K.3.1															
K.3.2															
N.1.1	**1380**	1.0	0.0012	0.0015	0.0019	0.0025	0.0031	0.0038	0.0044	0.0047	0.0054	0.0062	●	○	○
N.1.2	**1380**	1.0	0.0012	0.0015	0.0019	0.0025	0.0031	0.0038	0.0044	0.0047	0.0054	0.0062	●	○	○
N.2.1	**830**	1.0	0.0011	0.0014	0.0017	0.0023	0.0029	0.0035	0.0040	0.0043	0.0049	0.0056	●	○	○
N.2.2	**830**	1.0	0.0011	0.0014	0.0017	0.0023	0.0029	0.0035	0.0040	0.0043	0.0049	0.0056	●	○	○
N.2.3	**550**	1.0	0.0011	0.0014	0.0017	0.0023	0.0029	0.0035	0.0040	0.0043	0.0049	0.0056	●	○	○
N.3.1	**550**	1.0	0.0008	0.0011	0.0013	0.0017	0.0022	0.0026	0.0031	0.0033	0.0037	0.0043	●	○	○
N.3.2	**550**	1.0	0.0008	0.0011	0.0013	0.0017	0.0022	0.0026	0.0031	0.0033	0.0037	0.0043	●	○	○
N.3.3	**390**	1.0	0.0008	0.0011	0.0013	0.0017	0.0022	0.0026	0.0031	0.0033	0.0037	0.0043	●	○	○
N.4.1	**510**	1.0	0.0011	0.0014	0.0017	0.0023	0.0029	0.0035	0.0040	0.0043	0.0049	0.0056	●	○	○
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1															
S.3.2															
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

Cutting Data – P362 – End Milling Cutter, short – extra long

			59 004 ...									
										●	1st choice	
		Ø DC =	3/16"	1/4"	3/8"	1/2"	5/8"	3/4"	1"	○	suitable	
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC			
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	Emulsion	Compressed air	MMS
P.1.1												
P.1.2												
P.1.3												
P.1.4												
P.1.5												
P.2.1												
P.2.2												
P.2.3												
P.2.4												
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1												
K.1.2												
K.2.1												
K.2.2												
K.3.1												
K.3.2												
N.1.1	**1970**	1.0	0.0015	0.0025	0.0031	0.0044	0.0047	0.0054	0.0062	●	○	○
N.1.2	**1970**	1.0	0.0015	0.0025	0.0031	0.0044	0.0047	0.0054	0.0062	●	○	○
N.2.1	**1180**	1.0	0.0014	0.0023	0.0029	0.0040	0.0043	0.0049	0.0056	●	○	○
N.2.2	**1180**	1.0	0.0014	0.0023	0.0029	0.0040	0.0043	0.0049	0.0056	●	○	○
N.2.3	**790**	1.0	0.0014	0.0023	0.0029	0.0040	0.0043	0.0049	0.0056	●	○	○
N.3.1	**790**	1.0	0.0011	0.0017	0.0022	0.0031	0.0033	0.0037	0.0043	●	○	○
N.3.2	**790**	1.0	0.0011	0.0017	0.0022	0.0031	0.0033	0.0037	0.0043	●	○	○
N.3.3	**560**	1.0	0.0011	0.0017	0.0022	0.0031	0.0033	0.0037	0.0043	●	○	○
N.4.1	**720**	1.0	0.0014	0.0023	0.0029	0.0040	0.0043	0.0049	0.0056	●	○	○
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

Cutting Data – P376 – End Milling Cutter, short – extra long

● 1st choice
○ suitable

			59 005 ...								
		Ø DC =	1/4–5/16"	3/8"	1/2"	5/8"	3/4"	1"			
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	Emulsion	Compressed air	MMS
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch			
P.1.1											
P.1.2											
P.1.3											
P.1.4											
P.1.5											
P.2.1											
P.2.2											
P.2.3											
P.2.4											
P.3.1											
P.3.2											
P.3.3											
P.4.1											
P.4.2											
M.1.1											
M.2.1											
M.3.1											
K.1.1											
K.1.2											
K.2.1											
K.2.2											
K.3.1											
K.3.2											
N.1.1	**1640**	1.0	0.0012	0.0015	0.0020	0.0022	0.0024	0.0028	●	○	○
N.1.2	**1640**	1.0	0.0012	0.0015	0.0020	0.0022	0.0024	0.0028	●	○	○
N.2.1	**980**	1.0	0.0009	0.0012	0.0017	0.0018	0.0020	0.0023	●	○	○
N.2.2	**980**	1.0	0.0009	0.0012	0.0017	0.0018	0.0020	0.0023	●	○	○
N.2.3	**690**	1.0	0.0009	0.0012	0.0017	0.0018	0.0020	0.0023	●	○	○
N.3.1	**690**	1.0	0.0009	0.0012	0.0017	0.0018	0.0020	0.0023	●	○	○
N.3.2	**690**	1.0	0.0009	0.0012	0.0017	0.0018	0.0020	0.0023	●	○	○
N.3.3	**490**	1.0	0.0009	0.0012	0.0017	0.0018	0.0020	0.0023	●	○	○
N.4.1	**660**	1.0	0.0009	0.0012	0.0017	0.0018	0.0020	0.0023	●	○	○
S.1.1											
S.1.2											
S.2.1											
S.2.2											
S.2.3											
S.3.1											
S.3.2											
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1											
O.1.2											
O.2.1											
O.2.2											
O.3.1											

Cutting Data – S642 – End Milling Cutter, extra short – extra long

			59 068... / 59 069 ...												
		Ø DC =	1/16"	3/32"	1/8–5/32"	3/16"	7/32"	1/4–9/32–5/16"	3/8"	1/2"	5/8"	3/4"	1"	● 1st choice ○ suitable		
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC			
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	Emulsion	Compressed air	MMS
P.1.1	**220**	1.0	0.0006	0.0007	0.0008	0.0010	0.0011	0.0014	0.0017	0.0023	0.0024	0.0027	0.0031	●	○	○
P.1.2	**180**	1.0	0.0004	0.0005	0.0007	0.0008	0.0009	0.0012	0.0015	0.0020	0.0022	0.0024	0.0028	●	○	○
P.1.3	**180**	1.0	0.0004	0.0005	0.0007	0.0008	0.0009	0.0012	0.0015	0.0020	0.0022	0.0024	0.0028	●	○	○
P.1.4	**160**	1.0	0.0004	0.0005	0.0007	0.0008	0.0009	0.0012	0.0015	0.0020	0.0022	0.0024	0.0028	●	○	○
P.1.5	**160**	1.0	0.0004	0.0005	0.0007	0.0008	0.0009	0.0012	0.0015	0.0020	0.0022	0.0024	0.0028	●	○	○
P.2.1	**180**	1.0	0.0004	0.0005	0.0007	0.0008	0.0009	0.0012	0.0015	0.0020	0.0022	0.0024	0.0028	●	○	○
P.2.2	**140**	1.0	0.0004	0.0005	0.0007	0.0008	0.0009	0.0012	0.0015	0.0020	0.0022	0.0024	0.0028	●	○	○
P.2.3	**140**	1.0	0.0004	0.0005	0.0007	0.0008	0.0009	0.0012	0.0015	0.0020	0.0022	0.0024	0.0028	●	○	○
P.2.4	**110**	1.0	0.0004	0.0005	0.0007	0.0008	0.0009	0.0012	0.0015	0.0020	0.0022	0.0024	0.0028	●	○	○
P.3.1																
P.3.2																
P.3.3																
P.4.1	**98**	1.0	0.0003	0.0004	0.0006	0.0007	0.0008	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●		
P.4.2	**79**	1.0	0.0003	0.0004	0.0006	0.0007	0.0008	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●		
M.1.1	**79**	1.0	0.0003	0.0004	0.0006	0.0007	0.0008	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●		
M.2.1	**98**	1.0	0.0003	0.0004	0.0006	0.0007	0.0008	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●		
M.3.1	**98**	1.0	0.0003	0.0004	0.0006	0.0007	0.0008	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●		
K.1.1	**260**	1.0	0.0009	0.0011	0.0013	0.0016	0.0018	0.0023	0.0028	0.0037	0.0039	0.0044	0.0050	●	○	○
K.1.2	**240**	1.0	0.0009	0.0011	0.0013	0.0016	0.0018	0.0023	0.0028	0.0037	0.0039	0.0044	0.0050	●	○	○
K.2.1	**260**	1.0	0.0006	0.0008	0.0009	0.0011	0.0013	0.0016	0.0019	0.0025	0.0026	0.0030	0.0033	●	○	○
K.2.2	**240**	1.0	0.0006	0.0008	0.0009	0.0011	0.0013	0.0016	0.0019	0.0025	0.0026	0.0030	0.0033	●	○	○
K.3.1	**260**	1.0	0.0009	0.0011	0.0013	0.0016	0.0018	0.0023	0.0028	0.0037	0.0039	0.0044	0.0050	●	○	○
K.3.2	**240**	1.0	0.0009	0.0011	0.0013	0.0016	0.0018	0.0023	0.0028	0.0037	0.0039	0.0044	0.0050	●	○	○
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
N.3.1	**390**	1.0	0.0006	0.0008	0.0010	0.0012	0.0014	0.0018	0.0022	0.0030	0.0031	0.0035	0.0040	●	○	○
N.3.2	**390**	1.0	0.0006	0.0008	0.0010	0.0012	0.0014	0.0018	0.0022	0.0030	0.0031	0.0035	0.0040	●	○	○
N.3.3	**280**	1.0	0.0006	0.0008	0.0010	0.0012	0.0014	0.0018	0.0022	0.0030	0.0031	0.0035	0.0040	●	○	○
N.4.1																
S.1.1	**59**	1.0	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.1.2	**59**	1.0	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.2.1	**59**	1.0	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.2.2	**59**	1.0	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.2.3	**59**	1.0	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.3.1	**98**	1.0	0.0003	0.0004	0.0006	0.0007	0.0008	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●		
S.3.2	**39**	1.0	0.0003	0.0004	0.0006	0.0007	0.0008	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●		
S.3.3																
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

Cutting Data – S643 – End-Milling-Cutter, extra short – extra long

			59 070... / 59 071 ...											●	1st choice	
		Ø DC =	1/16–5/64"	3/32"	1/8–5/32"	3/16"	7/32"	1/4–9/32–5/16"	3/8"	1/2"	5/8"	3/4"	1"	○	suitable	
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC			
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	Emulsion	Compressed air	MMS
P.1.1	220	1.0	0.0004	0.0005	0.0007	0.0008	0.0009	0.0012	0.0015	0.0020	0.0022	0.0024	0.0028	●	○	○
P.1.2	180	1.0	0.0003	0.0004	0.0006	0.0007	0.0008	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.1.3	180	1.0	0.0003	0.0004	0.0006	0.0007	0.0008	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.1.4	160	1.0	0.0003	0.0004	0.0006	0.0007	0.0008	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.1.5	160	1.0	0.0003	0.0004	0.0006	0.0007	0.0008	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.1	180	1.0	0.0003	0.0004	0.0006	0.0007	0.0008	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.2	140	1.0	0.0003	0.0004	0.0006	0.0007	0.0008	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.3	140	1.0	0.0003	0.0004	0.0006	0.0007	0.0008	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.4	110	1.0	0.0003	0.0004	0.0006	0.0007	0.0008	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.3.1																
P.3.2																
P.3.3																
P.4.1	100	1.0	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
P.4.2	80	1.0	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
M.1.1	79	1.0	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
M.2.1	98	1.0	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
M.3.1	98	1.0	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
K.1.1	260	1.0	0.0007	0.0009	0.0011	0.0013	0.0015	0.0020	0.0024	0.0033	0.0035	0.0039	0.0045	●	○	○
K.1.2	240	1.0	0.0007	0.0009	0.0011	0.0013	0.0015	0.0020	0.0024	0.0033	0.0035	0.0039	0.0045	●	○	○
K.2.1	260	1.0	0.0006	0.0007	0.0008	0.0010	0.0011	0.0014	0.0017	0.0023	0.0024	0.0027	0.0031	●	○	○
K.2.2	240	1.0	0.0006	0.0007	0.0008	0.0010	0.0011	0.0014	0.0017	0.0023	0.0024	0.0027	0.0031	●	○	○
K.3.1	260	1.0	0.0007	0.0009	0.0011	0.0013	0.0015	0.0020	0.0024	0.0033	0.0035	0.0039	0.0045	●	○	○
K.3.2	240	1.0	0.0007	0.0009	0.0011	0.0013	0.0015	0.0020	0.0024	0.0033	0.0035	0.0039	0.0045	●	○	○
N.1.1																
N.1.2																
N.2.1																
N.2.2																
N.2.3																
N.3.1	390	1.0	0.0004	0.0006	0.0007	0.0010	0.0012	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
N.3.2	390	1.0	0.0004	0.0006	0.0007	0.0010	0.0012	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
N.3.3	280	1.0	0.0004	0.0006	0.0007	0.0010	0.0012	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
N.4.1																
S.1.1	59	1.0	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.1.2	59	1.0	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.2.1	59	1.0	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.2.2	59	1.0	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.2.3	59	1.0	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.3.1	98	1.0	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.3.2	39	1.0	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.3.3																
H.1.1																
H.1.2																
H.1.3																
H.1.4																
H.2.1																
H.3.1																
O.1.1																
O.1.2																
O.2.1																
O.2.2																
O.3.1																

Cutting Data – S644 – End Milling Cutter, extra short – extra long

			59 043... / 59 044 ... / 59 072... / 59 073 ...														
		Ø DC =	1/32"	3/64"	1/16–5/64"	3/32–7/64"	1/8–5/32"	3/16"	7/32"	1/4–9/32–5/16"	3/8"	1/2"	5/8"	3/4"	1"	● 1st choice ○ suitable		
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC			
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	Emulsion	Compressed air	MMS
P.1.1	450	1.0	0.0003	0.0003	0.0005	0.0007	0.0009	0.0012	0.0014	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
P.1.2	430	1.0	0.0003	0.0003	0.0005	0.0007	0.0009	0.0012	0.0014	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
P.1.3	430	1.0	0.0003	0.0003	0.0005	0.0007	0.0009	0.0012	0.0014	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
P.1.4	410	1.0	0.0003	0.0003	0.0005	0.0007	0.0009	0.0012	0.0014	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
P.1.5	410	1.0	0.0003	0.0003	0.0005	0.0007	0.0009	0.0012	0.0014	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
P.2.1	430	1.0	0.0003	0.0003	0.0005	0.0007	0.0009	0.0012	0.0014	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
P.2.2	410	1.0	0.0002	0.0002	0.0004	0.0006	0.0007	0.0010	0.0012	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.2.3	390	1.0	0.0003	0.0003	0.0005	0.0007	0.0009	0.0012	0.0014	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
P.2.4	370	1.0	0.0002	0.0002	0.0004	0.0006	0.0007	0.0010	0.0012	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.3.1	390	1.0	0.0003	0.0003	0.0005	0.0007	0.0009	0.0012	0.0014	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
P.3.2	370	1.0	0.0003	0.0003	0.0005	0.0007	0.0009	0.0012	0.0014	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
P.3.3	310	1.0	0.0003	0.0003	0.0005	0.0007	0.0009	0.0012	0.0014	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
P.4.1	220	1.0	0.0000	0.0000	0.0002	0.0003	0.0005	0.0006	0.0007	0.0010	0.0013	0.0019	0.0020	0.0023	0.0026	●		
P.4.2	180	1.0	0.0000	0.0000	0.0002	0.0003	0.0005	0.0006	0.0007	0.0010	0.0013	0.0019	0.0020	0.0023	0.0026	●		
M.1.1	220	1.0	0.0000	0.0000	0.0002	0.0003	0.0005	0.0006	0.0007	0.0010	0.0013	0.0019	0.0020	0.0023	0.0026	●		
M.2.1	220	1.0	0.0000	0.0000	0.0002	0.0003	0.0005	0.0006	0.0007	0.0010	0.0013	0.0019	0.0020	0.0023	0.0026	●		
M.3.1	220	1.0	0.0000	0.0000	0.0002	0.0003	0.0005	0.0006	0.0007	0.0010	0.0013	0.0019	0.0020	0.0023	0.0026	●		
K.1.1	430	1.0	0.0003	0.0003	0.0006	0.0009	0.0012	0.0015	0.0019	0.0025	0.0031	0.0044	0.0047	0.0054	0.0062	●	○	○
K.1.2	390	1.0	0.0003	0.0003	0.0006	0.0009	0.0012	0.0015	0.0019	0.0025	0.0031	0.0044	0.0047	0.0054	0.0062	●	○	○
K.2.1	410	1.0	0.0003	0.0003	0.0005	0.0007	0.0009	0.0012	0.0014	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
K.2.2	370	1.0	0.0003	0.0003	0.0005	0.0007	0.0009	0.0012	0.0014	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
K.3.1	390	1.0	0.0003	0.0003	0.0005	0.0007	0.0009	0.0012	0.0014	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
K.3.2	350	1.0	0.0003	0.0003	0.0005	0.0007	0.0009	0.0012	0.0014	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
N.1.1																		
N.1.2																		
N.2.1																		
N.2.2																		
N.2.3																		
N.3.1	690	1.0	0.0003	0.0003	0.0006	0.0009	0.0012	0.0015	0.0019	0.0025	0.0031	0.0044	0.0047	0.0054	0.0062	●	○	○
N.3.2	690	1.0	0.0003	0.0003	0.0006	0.0009	0.0012	0.0015	0.0019	0.0025	0.0031	0.0044	0.0047	0.0054	0.0062	●	○	○
N.3.3	550	1.0	0.0003	0.0003	0.0006	0.0009	0.0012	0.0015	0.0019	0.0025	0.0031	0.0044	0.0047	0.0054	0.0062	●	○	○
N.4.1																		
S.1.1	59	1.0	0.0001	0.0001	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.1.2	59	1.0	0.0001	0.0001	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.2.1	59	1.0	0.0001	0.0001	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.2.2	59	1.0	0.0001	0.0001	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.2.3	59	1.0	0.0001	0.0001	0.0002	0.0003	0.0004	0.0005	0.0006	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.3.1	180	1.0	0.0002	0.0002	0.0004	0.0006	0.0007	0.0010	0.0012	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●		
S.3.2																		
S.3.3																		
H.1.1																		
H.1.2																		
H.1.3																		
H.1.4																		
H.2.1																		
H.3.1																		
O.1.1																		
O.1.2																		
O.2.1																		
O.2.2																		
O.3.1																		

Cutting Data – P645 – End Milling Cutter, short – extra long

			59 074 ... / 59 075 ...											
		Ø DC =	1/8–5/32"	3/16"	7/32"	1/4–5/16"	3/8"	1/2"	5/8"	3/4"	1"	●	1st choice	
												○	suitable	
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	Emulsion	Compressed air	MMS
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch			
P.1.1	410	1.0	0.0007	0.0010	0.0012	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.1.2	390	1.0	0.0007	0.0010	0.0012	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.1.3	390	1.0	0.0007	0.0010	0.0012	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.1.4	370	1.0	0.0007	0.0010	0.0012	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.1.5	370	1.0	0.0007	0.0010	0.0012	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.2.1	390	1.0	0.0007	0.0010	0.0012	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.2.2	370	1.0	0.0006	0.0007	0.0009	0.0012	0.0015	0.0022	0.0023	0.0026	0.0030	●	○	○
P.2.3	350	1.0	0.0007	0.0010	0.0012	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.2.4	330	1.0	0.0006	0.0007	0.0009	0.0012	0.0015	0.0022	0.0023	0.0026	0.0030	●	○	○
P.3.1	350	1.0	0.0007	0.0010	0.0012	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.3.2	330	1.0	0.0007	0.0010	0.0012	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.3.3	280	1.0	0.0007	0.0010	0.0012	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.4.1	200	1.0	0.0005	0.0006	0.0007	0.0010	0.0013	0.0019	0.0020	0.0023	0.0026	●		
P.4.2	160	1.0	0.0005	0.0006	0.0007	0.0010	0.0013	0.0019	0.0020	0.0023	0.0026	●		
M.1.1	200	1.0	0.0005	0.0006	0.0007	0.0010	0.0013	0.0019	0.0020	0.0023	0.0026	●		
M.2.1	200	1.0	0.0005	0.0006	0.0007	0.0010	0.0013	0.0019	0.0020	0.0023	0.0026	●		
M.3.1	200	1.0	0.0005	0.0006	0.0007	0.0010	0.0013	0.0019	0.0020	0.0023	0.0026	●		
K.1.1	390	1.0	0.0009	0.0012	0.0014	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
K.1.2	350	1.0	0.0009	0.0012	0.0014	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
K.2.1	370	1.0	0.0007	0.0010	0.0012	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
K.2.2	330	1.0	0.0007	0.0010	0.0012	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
K.3.1	350	1.0	0.0007	0.0010	0.0012	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
K.3.2	310	1.0	0.0007	0.0010	0.0012	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
N.1.1														
N.1.2														
N.2.1														
N.2.2														
N.2.3														
N.3.1														
N.3.2														
N.3.3														
N.4.1														
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1														
S.3.2														
S.3.3														
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

Cutting Data – P007 – High Performance End Milling Cutter, short – extra long

● 1st choice
○ suitable

			59 002 ...										
		Ø DC =	1/8"	3/16"	1/4–5/16"	3/8"	1/2"	5/8"	3/4"	1"			
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC			
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	Emulsion	Compressed air	MMS
P.1.1	**750**	1.0	0.0009	0.0012	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
P.1.2	**720**	1.0	0.0009	0.0012	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
P.1.3	**720**	1.0	0.0009	0.0012	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
P.1.4	**690**	1.0	0.0009	0.0012	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
P.1.5	**690**	1.0	0.0009	0.0012	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
P.2.1	**720**	1.0	0.0009	0.0012	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
P.2.2	**690**	1.0	0.0007	0.0010	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.2.3	**660**	1.0	0.0009	0.0012	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
P.2.4	**620**	1.0	0.0007	0.0010	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.3.1	**660**	1.0	0.0009	0.0012	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
P.3.2	**620**	1.0	0.0009	0.0012	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
P.3.3	**520**	1.0	0.0009	0.0012	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
P.4.1	**360**	1.0	0.0005	0.0006	0.0010	0.0013	0.0019	0.0020	0.0023	0.0026	●		
P.4.2	**300**	1.0	0.0005	0.0006	0.0010	0.0013	0.0019	0.0020	0.0023	0.0026	●		
M.1.1	**360**	1.0	0.0005	0.0006	0.0010	0.0013	0.0019	0.0020	0.0023	0.0026	●		
M.2.1	**360**	1.0	0.0005	0.0006	0.0010	0.0013	0.0019	0.0020	0.0023	0.0026	●		
M.3.1	**360**	1.0	0.0005	0.0006	0.0010	0.0013	0.0019	0.0020	0.0023	0.0026	●		
K.1.1	**720**	1.0	0.0012	0.0015	0.0025	0.0031	0.0044	0.0047	0.0054	0.0062	●	○	○
K.1.2	**660**	1.0	0.0012	0.0015	0.0025	0.0031	0.0044	0.0047	0.0054	0.0062	●	○	○
K.2.1	**690**	1.0	0.0009	0.0012	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
K.2.2	**620**	1.0	0.0009	0.0012	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
K.3.1	**660**	1.0	0.0009	0.0012	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
K.3.2	**590**	1.0	0.0009	0.0012	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1	**1150**	1.0	0.0012	0.0015	0.0025	0.0031	0.0044	0.0047	0.0054	0.0062	●	○	○
N.3.2	**1150**	1.0	0.0012	0.0015	0.0025	0.0031	0.0044	0.0047	0.0054	0.0062	●	○	○
N.3.3	**920**	1.0	0.0012	0.0015	0.0025	0.0031	0.0044	0.0047	0.0054	0.0062	●	○	○
N.4.1													
S.1.1	**98**	1.0	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.1.2	**98**	1.0	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.2.1	**98**	1.0	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.2.2	**98**	1.0	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.2.3	**98**	1.0	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.3.1	**300**	1.0	0.0007	0.0010	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●		
S.3.2													
S.3.3													
H.1.1													
H.1.2													
H.1.3													
H.1.4													
H.2.1													
H.3.1													
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

Cutting Data – P556 – High Performance End milling cutter, short – extra long

			59 006 ...								
		Ø DC =	1/4"	3/8"	1/2"	5/8"	3/4"	1"	●	1st choice	
									○	suitable	
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	Emulsion	Compressed air	MMS
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch			
P.1.1	**690**	1.0	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.1.2	**660**	1.0	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.1.3	**660**	1.0	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.1.4	**620**	1.0	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.1.5	**620**	1.0	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.2.1	**660**	1.0	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.2.2	**620**	1.0	0.0012	0.0015	0.0022	0.0023	0.0026	0.0030	●	○	○
P.2.3	**590**	1.0	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.2.4	**560**	1.0	0.0012	0.0015	0.0022	0.0023	0.0026	0.0030	●	○	○
P.3.1	**590**	1.0	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.3.2	**560**	1.0	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.3.3	**460**	1.0	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.4.1	**330**	1.0	0.0010	0.0013	0.0019	0.0020	0.0023	0.0026	●		
P.4.2	**260**	1.0	0.0010	0.0013	0.0019	0.0020	0.0023	0.0026	●		
M.1.1	**330**	1.0	0.0010	0.0013	0.0019	0.0020	0.0023	0.0026	●		
M.2.1	**330**	1.0	0.0010	0.0013	0.0019	0.0020	0.0023	0.0026	●		
M.3.1	**330**	1.0	0.0010	0.0013	0.0019	0.0020	0.0023	0.0026	●		
K.1.1	**660**	1.0	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
K.1.2	**590**	1.0	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
K.2.1	**620**	1.0	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
K.2.2	**560**	1.0	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
K.3.1	**590**	1.0	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
K.3.2	**520**	1.0	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
N.1.1											
N.1.2											
N.2.1											
N.2.2											
N.2.3											
N.3.1											
N.3.2											
N.3.3											
N.4.1											
S.1.1	**180**	1.0	0.0012	0.0015	0.0022	0.0023	0.0026	0.0030	●		
S.1.2	**180**	1.0	0.0012	0.0015	0.0022	0.0023	0.0026	0.0030	●		
S.2.1	**180**	1.0	0.0012	0.0015	0.0022	0.0023	0.0026	0.0030	●		
S.2.2	**180**	1.0	0.0012	0.0015	0.0022	0.0023	0.0026	0.0030	●		
S.2.3	**180**	1.0	0.0012	0.0015	0.0022	0.0023	0.0026	0.0030	●		
S.3.1	**390**	1.0	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●		
S.3.2	**260**	1.0	0.0012	0.0015	0.0022	0.0023	0.0026	0.0030	●		
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1											
O.1.2											
O.2.1											
O.2.2											
O.3.1											

Cutting Data – P160 / P161 – Multi-flute milling cutter, short – extra long

			59 041 ... / 59 042 ...								
		Ø DC =	1/4"	3/8"	1/2"	5/8"	3/4"	1"	●	1st choice	
									○	suitable	
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC			
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	Emulsion	Compressed air	MMS
P.1.1	850	1.0	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.1.2	820	1.0	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.1.3	820	1.0	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.1.4	750	1.0	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.1.5	750	1.0	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.2.1	820	1.0	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.2.2	750	1.0	0.0012	0.0015	0.0022	0.0023	0.0026	0.0030	●	○	○
P.2.3	720	1.0	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.2.4	690	1.0	0.0012	0.0015	0.0022	0.0023	0.0026	0.0030	●	○	○
P.3.1	720	1.0	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.3.2	690	1.0	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.3.3	570	1.0	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
P.4.1	390	1.0	0.0010	0.0013	0.0019	0.0020	0.0023	0.0026	●		
P.4.2	330	1.0	0.0010	0.0013	0.0019	0.0020	0.0023	0.0026	●		
M.1.1	390	1.0	0.0010	0.0013	0.0019	0.0020	0.0023	0.0026	●		
M.2.1	390	1.0	0.0010	0.0013	0.0019	0.0020	0.0023	0.0026	●		
M.3.1	390	1.0	0.0010	0.0013	0.0019	0.0020	0.0023	0.0026	●		
K.1.1	820	1.0	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
K.1.2	720	1.0	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
K.2.1	750	1.0	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
K.2.2	690	1.0	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
K.3.1	720	1.0	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
K.3.2	660	1.0	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●	○	○
N.1.1											
N.1.2											
N.2.1											
N.2.2											
N.2.3											
N.3.1	1410	1.0	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
N.3.2	1410	1.0	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
N.3.3	1150	1.0	0.0019	0.0023	0.0032	0.0034	0.0039	0.0044	●	○	○
N.4.1											
S.1.1	130	1.0	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.1.2	130	1.0	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.2.1	130	1.0	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.2.2	130	1.0	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.2.3	130	1.0	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.3.1	660	1.0	0.0016	0.0020	0.0028	0.0030	0.0033	0.0039	●		
S.3.2	410	1.0	0.0010	0.0013	0.0019	0.0020	0.0023	0.0026	●		
S.3.3											
H.1.1											
H.1.2											
H.1.3											
H.1.4											
H.2.1											
H.3.1											
O.1.1											
O.1.2											
O.2.1											
O.2.2											
O.3.1											

Cutting Data – P130 – Chamfer milling cutter

			59 029 ... / 59 030 ...												
		Ø DC =	1/8–5/32"	3/16"	7/32"	1/4–3/32 –5/16"	3/8"	7/16"	1/2"	3/16–5/8"	3/4"	1"	● 1st choice ○ suitable		
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC			
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	Emulsion	Compressed air	MMS
P.1.1															
P.1.2															
P.1.3															
P.1.4															
P.1.5															
P.2.1															
P.2.2															
P.2.3															
P.2.4															
P.3.1															
P.3.2															
P.3.3															
P.4.1															
P.4.2															
M.1.1															
M.2.1															
M.3.1															
K.1.1															
K.1.2															
K.2.1															
K.2.2															
K.3.1															
K.3.2															
N.1.1	**1970**	1.0	0.0012	0.0015	0.0019	0.0025	0.0031	0.0038	0.0044	0.0047	0.0054	0.0062	●	○	○
N.1.2	**1970**	1.0	0.0012	0.0015	0.0019	0.0025	0.0031	0.0038	0.0044	0.0047	0.0054	0.0062	●	○	○
N.2.1	**1180**	1.0	0.0011	0.0014	0.0017	0.0023	0.0029	0.0035	0.0040	0.0043	0.0049	0.0056	●	○	○
N.2.2	**1180**	1.0	0.0011	0.0014	0.0017	0.0023	0.0029	0.0035	0.0040	0.0043	0.0049	0.0056	●	○	○
N.2.3	**790**	1.0	0.0011	0.0014	0.0017	0.0023	0.0029	0.0035	0.0040	0.0043	0.0049	0.0056	●	○	○
N.3.1	**790**	1.0	0.0008	0.0011	0.0013	0.0017	0.0022	0.0026	0.0031	0.0033	0.0037	0.0043	●	○	○
N.3.2	**790**	1.0	0.0008	0.0011	0.0013	0.0017	0.0022	0.0026	0.0031	0.0033	0.0037	0.0043	●	○	○
N.3.3	**560**	1.0	0.0008	0.0011	0.0013	0.0017	0.0022	0.0026	0.0031	0.0033	0.0037	0.0043	●	○	○
N.4.1	**720**	1.0	0.0011	0.0014	0.0017	0.0023	0.0029	0.0035	0.0040	0.0043	0.0049	0.0056	●	○	○
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1															
S.3.2															
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

Cutting Data – P117 – Rough-Finishing Cutter with corner radius, short – long

			59 028 ...										
		Ø DC =	1/8"	3/16"	1/4–5/16"	3/8"	7/16"	1/2"	5/8"	3/4"			
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC			
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	Emulsion	Compressed air	MMS
P.1.1	**360**	1.0	0.0007	0.0008	0.0012	0.0015	0.0018	0.0020	0.0022	0.0024	●	○	○
P.1.2	**300**	1.0	0.0006	0.0007	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	●	○	○
P.1.3	**300**	1.0	0.0006	0.0007	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	●	○	○
P.1.4	**260**	1.0	0.0006	0.0007	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	●	○	○
P.1.5	**260**	1.0	0.0006	0.0007	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	●	○	○
P.2.1	**300**	1.0	0.0006	0.0007	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	●	○	○
P.2.2	**230**	1.0	0.0006	0.0007	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	●	○	○
P.2.3	**230**	1.0	0.0006	0.0007	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	●	○	○
P.2.4	**180**	1.0	0.0006	0.0007	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	●	○	○
P.3.1													
P.3.2													
P.3.3													
P.4.1	**160**	1.0	0.0004	0.0005	0.0008	0.0010	0.0012	0.0014	0.0015	0.0017	●		
P.4.2	**130**	1.0	0.0004	0.0005	0.0008	0.0010	0.0012	0.0014	0.0015	0.0017	●		
M.1.1	**130**	1.0	0.0004	0.0005	0.0008	0.0010	0.0012	0.0014	0.0015	0.0017	●		
M.2.1	**160**	1.0	0.0004	0.0005	0.0008	0.0010	0.0012	0.0014	0.0015	0.0017	●		
M.3.1	**160**	1.0	0.0004	0.0005	0.0008	0.0010	0.0012	0.0014	0.0015	0.0017	●		
K.1.1	**430**	1.0	0.0011	0.0013	0.0020	0.0024	0.0028	0.0033	0.0035	0.0039	●	○	○
K.1.2	**400**	1.0	0.0011	0.0013	0.0020	0.0024	0.0028	0.0033	0.0035	0.0039	●	○	○
K.2.1	**420**	1.0	0.0008	0.0010	0.0014	0.0017	0.0020	0.0023	0.0024	0.0027	●	○	○
K.2.2	**400**	1.0	0.0008	0.0010	0.0014	0.0017	0.0020	0.0023	0.0024	0.0027	●	○	○
K.3.1	**430**	1.0	0.0011	0.0013	0.0020	0.0024	0.0028	0.0033	0.0035	0.0039	●	○	○
K.3.2	**400**	1.0	0.0011	0.0013	0.0020	0.0024	0.0028	0.0033	0.0035	0.0039	●	○	○
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1	**660**	1.0	0.0007	0.0010	0.0016	0.0020	0.0024	0.0028	0.0030	0.0033	●	○	○
N.3.2	**660**	1.0	0.0007	0.0010	0.0016	0.0020	0.0024	0.0028	0.0030	0.0033	●	○	○
N.3.3	**460**	1.0	0.0007	0.0010	0.0016	0.0020	0.0024	0.0028	0.0030	0.0033	●	○	○
N.4.1													
S.1.1	**98**	1.0	0.0004	0.0005	0.0008	0.0010	0.0012	0.0014	0.0015	0.0017	●		
S.1.2	**98**	1.0	0.0004	0.0005	0.0008	0.0010	0.0012	0.0014	0.0015	0.0017	●		
S.2.1	**98**	1.0	0.0004	0.0005	0.0008	0.0010	0.0012	0.0014	0.0015	0.0017	●		
S.2.2	**98**	1.0	0.0004	0.0005	0.0008	0.0010	0.0012	0.0014	0.0015	0.0017	●		
S.2.3	**98**	1.0	0.0004	0.0005	0.0008	0.0010	0.0012	0.0014	0.0015	0.0017	●		
S.3.1	**160**	1.0	0.0004	0.0005	0.0008	0.0010	0.0012	0.0014	0.0015	0.0017	●		
S.3.2	**66**	1.0	0.0004	0.0005	0.0008	0.0010	0.0012	0.0014	0.0015	0.0017	●		
S.3.3													
H.1.1													
H.1.2													
H.1.3													
H.1.4													
H.2.1													
H.3.1													
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

● 1st choice
○ suitable

Cutting Data – P120 – Roughing-Finishing cutter with corner radius, extra short – extra long

			59 031 ... / 59 032 ...												
		Ø DC =	1/8–5/32"	3/16"	7/32"	1/4–9/32", 5/16"	11/32–3/8"	7/16"	1/2"	9/16–5/8"	3/4"	1"	●	1st choice	
													○	suitable	
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC			
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	Emulsion	Compressed air	MMS
P.1.1	**310**	1.0	0.0007	0.0008	0.0009	0.0012	0.0015	0.0018	0.0020	0.0022	0.0024	0.0028	●	○	○
P.1.2	**260**	1.0	0.0006	0.0007	0.0008	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	0.0025	●	○	○
P.1.3	**260**	1.0	0.0006	0.0007	0.0008	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	0.0025	●	○	○
P.1.4	**230**	1.0	0.0006	0.0007	0.0008	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	0.0025	●	○	○
P.1.5	**230**	1.0	0.0006	0.0007	0.0008	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.1	**250**	1.0	0.0006	0.0007	0.0008	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.2	**200**	1.0	0.0006	0.0007	0.0008	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.3	**200**	1.0	0.0006	0.0007	0.0008	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.4	**180**	1.0	0.0006	0.0007	0.0008	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	0.0025	●	○	○
P.3.1															
P.3.2															
P.3.3															
P.4.1															
P.4.2															
M.1.1															
M.2.1															
M.3.1															
K.1.1	**390**	1.0	0.0011	0.0013	0.0015	0.0020	0.0024	0.0028	0.0033	0.0035	0.0039	0.0045	●	○	○
K.1.2	**330**	1.0	0.0011	0.0013	0.0015	0.0020	0.0024	0.0028	0.0033	0.0035	0.0039	0.0045	●	○	○
K.2.1	**390**	1.0	0.0008	0.0010	0.0011	0.0014	0.0017	0.0020	0.0023	0.0024	0.0027	0.0031	●	○	○
K.2.2	**330**	1.0	0.0008	0.0010	0.0011	0.0014	0.0017	0.0020	0.0023	0.0024	0.0027	0.0031	●	○	○
K.3.1	**390**	1.0	0.0011	0.0013	0.0015	0.0020	0.0024	0.0028	0.0033	0.0035	0.0039	0.0045	●	○	○
K.3.2	**330**	1.0	0.0011	0.0013	0.0015	0.0020	0.0024	0.0028	0.0033	0.0035	0.0039	0.0045	●	○	○
N.1.1															
N.1.2															
N.2.1															
N.2.2															
N.2.3															
N.3.1															
N.3.2															
N.3.3															
N.4.1															
S.1.1															
S.1.2															
S.2.1															
S.2.2															
S.2.3															
S.3.1															
S.3.2															
S.3.3															
H.1.1															
H.1.2															
H.1.3															
H.1.4															
H.2.1															
H.3.1															
O.1.1															
O.1.2															
O.2.1															
O.2.2															
O.3.1															

Cutting Data – P121 – Roughing-Finishing cutter with corner radius, short – extra long

● 1st choice
○ suitable

			59 035 ...				
		Ø DC =	3/4"	1"			
			a_e 1 x DC	a_e 1 x DC			
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	Emulsion	Compressed air	MMS
P.1.1	**480**	1.0	0.0033	0.0039	●	○	○
P.1.2	**460**	1.0	0.0033	0.0039	●	○	○
P.1.3	**460**	1.0	0.0033	0.0039	●	○	○
P.1.4	**440**	1.0	0.0033	0.0039	●	○	○
P.1.5	**440**	1.0	0.0033	0.0039	●	○	○
P.2.1	**460**	1.0	0.0033	0.0039	●	○	○
P.2.2	**440**	1.0	0.0026	0.0030	●	○	○
P.2.3	**410**	1.0	0.0033	0.0039	●	○	○
P.2.4	**390**	1.0	0.0026	0.0030	●	○	○
P.3.1	**410**	1.0	0.0033	0.0039	●	○	○
P.3.2	**390**	1.0	0.0033	0.0039	●	○	○
P.3.3	**320**	1.0	0.0033	0.0039	●	○	○
P.4.1	**230**	1.0	0.0023	0.0026	●		
P.4.2	**180**	1.0	0.0023	0.0026	●		
M.1.1	**230**	1.0	0.0023	0.0026	●		
M.2.1	**230**	1.0	0.0023	0.0026	●		
M.3.1	**230**	1.0	0.0023	0.0026	●		
K.1.1	**460**	1.0	0.0039	0.0044	●	○	○
K.1.2	**410**	1.0	0.0039	0.0044	●	○	○
K.2.1	**440**	1.0	0.0033	0.0039	●	○	○
K.2.2	**390**	1.0	0.0033	0.0039	●	○	○
K.3.1	**410**	1.0	0.0033	0.0039	●	○	○
K.3.2	**370**	1.0	0.0033	0.0039	●	○	○
N.1.1							
N.1.2							
N.2.1							
N.2.2							
N.2.3							
N.3.1							
N.3.2							
N.3.3							
N.4.1							
S.1.1	**130**	1.0	0.0026	0.0030	●		
S.1.2	**130**	1.0	0.0026	0.0030	●		
S.2.1	**130**	1.0	0.0026	0.0030	●		
S.2.2	**130**	1.0	0.0026	0.0030	●		
S.2.3	**130**	1.0	0.0026	0.0030	●		
S.3.1	**280**	1.0	0.0039	0.0044	●		
S.3.2	**180**	1.0	0.0026	0.0030	●		
S.3.3							
H.1.1							
H.1.2							
H.1.3							
H.1.4							
H.2.1							
H.3.1							
O.1.1							
O.1.2							
O.2.1							
O.2.2							
O.3.1							

Cutting Data – P102 –Rough milling cutter with corner radius, short – extra long

			59 023 ... / 59 024 ... / 59 025 ... / 59 026 ...										
		Ø DC =	3/16"	1/4–5/16"	3/8"	7/16"	1/2"	3/16–5/8"	3/4"	1"	● 1st choice ○ suitable		
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC			
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	Emulsion	Compressed air	MMS
P.1.1													
P.1.2													
P.1.3													
P.1.4													
P.1.5													
P.2.1													
P.2.2													
P.2.3													
P.2.4													
P.3.1													
P.3.2													
P.3.3													
P.4.1													
P.4.2													
M.1.1													
M.2.1													
M.3.1													
K.1.1													
K.1.2													
K.2.1													
K.2.2													
K.3.1													
K.3.2													
N.1.1	1970	1.0	0.0015	0.0025	0.0031	0.0038	0.0044	0.0047	0.0054	0.0062	●	○	○
N.1.2	1970	1.0	0.0015	0.0025	0.0031	0.0038	0.0044	0.0047	0.0054	0.0062	●	○	○
N.2.1	1180	1.0	0.0014	0.0023	0.0029	0.0035	0.0040	0.0043	0.0049	0.0056	●	○	○
N.2.2	1180	1.0	0.0014	0.0023	0.0029	0.0035	0.0040	0.0043	0.0049	0.0056	●	○	○
N.2.3	790	1.0	0.0014	0.0023	0.0029	0.0035	0.0040	0.0043	0.0049	0.0056	●	○	○
N.3.1	790	1.0	0.0011	0.0017	0.0022	0.0026	0.0031	0.0033	0.0037	0.0043	●	○	○
N.3.2	790	1.0	0.0011	0.0017	0.0022	0.0026	0.0031	0.0033	0.0037	0.0043	●	○	○
N.3.3	560	1.0	0.0011	0.0017	0.0022	0.0026	0.0031	0.0033	0.0037	0.0043	●	○	○
N.4.1	720	1.0	0.0014	0.0023	0.0029	0.0035	0.0040	0.0043	0.0049	0.0056	●	○	○
S.1.1													
S.1.2													
S.2.1													
S.2.2													
S.2.3													
S.3.1													
S.3.2													
S.3.3													
H.1.1													
H.1.2													
H.1.3													
H.1.4													
H.2.1													
H.3.1													
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

Cutting Data – P190 / P191 – Rough milling cutter, short – extra long

● 1st choice
○ suitable

			59 059 ... / 59 061 ...									
		Ø DC =	3/16“	1/4–5/16"	3/8"	1/2"	5/8"	3/4"	1"			
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC			
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	Emulsion	Compressed air	MMS
P.1.1	**310**	1.0	0.0007	0.0012	0.0015	0.0020	0.0022	0.0024	0.0028	●	○	○
P.1.2	**260**	1.0	0.0006	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.1.3	**260**	1.0	0.0006	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.1.4	**230**	1.0	0.0006	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.1.5	**230**	1.0	0.0006	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.1	**250**	1.0	0.0006	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.2	**200**	1.0	0.0006	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.3	**200**	1.0	0.0006	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.4	**180**	1.0	0.0006	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.3.1												
P.3.2												
P.3.3												
P.4.1												
P.4.2												
M.1.1												
M.2.1												
M.3.1												
K.1.1	**390**	1.0	0.0011	0.0020	0.0024	0.0033	0.0035	0.0039	0.0045	●	○	○
K.1.2	**330**	1.0	0.0011	0.0020	0.0024	0.0033	0.0035	0.0039	0.0045	●	○	○
K.2.1	**390**	1.0	0.0008	0.0014	0.0017	0.0023	0.0024	0.0027	0.0031	●	○	○
K.2.2	**330**	1.0	0.0008	0.0014	0.0017	0.0023	0.0024	0.0027	0.0031	●	○	○
K.3.1	**390**	1.0	0.0011	0.0020	0.0024	0.0033	0.0035	0.0039	0.0045	●	○	○
K.3.2	**330**	1.0	0.0011	0.0020	0.0024	0.0033	0.0035	0.0039	0.0045	●	○	○
N.1.1												
N.1.2												
N.2.1												
N.2.2												
N.2.3												
N.3.1												
N.3.2												
N.3.3												
N.4.1												
S.1.1												
S.1.2												
S.2.1												
S.2.2												
S.2.3												
S.3.1												
S.3.2												
S.3.3												
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

Cutting Data – P100 – Rough milling cutter with corner radius, short – extra long

			59 011 ... / 59 012 ... / 59 013 ... / 59 014 ...										
		Ø DC =	3/16"	1/4–5/16"	3/8"	7/16"	1/2"	9/16–5/8"	3/4"	1"			
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC			
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	Emulsion	Compressed air	MMS
P.1.1	**312**	1.0	0.0008	0.0012	0.0015	0.0018	0.0020	0.0022	0.0024	0.0028	●	○	○
P.1.2	**262**	1.0	0.0007	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	0.0025	●	○	○
P.1.3	**262**	1.0	0.0007	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	0.0025	●	○	○
P.1.4	**230**	1.0	0.0007	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	0.0025	●	○	○
P.1.5	**230**	1.0	0.0007	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.1	**246**	1.0	0.0007	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.2	**197**	1.0	0.0007	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.3	**197**	1.0	0.0007	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.4	**180**	1.0	0.0007	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	0.0025	●	○	○
P.3.1													
P.3.2													
P.3.3													
P.4.1													
P.4.2													
M.1.1													
M.2.1													
M.3.1													
K.1.1	**390**	1.0	0.0013	0.0020	0.0024	0.0028	0.0033	0.0035	0.0039	0.0045	●	○	○
K.1.2	**330**	1.0	0.0013	0.0020	0.0024	0.0028	0.0033	0.0035	0.0039	0.0045	●	○	○
K.2.1	**390**	1.0	0.0010	0.0014	0.0017	0.0020	0.0023	0.0024	0.0027	0.0031	●	○	○
K.2.2	**330**	1.0	0.0010	0.0014	0.0017	0.0020	0.0023	0.0024	0.0027	0.0031	●	○	○
K.3.1	**390**	1.0	0.0013	0.0020	0.0024	0.0028	0.0033	0.0035	0.0039	0.0045	●	○	○
K.3.2	**330**	1.0	0.0013	0.0020	0.0024	0.0028	0.0033	0.0035	0.0039	0.0045	●	○	○
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1													
N.3.2													
N.3.3													
N.4.1													
S.1.1													
S.1.2													
S.2.1													
S.2.2													
S.2.3													
S.3.1													
S.3.2													
S.3.3													
H.1.1													
H.1.2													
H.1.3													
H.1.4													
H.2.1													
H.3.1													
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

● 1st choice
○ suitable

Cutting Data – P101 – Rough milling cutter with corner radius, short – extra long

			59 015 ... / 59 016 ... / 59 017 ... / 59 022 ...								● 1st choice		
		Ø DC =	3/16"	1/4–5/16"	3/8"	7/16"	1/2"	9/16–5/8"	3/4"	1"	○ suitable		
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	Emulsion	Compressed air	MMS
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch			
P.1.1	**310**	1.0	0.0008	0.0012	0.0015	0.0018	0.0020	0.0022	0.0024	0.0028	●	○	○
P.1.2	**260**	1.0	0.0007	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	0.0025	●	○	○
P.1.3	**260**	1.0	0.0007	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	0.0025	●	○	○
P.1.4	**230**	1.0	0.0007	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	0.0025	●	○	○
P.1.5	**230**	1.0	0.0007	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.1	**250**	1.0	0.0007	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.2	**200**	1.0	0.0007	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.3	**200**	1.0	0.0007	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.4	**180**	1.0	0.0007	0.0011	0.0013	0.0016	0.0018	0.0019	0.0022	0.0025	●	○	○
P.3.1													
P.3.2													
P.3.3													
P.4.1													
P.4.2													
M.1.1													
M.2.1													
M.3.1													
K.1.1	**390**	1.0	0.0013	0.0020	0.0024	0.0028	0.0033	0.0035	0.0039	0.0045	●	○	○
K.1.2	**330**	1.0	0.0013	0.0020	0.0024	0.0028	0.0033	0.0035	0.0039	0.0045	●	○	○
K.2.1	**390**	1.0	0.0010	0.0014	0.0017	0.0020	0.0023	0.0024	0.0027	0.0031	●	○	○
K.2.2	**330**	1.0	0.0010	0.0014	0.0017	0.0020	0.0023	0.0024	0.0027	0.0031	●	○	○
K.3.1	**390**	1.0	0.0013	0.0020	0.0024	0.0028	0.0033	0.0035	0.0039	0.0045	●	○	○
K.3.2	**330**	1.0	0.0013	0.0020	0.0024	0.0028	0.0033	0.0035	0.0039	0.0045	●	○	○
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1													
N.3.2													
N.3.3													
N.4.1													
S.1.1													
S.1.2													
S.2.1													
S.2.2													
S.2.3													
S.3.1													
S.3.2													
S.3.3													
H.1.1													
H.1.2													
H.1.3													
H.1.4													
H.2.1													
H.3.1													
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

Cutting Data – P662 – Ball nosed Cutter, extra short – extra long

			59 074 ... / 59 075 ...									●	1st choice	
		Ø DC =	1/16"	1/8"	3/16"	1/4–5/16"	3/8"	1/2"	5/8"	3/4"	1"	○	suitable	
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC			
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	Emulsion	Compressed air	MMS
P.1.1	350	1.0	0.0003	0.0006	0.0007	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.1.2	310	1.0	0.0003	0.0006	0.0007	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.1.3	310	1.0	0.0003	0.0006	0.0007	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.1.4	300	1.0	0.0003	0.0006	0.0007	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.1.5	300	1.0	0.0003	0.0006	0.0007	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.1	330	1.0	0.0003	0.0006	0.0007	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.2	280	1.0	0.0003	0.0006	0.0007	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.3	280	1.0	0.0003	0.0006	0.0007	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.4	260	1.0	0.0003	0.0006	0.0007	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.3.1														
P.3.2														
P.3.3														
P.4.1	200	1.0	0.0002	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
P.4.2	80	1.0	0.0002	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
M.1.1	98	1.0	0.0002	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
M.2.1	98	1.0	0.0002	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
M.3.1	98	1.0	0.0002	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
K.1.1	240	1.0	0.0007	0.0011	0.0013	0.0020	0.0024	0.0033	0.0035	0.0039	0.0045	●	○	○
K.1.2	160	1.0	0.0007	0.0011	0.0013	0.0020	0.0024	0.0033	0.0035	0.0039	0.0045	●	○	○
K.2.1	240	1.0	0.0006	0.0008	0.0010	0.0014	0.0017	0.0023	0.0024	0.0027	0.0031	●	○	○
K.2.2	390	1.0	0.0006	0.0008	0.0010	0.0014	0.0017	0.0023	0.0024	0.0027	0.0031	●	○	○
K.3.1	240	1.0	0.0007	0.0011	0.0013	0.0020	0.0024	0.0033	0.0035	0.0039	0.0045	●	○	○
K.3.2	200	1.0	0.0007	0.0011	0.0013	0.0020	0.0024	0.0033	0.0035	0.0039	0.0045	●	○	○
N.1.1														
N.1.2														
N.2.1														
N.2.2														
N.2.3														
N.3.1	390	1.0	0.0004	0.0008	0.0011	0.0017	0.0022	0.0031	0.0033	0.0037	0.0043	●	○	○
N.3.2	390	1.0	0.0004	0.0008	0.0011	0.0017	0.0022	0.0031	0.0033	0.0037	0.0043	●	○	○
N.3.3	280	1.0	0.0004	0.0008	0.0011	0.0017	0.0022	0.0031	0.0033	0.0037	0.0043	●	○	○
N.4.1														
S.1.1	59	1.0	0.0002	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.1.2	59	1.0	0.0002	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.2.1	59	1.0	0.0002	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.2.2	59	1.0	0.0002	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.2.3	59	1.0	0.0002	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.3.1	98	1.0	0.0002	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.3.2	39	1.0	0.0002	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.3.3														
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

Cutting Data – S663 – Ball nosed Cutter, extra short – extra long

			59 078 ... / 59 079 ...										
		Ø DC =	1/8"	3/16"	1/4–5/16"	3/8"	1/2"	5/8"	3/4"	1"	● 1st choice ○ suitable		
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC			
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	Emulsion	Compressed air	MMS
P.1.1	590	1.0	0.0006	0.0007	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.1.2	520	1.0	0.0006	0.0007	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.1.3	520	1.0	0.0006	0.0007	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.1.4	490	1.0	0.0006	0.0007	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.1.5	490	1.0	0.0006	0.0007	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.1	560	1.0	0.0006	0.0007	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.2	460	1.0	0.0006	0.0007	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.3	460	1.0	0.0006	0.0007	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.4	430	1.0	0.0006	0.0007	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.3.1													
P.3.2													
P.3.3													
P.4.1	330	1.0	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
P.4.2	130	1.0	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
M.1.1	160	1.0	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
M.2.1	160	1.0	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
M.3.1	160	1.0	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
K.1.1	390	1.0	0.0011	0.0013	0.0020	0.0024	0.0033	0.0035	0.0039	0.0045	●	○	○
K.1.2	260	1.0	0.0011	0.0013	0.0020	0.0024	0.0033	0.0035	0.0039	0.0045	●	○	○
K.2.1	390	1.0	0.0008	0.0010	0.0014	0.0017	0.0023	0.0024	0.0027	0.0031	●	○	○
K.2.2	660	1.0	0.0008	0.0010	0.0014	0.0017	0.0023	0.0024	0.0027	0.0031	●	○	○
K.3.1	390	1.0	0.0011	0.0013	0.0020	0.0024	0.0033	0.0035	0.0039	0.0045	●	○	○
K.3.2	330	1.0	0.0011	0.0013	0.0020	0.0024	0.0033	0.0035	0.0039	0.0045	●	○	○
N.1.1													
N.1.2													
N.2.1													
N.2.2													
N.2.3													
N.3.1	660	1.0	0.0008	0.0011	0.0017	0.0022	0.0031	0.0033	0.0037	0.0043	●	○	○
N.3.2	660	1.0	0.0008	0.0011	0.0017	0.0022	0.0031	0.0033	0.0037	0.0043	●	○	○
N.3.3	460	1.0	0.0008	0.0011	0.0017	0.0022	0.0031	0.0033	0.0037	0.0043	●	○	○
N.4.1													
S.1.1	98	1.0	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.1.2	98	1.0	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.2.1	98	1.0	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.2.2	98	1.0	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.2.3	98	1.0	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.3.1	160	1.0	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.3.2	66	1.0	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
S.3.3													
H.1.1													
H.1.2													
H.1.3													
H.1.4													
H.2.1													
H.3.1													
O.1.1													
O.1.2													
O.2.1													
O.2.2													
O.3.1													

Cutting Data – P157 – Ball nosed cutter, short – extra long

			59 055 ...											
		Ø DC =	1/8–5/32"	3/16"	7/32"	1/4–5/16"	3/8"	1/2"	9/16"	3/4"	1"	● 1st choice ○ suitable		
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC			
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	Emulsion	Compressed air	MMS
P.1.1	**430**	1.0	0.0007	0.0008	0.0009	0.0012	0.0015	0.0020	0.0022	0.0024	0.0028	●	○	○
P.1.2	**360**	1.0	0.0006	0.0007	0.0008	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.1.3	**360**	1.0	0.0006	0.0007	0.0008	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.1.4	**310**	1.0	0.0006	0.0007	0.0008	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.1.5	**310**	1.0	0.0006	0.0007	0.0008	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.1	**360**	1.0	0.0006	0.0007	0.0008	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.2	**280**	1.0	0.0006	0.0007	0.0008	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.3	**280**	1.0	0.0006	0.0007	0.0008	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.4	**210**	1.0	0.0006	0.0007	0.0008	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.3.1														
P.3.2														
P.3.3														
P.4.1	**200**	1.0	0.0004	0.0005	0.0006	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
P.4.2	**160**	1.0	0.0004	0.0005	0.0006	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
M.1.1	**160**	1.0	0.0004	0.0005	0.0006	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
M.2.1	**200**	1.0	0.0004	0.0005	0.0006	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
M.3.1	**200**	1.0	0.0004	0.0005	0.0006	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
K.1.1	**510**	1.0	0.0011	0.0013	0.0015	0.0020	0.0024	0.0033	0.0035	0.0039	0.0045	●	○	○
K.1.2	**480**	1.0	0.0011	0.0013	0.0015	0.0020	0.0024	0.0033	0.0035	0.0039	0.0045	●	○	○
K.2.1	**510**	1.0	0.0008	0.0010	0.0011	0.0014	0.0017	0.0023	0.0024	0.0027	0.0031	●	○	○
K.2.2	**480**	1.0	0.0008	0.0010	0.0011	0.0014	0.0017	0.0023	0.0024	0.0027	0.0031	●	○	○
K.3.1	**510**	1.0	0.0011	0.0013	0.0015	0.0020	0.0024	0.0033	0.0035	0.0039	0.0045	●	○	○
K.3.2	**480**	1.0	0.0011	0.0013	0.0015	0.0020	0.0024	0.0033	0.0035	0.0039	0.0045	●	○	○
N.1.1														
N.1.2														
N.2.1														
N.2.2														
N.2.3														
N.3.1	**790**	1.0	0.0008	0.0011	0.0013	0.0017	0.0022	0.0031	0.0033	0.0037	0.0043	●	○	○
N.3.2	**790**	1.0	0.0008	0.0011	0.0013	0.0017	0.0022	0.0031	0.0033	0.0037	0.0043	●	○	○
N.3.3	**560**	1.0	0.0008	0.0011	0.0013	0.0017	0.0022	0.0031	0.0033	0.0037	0.0043	●	○	○
N.4.1														
S.1.1														
S.1.2														
S.2.1														
S.2.2														
S.2.3														
S.3.1														
S.3.2														
S.3.3														
H.1.1														
H.1.2														
H.1.3														
H.1.4														
H.2.1														
H.3.1														
O.1.1														
O.1.2														
O.2.1														
O.2.2														
O.3.1														

Cutting Data – S664 – Ball nosed Cutter, extra short – extra long

			59 080... / 59 081 ...														
		Ø DC =	1/32"	3/64"	1/16"	3/32"	1/8–5/32"	3/16"	1/4–5/16"	3/8"	1/2"	5/8"	3/4"	1"	●	1st choice	
															○	suitable	
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC			
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	Emulsion	Compressed air	MMS
P.1.1	260	1.0	0.0003	0.0003	0.0004	0.0005	0.0007	0.0008	0.0012	0.0015	0.0020	0.0022	0.0024	0.0028	●	○	○
P.1.2	220	1.0	0.0002	0.0002	0.0003	0.0004	0.0006	0.0007	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.1.3	220	1.0	0.0002	0.0002	0.0003	0.0004	0.0006	0.0007	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.1.4	190	1.0	0.0002	0.0002	0.0003	0.0004	0.0006	0.0007	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.1.5	190	1.0	0.0002	0.0002	0.0003	0.0004	0.0006	0.0007	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.1	220	1.0	0.0002	0.0002	0.0003	0.0004	0.0006	0.0007	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.2	170	1.0	0.0002	0.0002	0.0003	0.0004	0.0006	0.0007	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.3	170	1.0	0.0002	0.0002	0.0003	0.0004	0.0006	0.0007	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.2.4	130	1.0	0.0002	0.0002	0.0003	0.0004	0.0006	0.0007	0.0011	0.0013	0.0018	0.0019	0.0022	0.0025	●	○	○
P.3.1																	
P.3.2																	
P.3.3																	
P.4.1	120	1.0	0.0001	0.0001	0.0002	0.0003	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
P.4.2	100	1.0	0.0001	0.0001	0.0002	0.0003	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
M.1.1	98	1.0	0.0001	0.0001	0.0002	0.0003	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
M.2.1	120	1.0	0.0001	0.0001	0.0002	0.0003	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
M.3.1	120	1.0	0.0001	0.0001	0.0002	0.0003	0.0004	0.0005	0.0008	0.0010	0.0014	0.0015	0.0017	0.0019	●		
K.1.1	310	1.0	0.0004	0.0006	0.0007	0.0009	0.0011	0.0013	0.0020	0.0024	0.0033	0.0035	0.0039	0.0045	●	○	○
K.1.2	290	1.0	0.0004	0.0006	0.0007	0.0009	0.0011	0.0013	0.0020	0.0024	0.0033	0.0035	0.0039	0.0045	●	○	○
K.2.1	310	1.0	0.0004	0.0005	0.0006	0.0007	0.0008	0.0010	0.0014	0.0017	0.0023	0.0024	0.0027	0.0031	●	○	○
K.2.2	290	1.0	0.0004	0.0005	0.0006	0.0007	0.0008	0.0010	0.0014	0.0017	0.0023	0.0024	0.0027	0.0031	●	○	○
K.3.1	310	1.0	0.0004	0.0006	0.0007	0.0009	0.0011	0.0013	0.0020	0.0024	0.0033	0.0035	0.0039	0.0045	●	○	○
K.3.2	290	1.0	0.0004	0.0006	0.0007	0.0009	0.0011	0.0013	0.0020	0.0024	0.0033	0.0035	0.0039	0.0045	●	○	○
N.1.1																	
N.1.2																	
N.2.1																	
N.2.2																	
N.2.3																	
N.3.1	470	1.0	0.0002	0.0003	0.0004	0.0006	0.0008	0.0011	0.0017	0.0022	0.0031	0.0033	0.0037	0.0043	●	○	○
N.3.2	470	1.0	0.0002	0.0003	0.0004	0.0006	0.0008	0.0011	0.0017	0.0022	0.0031	0.0033	0.0037	0.0043	●	○	○
N.3.3	330	1.0	0.0002	0.0003	0.0004	0.0006	0.0008	0.0011	0.0017	0.0022	0.0031	0.0033	0.0037	0.0043	●	○	○
N.4.1																	
S.1.1																	
S.1.2																	
S.2.1																	
S.2.2																	
S.2.3																	
S.3.1																	
S.3.2																	
S.3.3																	
H.1.1																	
H.1.2																	
H.1.3																	
H.1.4																	
H.2.1																	
H.3.1																	
O.1.1																	
O.1.2																	
O.2.1																	
O.2.2																	
O.3.1																	

Cutting Data – P250 – Ball Nosed Cutter, medium long – extra long

59 063 ...

● 1st choice
○ suitable

		Ø DC =	1/8"	3/16"	1/4"	3/8"	1/2"			
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC			
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	Emulsion	Compressed air	MMS
P.1.1	**350**	1.0	0.0006	0.0007	0.0011	0.0013	0.0018	●	○	○
P.1.2	**310**	1.0	0.0006	0.0007	0.0011	0.0013	0.0018	●	○	○
P.1.3	**310**	1.0	0.0006	0.0007	0.0011	0.0013	0.0018	●	○	○
P.1.4	**300**	1.0	0.0006	0.0007	0.0011	0.0013	0.0018	●	○	○
P.1.5	**300**	1.0	0.0006	0.0007	0.0011	0.0013	0.0018	●	○	○
P.2.1	**330**	1.0	0.0006	0.0007	0.0011	0.0013	0.0018	●	○	○
P.2.2	**280**	1.0	0.0006	0.0007	0.0011	0.0013	0.0018	●	○	○
P.2.3	**280**	1.0	0.0006	0.0007	0.0011	0.0013	0.0018	●	○	○
P.2.4	**260**	1.0	0.0006	0.0007	0.0011	0.0013	0.0018	●	○	○
P.3.1										
P.3.2										
P.3.3										
P.4.1	**200**	1.0	0.0004	0.0005	0.0008	0.0010	0.0014	●		
P.4.2	**80**	1.0	0.0004	0.0005	0.0008	0.0010	0.0014	●		
M.1.1	**100**	1.0	0.0004	0.0005	0.0008	0.0010	0.0014	●		
M.2.1	**100**	1.0	0.0004	0.0005	0.0008	0.0010	0.0014	●		
M.3.1	**100**	1.0	0.0004	0.0005	0.0008	0.0010	0.0014	●		
K.1.1	**240**	1.0	0.0011	0.0013	0.0020	0.0024	0.0033	●	○	○
K.1.2	**160**	1.0	0.0011	0.0013	0.0020	0.0024	0.0033	●	○	○
K.2.1	**240**	1.0	0.0008	0.0010	0.0014	0.0017	0.0023	●	○	○
K.2.2	**390**	1.0	0.0008	0.0010	0.0014	0.0017	0.0023	●	○	○
K.3.1	**240**	1.0	0.0011	0.0013	0.0020	0.0024	0.0033	●	○	○
K.3.2	**200**	1.0	0.0011	0.0013	0.0020	0.0024	0.0033	●	○	○
N.1.1										
N.1.2										
N.2.1										
N.2.2										
N.2.3										
N.3.1	**390**	1.0	0.0008	0.0011	0.0017	0.0022	0.0031	●	○	○
N.3.2	**390**	1.0	0.0008	0.0011	0.0017	0.0022	0.0031	●	○	○
N.3.3	**280**	1.0	0.0008	0.0011	0.0017	0.0022	0.0031	●	○	○
N.4.1										
S.1.1	**59**	1.0	0.0004	0.0005	0.0008	0.0010	0.0014	●		
S.1.2	**59**	1.0	0.0004	0.0005	0.0008	0.0010	0.0014	●		
S.2.1	**59**	1.0	0.0004	0.0005	0.0008	0.0010	0.0014	●		
S.2.2	**59**	1.0	0.0004	0.0005	0.0008	0.0010	0.0014	●		
S.2.3	**59**	1.0	0.0004	0.0005	0.0008	0.0010	0.0014	●		
S.3.1	**98**	1.0	0.0004	0.0005	0.0008	0.0010	0.0014	●		
S.3.2	**39**	1.0	0.0004	0.0005	0.0008	0.0010	0.0014	●		
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

Cutting Data – P251, P251, P253, P254 – Ball nosed cutter, extra long

			59 064 ... / 59 065 ... / 59 066 ... / 59 067 ...					● 1st choice ○ suitable		
		Ø DC =	1/32"	.060"	3/32"	1/8"	3/16"			
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	Emulsion	Compressed air	MMS
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch			
P.1.1	300	1.0	0.0002	0.0003	0.0004	0.0006	0.0007	●	○	○
P.1.2	260	1.0	0.0002	0.0003	0.0004	0.0006	0.0007	●	○	○
P.1.3	260	1.0	0.0002	0.0003	0.0004	0.0006	0.0007	●	○	○
P.1.4	250	1.0	0.0002	0.0003	0.0004	0.0006	0.0007	●	○	○
P.1.5	250	1.0	0.0002	0.0003	0.0004	0.0006	0.0007	●	○	○
P.2.1	280	1.0	0.0002	0.0003	0.0004	0.0006	0.0007	●	○	○
P.2.2	230	1.0	0.0002	0.0003	0.0004	0.0006	0.0007	●	○	○
P.2.3	230	1.0	0.0002	0.0003	0.0004	0.0006	0.0007	●	○	○
P.2.4	210	1.0	0.0002	0.0003	0.0004	0.0006	0.0007	●	○	○
P.3.1										
P.3.2										
P.3.3										
P.4.1	160	1.0	0.0001	0.0002	0.0003	0.0004	0.0005	●		
P.4.2	70	1.0	0.0001	0.0002	0.0003	0.0004	0.0005	●		
M.1.1	82	1.0	0.0001	0.0002	0.0003	0.0004	0.0005	●		
M.2.1	82	1.0	0.0001	0.0002	0.0003	0.0004	0.0005	●		
M.3.1	82	1.0	0.0001	0.0002	0.0003	0.0004	0.0005	●		
K.1.1	200	1.0	0.0004	0.0007	0.0009	0.0011	0.0013	●	○	○
K.1.2	130	1.0	0.0004	0.0007	0.0009	0.0011	0.0013	●	○	○
K.2.1	200	1.0	0.0004	0.0006	0.0007	0.0008	0.0010	●	○	○
K.2.2	330	1.0	0.0004	0.0006	0.0007	0.0008	0.0010	●	○	○
K.3.1	200	1.0	0.0004	0.0007	0.0009	0.0011	0.0013	●	○	○
K.3.2	160	1.0	0.0004	0.0007	0.0009	0.0011	0.0013	●	○	○
N.1.1										
N.1.2										
N.2.1										
N.2.2										
N.2.3										
N.3.1	330	1.0	0.0002	0.0004	0.0006	0.0008	0.0011	●	○	○
N.3.2	330	1.0	0.0002	0.0004	0.0006	0.0008	0.0011	●	○	○
N.3.3	230	1.0	0.0002	0.0004	0.0006	0.0008	0.0011	●	○	○
N.4.1										
S.1.1	49	1.0	0.0001	0.0002	0.0003	0.0004	0.0005	●		
S.1.2	49	1.0	0.0001	0.0002	0.0003	0.0004	0.0005	●		
S.2.1	49	1.0	0.0001	0.0002	0.0003	0.0004	0.0005	●		
S.2.2	49	1.0	0.0001	0.0002	0.0003	0.0004	0.0005	●		
S.2.3	49	1.0	0.0001	0.0002	0.0003	0.0004	0.0005	●		
S.3.1	82	1.0	0.0001	0.0002	0.0003	0.0004	0.0005	●		
S.3.2	33	1.0	0.0001	0.0002	0.0003	0.0004	0.0005	●		
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

Cutting Data – P504, P506 – Micro end milling cutter, short

● 1st choice
○ suitable

			59 009 ... / 59 010...									
		Ø DC =	0.005–015"	0.015–031"	0.031–047"	0.047–062"	0.062–078"	0.078–093"	0.093–0120"			
			a_e 0.30 x DC	a_e 0.30 x DC	a_e 0.30 x DC	a_e 0.60 x DC	a_e 0.60 x DC	a_e 0.60 x DC	a_e 0.60 x DC			
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	Emulsion	Compressed air	MMS
P.1.1	**600**	1.0	0.00007	0.00014	0.00021	0.00024	0.00031	0.00036	0.00049	●		
P.1.2	**600**	1.0	0.00007	0.00014	0.00021	0.00024	0.00031	0.00036	0.00049	●		
P.1.3	**200**	1.0	0.00006	0.00013	0.00019	0.00022	0.00028	0.00033	0.00045	●		
P.1.4	**200**	1.0	0.00006	0.00013	0.00019	0.00022	0.00028	0.00033	0.00045	●		
P.1.5	**200**	1.0	0.00006	0.00013	0.00019	0.00022	0.00028	0.00033	0.00045	●		
P.2.1	**200**	1.0	0.00006	0.00013	0.00019	0.00022	0.00028	0.00033	0.00045	●		
P.2.2	**200**	1.0	0.00006	0.00013	0.00019	0.00022	0.00028	0.00033	0.00045	●		
P.2.3	**200**	1.0	0.00006	0.00013	0.00019	0.00022	0.00028	0.00033	0.00045	●		
P.2.4	**100**	1.0	0.00003	0.00006	0.00010	0.00011	0.00014	0.00017	0.00022	●		
P.3.1	**150**	1.0	0.00004	0.00008	0.00012	0.00014	0.00017	0.00021	0.00028	●		
P.3.2	**150**	1.0	0.00004	0.00008	0.00012	0.00014	0.00017	0.00021	0.00028	●		
P.3.3	**90**	1.0	0.00002	0.00004	0.00006	0.00007	0.00009	0.00012	0.00018	●		
P.4.1	**450**	1.0	0.00007	0.00014	0.00021	0.00024	0.00031	0.00036	0.00049	●		
P.4.2	**450**	1.0	0.00007	0.00014	0.00021	0.00024	0.00031	0.00036	0.00049	●		
M.1.1	**200**	1.0	0.00006	0.00013	0.00019	0.00022	0.00028	0.00033	0.00045	●		
M.2.1	**200**	1.0	0.00003	0.00006	0.00010	0.00011	0.00014	0.00017	0.00022	●		
M.3.1	**100**	1.0	0.00003	0.00006	0.00010	0.00011	0.00014	0.00017	0.00022	●		
K.1.1	**400**	1.0	0.00007	0.00014	0.00021	0.00024	0.00031	0.00036	0.00049	●		
K.1.2	**400**	1.0	0.00007	0.00014	0.00021	0.00024	0.00031	0.00036	0.00049	●		
K.2.1	**300**	1.0	0.00007	0.00014	0.00021	0.00024	0.00031	0.00036	0.00049	●		
K.2.2	**300**	1.0	0.00007	0.00014	0.00021	0.00024	0.00031	0.00036	0.00049	●		
K.3.1	**250**	1.0	0.00007	0.00014	0.00021	0.00024	0.00031	0.00036	0.00049	●		
K.3.2	**250**	1.0	0.00007	0.00014	0.00021	0.00024	0.00031	0.00036	0.00049	●		
N.1.1	**1000**	1.0	0.00022	0.00045	0.00068	0.00780	0.00099	0.00118	0.00158	●		
N.1.2	**1000**	1.0	0.00022	0.00045	0.00068	0.00780	0.00099	0.00118	0.00158	●		
N.2.1	**750**	1.0	0.00022	0.00045	0.00068	0.00780	0.00099	0.00118	0.00158	●		
N.2.2	**750**	1.0	0.00022	0.00045	0.00068	0.00780	0.00099	0.00118	0.00158	●		
N.2.3												
N.3.1	**500**	1.0	0.00017	0.00036	0.00055	0.00063	0.00079	0.00094	0.00127	●		
N.3.2	**800**	1.0	0.00017	0.00036	0.00055	0.00063	0.00079	0.00094	0.00127	●		
N.3.3	**400**	1.0	0.00017	0.00036	0.00055	0.00063	0.00079	0.00094	0.00127	●		
N.4.1	**1500**	1.0	0.00022	0.00045	0.00068	0.00078	0.00099	0.00118	0.00158	●		
S.1.1	**70**	1.0	0.00004	0.00008	0.00012	0.00014	0.00017	0.00021	0.00028	●		
S.1.2	**50**	1.0	0.00002	0.00004	0.00006	0.00007	0.00009	0.00012	0.00018	●		
S.2.1	**70**	1.0	0.00004	0.00008	0.00012	0.00014	0.00017	0.00021	0.00028	●		
S.2.2	**50**	1.0	0.00002	0.00004	0.00006	0.00007	0.00009	0.00012	0.00018	●		
S.2.3	**50**	1.0	0.00002	0.00004	0.00006	0.00007	0.00009	0.00012	0.00018	●		
S.3.1	**200**	1.0	0.00004	0.00008	0.00012	0.00014	0.00017	0.00021	0.00028	●		
S.3.2	**150**	1.0	0.00004	0.00008	0.00012	0.00014	0.00017	0.00021	0.00028	●		
S.3.3	**75**	1.0	0.00002	0.00004	0.00006	0.00007	0.00009	0.00012	0.00018	●		
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

Cutting Data – P501, P503 – Micro End Milling Cutter, long

			59 007 ... / 59 008 ...									
		Ø DC =	0.005–015"		0.015–031"		0.031–047"		0.047–062"		0.062–078“	
			a_e 0.13 x DC	a_e 0.25 x DC	a_e 0.13 x DC	a_e 0.25 x DC	a_e 0.13 x DC	a_e 0.25 x DC	a_e 0.13 x DC	a_e 0.25 x DC	a_e .13 x DC	a_e 0.25 x DC
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch
P.1.1	**600**	3.0	0.00005		0.00010		0.00015			0.00170		0.00021
P.1.2	**600**	3.0	0.00005		0.00010		0.00015			0.00170		0.00021
P.1.3	**200**	3.0	0.00004		0.00009		0.00013			0.00020		0.00025
P.1.4	**200**	3.0	0.00004		0.00009		0.00013			0.00020		0.00025
P.1.5	**200**	3.0	0.00004		0.00009		0.00013			0.00020		0.00025
P.2.1	**200**	3.0	0.00004		0.00009		0.00013			0.00015		0.00019
P.2.2	**200**	3.0	0.00004		0.00009		0.00013			0.00015		0.00019
P.2.3	**200**	3.0	0.00004		0.00009		0.00013			0.00015		0.00019
P.2.4	**100**	3.0	0.00002		0.00004		0.00007			0.00008		0.00100
P.3.1	**150**	3.0	0.00003		0.00006		0.00008			0.00010		0.00012
P.3.2	**150**	3.0	0.00003		0.00006		0.00008			0.00010		0.00012
P.3.3	**90**	3.0	0.00001		0.00003		0.00004			0.00005		0.00006
P.4.1	**450**	3.0	0.00005		0.00010		0.00015			0.00017		0.00021
P.4.2	**450**	3.0	0.00005		0.00010		0.00015			0.00017		0.00021
M.1.1	**200**	3.0	0.00004		0.00009		0.00013			0.00015		0.00019
M.2.1	**200**	3.0	0.00002		0.00004		0.00007			0.00008		0.00100
M.3.1	**100**	3.0	0.00002		0.00004		0.00007			0.00008		0.00100
K.1.1	**400**	3.0	0.00005		0.00010		0.00015			0.00017		0.00021
K.1.2	**400**	3.0	0.00005		0.00010		0.00015			0.00017		0.00021
K.2.1	**300**	3.0	0.00005		0.00010		0.00015			0.00017		0.00021
K.2.2	**300**	3.0	0.00005		0.00010		0.00015			0.00017		0.00021
K.3.1	**250**	3.0	0.00005		0.00010		0.00015			0.00017		0.00021
K.3.2	**250**	3.0	0.00005		0.00010		0.00015			0.00017		0.00021
N.1.1	**1000**	3.0	0.00015		0.00031		0.00047			0.00055		0.00069
N.1.2	**1000**	3.0	0.00015		0.00031		0.00047			0.00055		0.00069
N.2.1	**750**	3.0	0.00015		0.00031		0.00047			0.00055		0.00069
N.2.2	**750**	3.0	0.00015		0.00031		0.00047			0.00055		0.00069
N.2.3												
N.3.1	**500**	3.0	0.00012		0.00025		0.00038		0.00044		0.00055	
N.3.2	**800**	3.0	0.00015		0.00031		0.00048		0.00055		0.00069	
N.3.3	**400**	3.0	0.00012		0.00025		0.00038		0.00044		0.00055	
N.4.1	**1500**	3.0	0.00015		0.00031		0.00048		0.00055		0.00069	
S.1.1	**70**	3.0	0.00003		0.00006		0.00009			0.00010		0.00012
S.1.2	**50**	3.0	0.00001		0.00003		0.00004			0.00005		0.00006
S.2.1	**70**	3.0	0.00003		0.00006		0.00009			0.00010		0.00012
S.2.2	**50**	3.0	0.00003		0.00006		0.00009			0.00010		0.00012
S.2.3	**50**	3.0	0.00001		0.00003		0.00004			0.00005		0.00006
S.3.1	**200**	3.0	0.00003		0.00006		0.00008			0.00010		0.00012
S.3.2	**150**	3.0	0.00003		0.00006		0.00008			0.00010		0.00012
S.3.3	**75**	3.0	0.00001		0.00003		0.00004			0.00005		0.00006
H.1.1												
H.1.2												
H.1.3												
H.1.4												
H.2.1												
H.3.1												
O.1.1												
O.1.2												
O.2.1												
O.2.2												
O.3.1												

	59 007 ... / 59 008 ...						
	0.078–093"		0.093–0120"		●	1st choice	
					○	suitable	
	a_e 0.13 x DC	a_e 0.25 x DC	a_e 0.13 x DC	a_e 0.25 x DC	Emulsion	Compressed air	MMS
Index	f_z inch	f_z inch	f_z inch	f_z inch			
P.1.1		0.00025		0.00034	●		
P.1.2		0.00025		0.00034	●		
P.1.3		0.00030		0.00040	●		
P.1.4		0.00030		0.00040	●		
P.1.5		0.00030		0.00040	●		
P.2.1		0.00023		0.00031	●		
P.2.2		0.00023		0.00031	●		
P.2.3		0.00023		0.00031	●		
P.2.4		0.00012		0.00016	●		
P.3.1		0.00014		0.00019	●		
P.3.2		0.00014		0.00019	●		
P.3.3		0.00007		0.00010	●		
P.4.1		0.00025		0.00034	●		
P.4.2		0.00025		0.00034	●		
M.1.1		0.00023		0.00031	●		
M.2.1		0.00012		0.00016	●		
M.3.1		0.00012		0.00016	●		
K.1.1		0.00025		0.00034	●		
K.1.2		0.00025		0.00034	●		
K.2.1		0.00025		0.00034	●		
K.2.2		0.00025		0.00034	●		
K.3.1		0.00025		0.00034	●		
K.3.2		0.00025		0.00034	●		
N.1.1		0.00082		0.00110	●		
N.1.2		0.00082		0.00110	●		
N.2.1		0.00082		0.00110	●		
N.2.2		0.00082		0.00110	●		
N.2.3							
N.3.1	0.00065		0.00088		●		
N.3.2	0.00082		0.00110		●		
N.3.3	0.00065		0.00088		●		
N.4.1	0.00082		0.00110		●		
S.1.1		0.00014		0.00019	●		
S.1.2		0.00007		0.00010	●		
S.2.1		0.00014		0.00019	●		
S.2.2		0.00014		0.00019	●		
S.2.3		0.00007		0.00010	●		
S.3.1		0.00014		0.00019	●		
S.3.2		0.00014		0.00019	●		
S.3.3		0.00007		0.00010	●		
H.1.1							
H.1.2							
H.1.3							
H.1.4							
H.2.1							
H.3.1							
O.1.1							
O.1.2							
O.2.1							
O.2.2							
O.3.1							

Cutting Data – P137 – Profile milling cutter

● 1st choice
○ suitable

			59 049 ... / 59 050 ...						
		Ø DC =	1/8"	3/16"	1/4–5/16"	3/8"			
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC			
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch	f_z inch	Emulsion	Compressed air	MMS
P.1.1	310	1.0	0.0006	0.0007	0.0011	0.0013	●	○	○
P.1.2	260	1.0	0.0006	0.0007	0.0011	0.0013	●	○	○
P.1.3	260	1.0	0.0006	0.0007	0.0011	0.0013	●	○	○
P.1.4	230	1.0	0.0006	0.0007	0.0011	0.0013	●	○	○
P.1.5	230	1.0	0.0006	0.0007	0.0011	0.0013	●	○	○
P.2.1	250	1.0	0.0006	0.0007	0.0011	0.0013	●	○	○
P.2.2	200	1.0	0.0006	0.0007	0.0011	0.0013	●	○	○
P.2.3	200	1.0	0.0006	0.0007	0.0011	0.0013	●	○	○
P.2.4	180	1.0	0.0006	0.0007	0.0011	0.0013	●	○	○
P.3.1									
P.3.2									
P.3.3									
P.4.1									
P.4.2									
M.1.1									
M.2.1									
M.3.1									
K.1.1	390	1.0	0.0011	0.0013	0.0020	0.0024	●	○	○
K.1.2	330	1.0	0.0011	0.0013	0.0020	0.0024	●	○	○
K.2.1	390	1.0	0.0008	0.0010	0.0014	0.0017	●	○	○
K.2.2	330	1.0	0.0008	0.0010	0.0014	0.0017	●	○	○
K.3.1	390	1.0	0.0011	0.0013	0.0020	0.0024	●	○	○
K.3.2	330	1.0	0.0011	0.0013	0.0020	0.0024	●	○	○
N.1.1									
N.1.2									
N.2.1									
N.2.2									
N.2.3									
N.3.1									
N.3.2									
N.3.3									
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

Cutting Data – P139 – Profile milling cutter

			59 051 ... / 59 052 ...				● 1st choice		
		Ø DC =	3/16"	1/4"	3/8"	1/2"	○ suitable		
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	Emulsion	Compressed air	MMS
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch	f_z inch			
P.1.1	**310**	1.0	0.0007	0.0011	0.0013	0.0018	●	○	○
P.1.2	**260**	1.0	0.0007	0.0011	0.0013	0.0018	●	○	○
P.1.3	**260**	1.0	0.0007	0.0011	0.0013	0.0018	●	○	○
P.1.4	**230**	1.0	0.0007	0.0011	0.0013	0.0018	●	○	○
P.1.5	**230**	1.0	0.0007	0.0011	0.0013	0.0018	●	○	○
P.2.1	**250**	1.0	0.0007	0.0011	0.0013	0.0018	●	○	○
P.2.2	**200**	1.0	0.0007	0.0011	0.0013	0.0018	●	○	○
P.2.3	**200**	1.0	0.0007	0.0011	0.0013	0.0018	●	○	○
P.2.4	**180**	1.0	0.0007	0.0011	0.0013	0.0018	●	○	○
P.3.1									
P.3.2									
P.3.3									
P.4.1									
P.4.2									
M.1.1									
M.2.1									
M.3.1									
K.1.1	**390**	1.0	0.0013	0.0020	0.0024	0.0033	●	○	○
K.1.2	**330**	1.0	0.0013	0.0020	0.0024	0.0033	●	○	○
K.2.1	**390**	1.0	0.0010	0.0014	0.0017	0.0023	●	○	○
K.2.2	**330**	1.0	0.0010	0.0014	0.0017	0.0023	●	○	○
K.3.1	**390**	1.0	0.0013	0.0020	0.0024	0.0033	●	○	○
K.3.2	**330**	1.0	0.0013	0.0020	0.0024	0.0033	●	○	○
N.1.1									
N.1.2									
N.2.1									
N.2.2									
N.2.3									
N.3.1									
N.3.2									
N.3.3									
N.4.1									
S.1.1									
S.1.2									
S.2.1									
S.2.2									
S.2.3									
S.3.1									
S.3.2									
S.3.3									
H.1.1									
H.1.2									
H.1.3									
H.1.4									
H.2.1									
H.3.1									
O.1.1									
O.1.2									
O.2.1									
O.2.2									
O.3.1									

Cutting Data – P132/P134 – Chamfer milling cutter

● 1st choice
○ suitable

			59 041 ... / 59 042 ... / 59 045 ... / 59 046 ...							
		Ø DC =	1/8"	3/16"	1/4"	3/8"	1/2"			
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	a_e 1 x DC			
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch	f_z inch	f_z inch	Emulsion	Compressed air	MMS
P.1.1	310	1.0	0.0006	0.0007	0.0011	0.0013	0.0018	●	○	○
P.1.2	260	1.0	0.0006	0.0007	0.0011	0.0013	0.0018	●	○	○
P.1.3	260	1.0	0.0006	0.0007	0.0011	0.0013	0.0018	●	○	○
P.1.4	230	1.0	0.0006	0.0007	0.0011	0.0013	0.0018	●	○	○
P.1.5	230	1.0	0.0006	0.0007	0.0011	0.0013	0.0018	●	○	○
P.2.1	250	1.0	0.0006	0.0007	0.0011	0.0013	0.0018	●	○	○
P.2.2	200	1.0	0.0006	0.0007	0.0011	0.0013	0.0018	●	○	○
P.2.3	200	1.0	0.0006	0.0007	0.0011	0.0013	0.0018	●	○	○
P.2.4	180	1.0	0.0006	0.0007	0.0011	0.0013	0.0018	●	○	○
P.3.1										
P.3.2										
P.3.3										
P.4.1										
P.4.2										
M.1.1										
M.2.1										
M.3.1										
K.1.1	390	1.0	0.0011	0.0013	0.0020	0.0024	0.0033	●	○	○
K.1.2	330	1.0	0.0011	0.0013	0.0020	0.0024	0.0033	●	○	○
K.2.1	390	1.0	0.0008	0.0010	0.0014	0.0017	0.0023	●	○	○
K.2.2	330	1.0	0.0008	0.0010	0.0014	0.0017	0.0023	●	○	○
K.3.1	390	1.0	0.0011	0.0013	0.0020	0.0024	0.0033	●	○	○
K.3.2	330	1.0	0.0011	0.0013	0.0020	0.0024	0.0033	●	○	○
N.1.1										
N.1.2										
N.2.1										
N.2.2										
N.2.3										
N.3.1										
N.3.2										
N.3.3										
N.4.1										
S.1.1										
S.1.2										
S.2.1										
S.2.2										
S.2.3										
S.3.1										
S.3.2										
S.3.3										
H.1.1										
H.1.2										
H.1.3										
H.1.4										
H.2.1										
H.3.1										
O.1.1										
O.1.2										
O.2.1										
O.2.2										
O.3.1										

Cutting Data – P130 – Chamfer milling cutter

			59 037 ... / 59 038 ...					
		Ø DC =	1/4"	3/8"	1/2"	● 1st choice ○ suitable		
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	Emulsion	Compressed air	MMS
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch			
P.1.1	**310**	1.0	0.0011	0.0013	0.0018	●	○	○
P.1.2	**260**	1.0	0.0011	0.0013	0.0018	●	○	○
P.1.3	**260**	1.0	0.0011	0.0013	0.0018	●	○	○
P.1.4	**230**	1.0	0.0011	0.0013	0.0018	●	○	○
P.1.5	**230**	1.0	0.0011	0.0013	0.0018	●	○	○
P.2.1	**250**	1.0	0.0011	0.0013	0.0018	●	○	○
P.2.2	**200**	1.0	0.0011	0.0013	0.0018	●	○	○
P.2.3	**200**	1.0	0.0011	0.0013	0.0018	●	○	○
P.2.4	**180**	1.0	0.0011	0.0013	0.0018	●	○	○
P.3.1								
P.3.2								
P.3.3								
P.4.1								
P.4.2								
M.1.1								
M.2.1								
M.3.1								
K.1.1	**390**	1.0	0.0020	0.0024	0.0033	●	○	○
K.1.2	**330**	1.0	0.0020	0.0024	0.0033	●	○	○
K.2.1	**390**	1.0	0.0014	0.0017	0.0023	●	○	○
K.2.2	**330**	1.0	0.0014	0.0017	0.0023	●	○	○
K.3.1	**390**	1.0	0.0020	0.0024	0.0033	●	○	○
K.3.2	**330**	1.0	0.0020	0.0024	0.0033	●	○	○
N.1.1								
N.1.2								
N.2.1								
N.2.2								
N.2.3								
N.3.1								
N.3.2								
N.3.3								
N.4.1								
S.1.1								
S.1.2								
S.2.1								
S.2.2								
S.2.3								
S.3.1								
S.3.2								
S.3.3								
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1								
O.1.2								
O.2.1								
O.2.2								
O.3.1								

Cutting Data – P133 – Chamfer milling cutter

● 1st choice
○ suitable

			59 043 ... / 59 044 ...					
		Ø DC =	1/8"	3/16"	1/4"			
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	Emulsion	Compressed air	MMS
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch			
P.1.1	**310**	1.0	0.0011	0.0013	0.0018	●	○	○
P.1.2	**260**	1.0	0.0011	0.0013	0.0018	●	○	○
P.1.3	**260**	1.0	0.0011	0.0013	0.0018	●	○	○
P.1.4	**230**	1.0	0.0011	0.0013	0.0018	●	○	○
P.1.5	**230**	1.0	0.0011	0.0013	0.0018	●	○	○
P.2.1	**250**	1.0	0.0011	0.0013	0.0018	●	○	○
P.2.2	**200**	1.0	0.0011	0.0013	0.0018	●	○	○
P.2.3	**200**	1.0	0.0011	0.0013	0.0018	●	○	○
P.2.4	**180**	1.0	0.0011	0.0013	0.0018	●	○	○
P.3.1								
P.3.2								
P.3.3								
P.4.1								
P.4.2								
M.1.1								
M.2.1								
M.3.1								
K.1.1	**390**	1.0	0.0020	0.0024	0.0033	●	○	○
K.1.2	**330**	1.0	0.0020	0.0024	0.0033	●	○	○
K.2.1	**390**	1.0	0.0014	0.0017	0.0023	●	○	○
K.2.2	**330**	1.0	0.0014	0.0017	0.0023	●	○	○
K.3.1	**390**	1.0	0.0020	0.0024	0.0033	●	○	○
K.3.2	**330**	1.0	0.0020	0.0024	0.0033	●	○	○
N.1.1								
N.1.2								
N.2.1								
N.2.2								
N.2.3								
N.3.1								
N.3.2								
N.3.3								
N.4.1								
S.1.1								
S.1.2								
S.2.1								
S.2.2								
S.2.3								
S.3.1								
S.3.2								
S.3.3								
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1								
O.1.2								
O.2.1								
O.2.2								
O.3.1								

Cutting Data – P131/P135 – Chamfer milling cutter

● 1st choice
○ suitable

			59 039 ... / 59 040 ... / 59 047 ... / 59 048 ...					
		Ø DC =	1/4"	3/8"	1/2"			
			a_e 1 x DC	a_e 1 x DC	a_e 1 x DC	Emulsion	Compressed air	MMS
Index	v_c ft/min	$a_{p\,max.}$ x DC	f_z inch	f_z inch	f_z inch			
P.1.1	**310**	1.0	0.0011	0.0013	0.0018	●	○	○
P.1.2	**260**	1.0	0.0011	0.0013	0.0018	●	○	○
P.1.3	**260**	1.0	0.0011	0.0013	0.0018	●	○	○
P.1.4	**230**	1.0	0.0011	0.0013	0.0018	●	○	○
P.1.5	**230**	1.0	0.0011	0.0013	0.0018	●	○	○
P.2.1	**250**	1.0	0.0011	0.0013	0.0018	●	○	○
P.2.2	**200**	1.0	0.0011	0.0013	0.0018	●	○	○
P.2.3	**200**	1.0	0.0011	0.0013	0.0018	●	○	○
P.2.4	**180**	1.0	0.0011	0.0013	0.0018	●	○	○
P.3.1								
P.3.2								
P.3.3								
P.4.1								
P.4.2								
M.1.1								
M.2.1								
M.3.1								
K.1.1	**390**	1.0	0.0020	0.0024	0.0033	●	○	○
K.1.2	**330**	1.0	0.0020	0.0024	0.0033	●	○	○
K.2.1	**390**	1.0	0.0014	0.0017	0.0023	●	○	○
K.2.2	**330**	1.0	0.0014	0.0017	0.0023	●	○	○
K.3.1	**390**	1.0	0.0020	0.0024	0.0033	●	○	○
K.3.2	**330**	1.0	0.0020	0.0024	0.0033	●	○	○
N.1.1								
N.1.2								
N.2.1								
N.2.2								
N.2.3								
N.3.1								
N.3.2								
N.3.3								
N.4.1								
S.1.1								
S.1.2								
S.2.1								
S.2.2								
S.2.3								
S.3.1								
S.3.2								
S.3.3								
H.1.1								
H.1.2								
H.1.3								
H.1.4								
H.2.1								
H.3.1								
O.1.1								
O.1.2								
O.2.1								
O.2.2								
O.3.1								

Technical references

Feedrate Adjustment

If the rpm indicated in the tables cannot be obtained by the machine spindle, the feed rate is to be reduced proportionally to the max rpm.

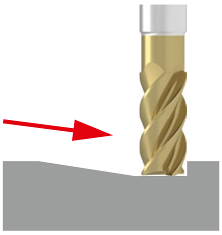
Example:
according to table = n 50000/min. and v_f 40 inch/min.,
maximum machine rpm = 40000/min.

Calculation of feed rate which can be applied:
40000 = 80 % of 50000/min. accordingly 80 % of 40 = 32 inch/min.

Feed rate which can be applied = **32 inch/min.**

Angled ramping with solid carbide cutters

Angled ramping with solid carbide cutters is possible at an angle of 3° to 6° depending on the cutter type.
A protective edge chamfer or corner radius is an advantage.



S.F.M./R.P.M. CONVERSION CHART

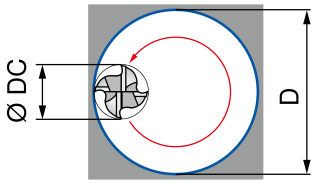
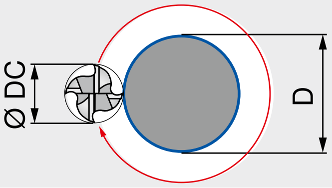
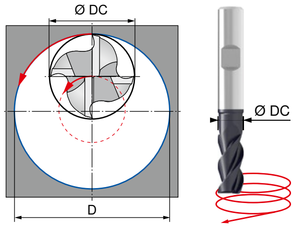
	DIAMETER														
S.F.M.	**1/16**	**3/32**	**1/8**	**5/32**	**3/16**	**7/32**	**1/4**	**5/16**	**3/8**	**7/16**	**1/2**	**5/8**	**3/4**	**7/8**	**1**
50	3.050	2.040	1.530	1.220	1.020	875	765	610	510	440	380	310	250	220	190
75	4.580	3.060	2.290	1.830	1.530	1.310	1.150	920	760	660	570	460	380	330	285
100	6.100	4.080	3.050	2.450	2.040	1.750	1.530	1.220	1.020	870	760	610	510	440	385
125	7.630	5.100	3.820	3.050	2.550	2.180	1.920	1.530	1.270	1.100	950	770	630	550	475
150	9.150	6.120	4.570	3.670	3.060	2.620	2.290	1.83	1.530	1.310	1.140	920	760	660	575
175	10.680	7.140	5.350	4.270	3.570	3.060	2.680	2.140	1.780	1.540	1.330	1.080	880	770	665
200	12.200	8.150	6.100	4.900	4.070	3.500	3.100	2.450	2.00	1.750	1.500	1.200	1.000	875	750
300	18.500	12.200	9.200	7.300	6.100	5.250	4.600	3.700	3.100	2.600	2.300	1.800	1.500	1.300	1.100
400	24.500	16.300	12.200	9.800	8.150	7.000	6.100	4.900	4.100	3.500	3.050	2.450	2.050	1.750	1.525
500	30.500	20.400	15.300	12.200	10.200	8.700	7.600	6.100	5.100	4.400	3.800	3.100	2.500	2.200	1.900
750	45.800	36.700	22.900	18.300	15.300	13.100	11.500	9.200	7.600	6.550	5.700	4.600	3.800	3.700	2.850
1.000	–	40.800	30.600	24.500	20.400	17.500	15.300	12.200	103200	8.750	7.650	6.100	5.100	4.400	3.800
1.500	–	–	45.900	36.700	30.600	26.200	22.900	18.300	15.300	13.150	11.300	9.200	7.600	6.500	5.700
2.000	–	–	–	49.000	40.800	35.000	30.600	24.400	20.400	17.500	15.300	12.200	10.200	8.700	7.600
3.000	–	–	–	–	–	52.500	45.900	36.600	30.600	26.250	22.900	18.300	15.300	13.100	11.400
4.000	–	–	–	–	–	–	–	48.800	40.800	35.000	30.600	24.400	20.400	17.500	15.200
5.000	–	–	–	–	–	–	–	–	–	43.700	38.200	30.600	25.500	21.800	19.000

General formula for calculating the cutting parameters

Designation	Abbreviation	Unit	Formula	Example	
Number of revolutions	**n**	**min^{-1}**	$n = \frac{v_C \text{ x } 12}{DC \text{ x } \pi}$	v_C = 80 ft/min DC = 0.75 inch	$n = \frac{80 \text{ x } 12}{0.75 \text{ x } \pi} = 408 \text{ min}^{-1}$
Cutting speed	**v_c**	**ft/min**	$v_c = \frac{DC \text{ x } \pi \text{ x } n}{12}$	n = 400 min^{-1} DC = 0.75 inch	$v_c = \frac{0.75 \text{ x } \pi \text{ x } 400}{12} = 78 \text{ ft/min}$
Feed per tooth	**f_z**	**inch**	$f_z = \frac{v_f}{ZEFP \text{ x } n}$	v_f = 12.8 inch/min n = 400 min^{-1} ZEFP = 4	$f_z = \frac{12.8}{4 \text{ x } 400} = 0.008 \text{ inch}$
Feed per revolution	**f**	**inch/rev**	$f = f_z \text{ x } ZEFP$	f_z = 0.008 inch ZEFP = 4	f = 0.008 x 4 = 0.032 inch/rev
Feed rate	**v_f**	**inch/min.**	$v_f = f_z \text{ x } ZEFP \text{ x } n$	f_z = 0.008 ZEFP = 4 n = 400 min^{-1}	v_f = 0.008 x 4 x 400 = 12.8 inch/min
Average chip thickness	**h_m**	**inch**	$h_m = f_z \text{ x } \sqrt{\frac{a_e}{DC}}$	f_z = 0.008 inch a_e = 0.012 inch DC = 0.75	$h_m = 0.008 \text{ x} \sqrt{\frac{0.012}{0.75}} = 0.001 \text{ inch}$

ZEFP = Number of flutes
a_e = cutting width

Calculation of the feed rate on the midpoint path of the milling cutter (v_{fM})

Designation	Abbreviation	Unit	Formula	Example
Internal contour	**v_{fM}**	**inch/min.**	$v_{fM} = \frac{v_f \text{ x } (D - DC)}{D}$	
Outside profile	**v_{fM}**	**inch/min.**	$v_{fM} = \frac{v_f \text{ x } (D + DC)}{D}$	
Helical ramping	**v_{fM}**	**inch/min.**	$v_{fM} = \frac{n \text{ x } f_z \text{ x } ZEFP \text{ x } (D - D_C)}{D}$	

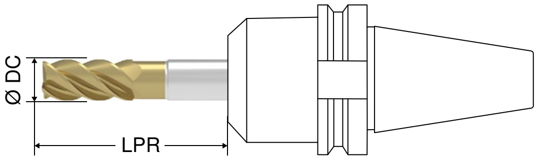
Tips for Tool Selection

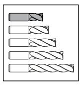
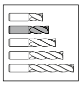
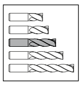
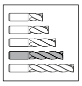
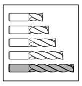
Rake and helix angles combined with the coating are decisive factors for the operational area.

Characteristics	**Benefits**
Helix angle with slow spiral	
▲ For materials with high tensile strength	▲ High edge stability
▲ For high material removal rates	▲ Low tendency to edge chipping
▲ For slot milling, pocket milling, rough milling	
Helix angle with quick spiral	
▲ For soft steels, non ferrous metals, etc.	▲ Soft cut
▲ For low material removal rates	▲ Low cutting forces
▲ Typical for finishing processes	
Small rake angles are applied	
▲ For hard, brittle materials	▲ High edge stability
▲ For high material removal rates	▲ Low tendency to edge chipping
▲ For rough machining	
Large rake angles are applied	
▲ For soft materials	▲ Soft cut
▲ For low material removal rates	▲ Low cutting forces
▲ For finishing	▲ Favorable chip flow
	▲ Low tendency to stick

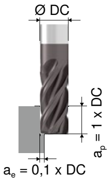
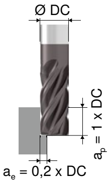
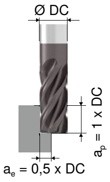
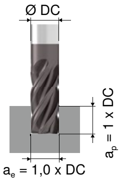
Correction factor for solid carbide milling cutters

Factors for cutting speed (v_c) and feed rate (f_z) in relation to the overhang length (LPR)



Length					
Overhang length (LPR)	1.5 x DC	4 x DC	8 x DC	12 x DC	> 12 x DC
Factor for v_c (Kf v_c)	1.0	1.0	0.9	0.85	0.7
Factor for f_z (Kf f_z)	1.2	1.0	0.8	0.7	0.5

Factors for cutting speed (v_c) and feed rate (f_z) in relation to the cutting depth (a_p) and cutting width (a_e)

				
Factor for v_c (Kf v_c)	1.3	1.1	1.0	0.85
Factor for f_z (Kf f_z)	1.5	1.3	1.0	0.8

Calculation aid for copy milling

Theoretical surface roughness (R_{th}) and step over (b_r)

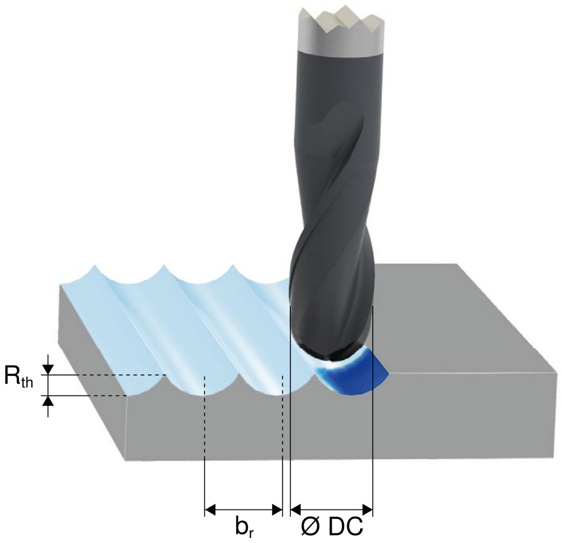
$$R_{th} = r - \sqrt{\frac{(r \times 2)^2 - b_r^{\,2}}{4}}$$

$$b_r = 2 \times \sqrt{R_{th} \times (r \times 2 - R_{th})}$$

$$R_{th} \simeq R_a / 0.1$$

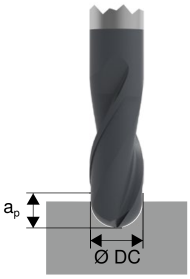
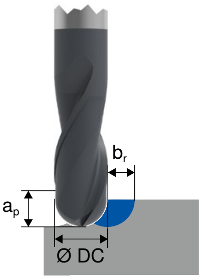
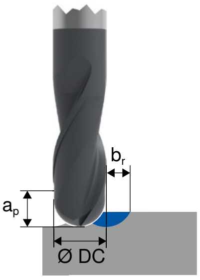
$$R_a \simeq 0.1 \times R_{th}$$

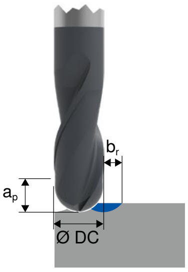
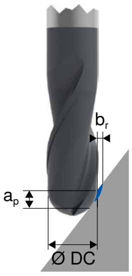
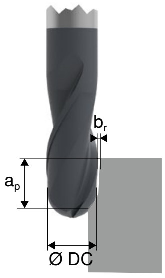
When copy milling, in order to achieve as smooth a surface as possible, the step over b_r should be adapted to the cutter diameter DC. The smaller the cutter diameter DC is, the smaller the step over b_r must be.



RPM correction factor (Kf n) for copy milling

$$n = \frac{v_c \times 12}{DC \times \pi} \times Kf\,n$$

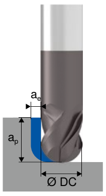
	Peripheral and ball nose copy milling	Ball nose copy milling	
Rough machining			
Axial milling depth a_p	0.5 x DC	> 0.5 x DC	0.2 x DC – 0.5 x DC
Step over b_r	1 x DC	0.2 x DC – 0.5 x DC	0.2 x DC – 0.5 x DC
Correction factor (Kf n)	1	1	1.1

	Ball nose copy milling		
Finish milling			
Axial milling depth a_p	< 0.2 x DC	0.2 x DC – 0.5 x DC	> 0.5 x DC
Step over b_r	< 0.2 x DC	< 0.2 x DC	< 0.2 x DC
Correction factor (Kf n)	2	1.3	1

Calculation aid for copy milling

For peripheral milling or ball nosed copy milling at cutting depths of $\mathbf{a_p} \geq 0.5 \times DC$ and $\mathbf{a_e}$ = **0.2 to 0.5 x DC** the rpm can be calculated with the following fomula:

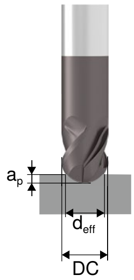
$$n = \frac{v_c \times 12}{DC \times \pi}$$



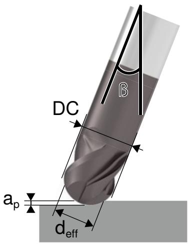
When ball milling the effective milling diameter $\mathbf{d}_{eff.}$ must be determined using the following formula:

Ball nose milling cutters

$$d_{eff.} = 2 \times \sqrt{a_p \times (DC - a_p)}$$

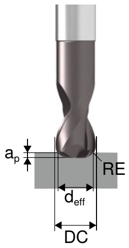


$$d_{eff.} = DC \times \sin\left(\beta \pm \arccos\left(\frac{DC - 2a_p}{DC}\right)\right)$$



Torus end milling cutters

$$d_{eff.} = (DC - 2RE) + 2 \times \sqrt{a_p \times (2RE - a_p)}$$

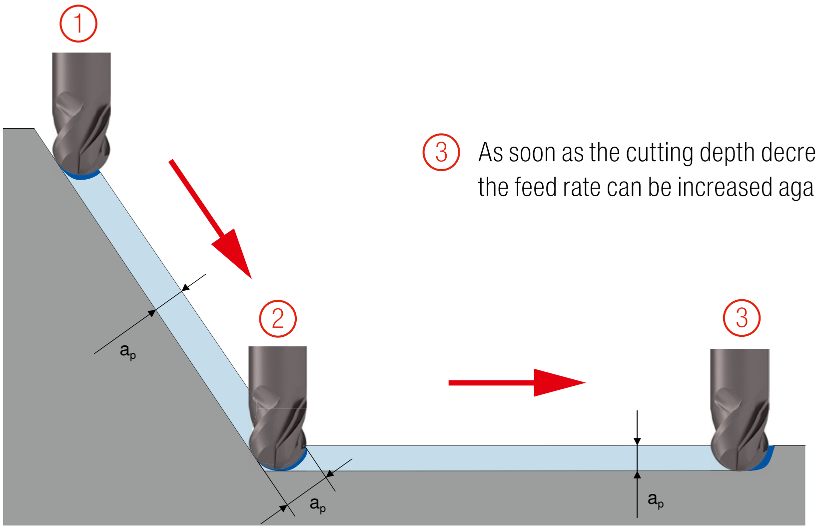


Information concerning plunge and draw milling

① When machining the profile flanks relatively high feed rates are possible as the cutting depth is relatively low (area highlighted in blue).

② A large increase in cutting depth occurs when the base of the profile is reached. Here the feed rate must be reduced as othwerwise tool breakage can occur due to vibrations, misalignment or chattering.

③ As soon as the cutting depth decreases during the machining of the profile base, the feed rate can be increased again.



Rule:
The steeper the angle, the lower the feed rate.
The shallower the angle, the larger the feed rate.

When plunge or draw milling dies, the feed rate has to be adapted to the various milling positions. Otherwise the cutting edge can be damaged due to overload (vibrations, misalignment or chattering).

Tool types

AL	Aluminium and Non-Ferrous Material
ST	Steel and Steel Alloys
Ti	Titanium and Titanium Alloys
UN	Universal

Coatings

ALTiN

- Monolayer coating
- HV0.05 = 3500
- Coefficient of friction (against steel) = 0.30
- Maximum application temperature: 1000°C

ZrN

- Monolayer coating
- HV0.05 = 2500
- Coefficient of friction (against steel) = 0.30
- Maximum application temperature: 650°C

DPAU72S
DRAGONSKIN

- Monolayer coating
- HV0.05 = 3800
- Coefficient of friction (against steel) = 0.35
- Maximum application temperature: 1100°C

DPXU72S
DRAGONSKIN

- ALCrN/SiN Nano Composite coating
- HV0.05 = 3700
- Coefficient of friction (against steel) = 0.30
- Maximum application temperature: 1100°C

Extended Material Examples for the Cutting Data Tables

	Material sub-group	Index	Composition / Structure / Heat treatment		Tensile strength lbf/in^2* / HB / HRC
P	Unalloyed steel	P.1.1	< 0.15 % C	Annealed	60900 lbf/in^2 / 125 HB
		P.1.2	< 0.45 % C	Annealed	92800 lbf/in^2 / 190 HB
		P.1.3		Tempered	121800 lbf/in^2 / 250 HB
		P.1.4	< 0.75 % C	Annealed	132000 lbf/in^2 / 270 HB
		P.1.5		Tempered	146500 lbf/in^2 / 300 HB
	Low-alloy steel	P.2.1		Annealed	88500 lbf/in^2 / 180 HB
		P.2.2		Tempered	134900 lbf/in^2 / 275 HB
		P.2.3		Tempered	146500 lbf/in^2 / 300 HB
		P.2.4		Tempered	174000 lbf/in^2 / 375 HB
	High-alloy steel and high-alloy tool steel	P.3.1		Annealed	98600 lbf/in^2 / 200 HB
		P.3.2		Hardened and tempered	159500 lbf/in^2 / 300 HB
		P.3.3		Hardened and tempered	188500 lbf/in^2 / 400 HB
	Stainless steel	P.4.1	Ferritic / martensitic	Annealed	98600 lbf/in^2 / 200 HB
		P.4.2	Martensitic	Tempered	117500 lbf/in^2 / 250 HB
M	Stainless steel	M.1.1	Austenitic / austenitic-ferritic	Quenched	88500 lbf/in^2 / 200 HB
		M.2.1	Austenitic	Tempered	300 HB
		M.3.1	Austenitic / ferritic (Duplex)		113100 lbf/in^2 / 230 HB
K	Grey cast iron	K.1.1	Pearlitic / ferritic		88500 lbf/in^2 / 180 HB
		K.1.2	Pearlitic (martensitic)		127600 lbf/in^2 / 260 HB
	Spherulitic graphite cast iron	K.2.1	Ferritic		78300 lbf/in^2 / 160 HB
		K.2.2	Pearlitic		122600 lbf/in^2 / 250 HB
	Malleable iron	K.3.1	Ferritic		63800 lbf/in^2 / 130 HB
		K.3.2	Pearlitic		113100 lbf/in^2 / 230 HB
N	Aluminium wrought alloy	N.1.1	Non-hardenable		60 HB
		N.1.2	Hardenable		49300 lbf/in^2 / 100 HB
	Cast aluminium alloy	N.2.1	≤ 12 % Si, non-hardenable		36300 lbf/in^2 / 75 HB
		N.2.2	≤ 12 % Si, hardenable		43500 lbf/in^2 / 90 HB
		N.2.3	> 12 % Si, non-hardenable		63800 lbf/in^2 / 130 HB
	Copper and copper alloys (bronze/brass)	N.3.1	Free-machining alloys, PB > 1 %		54400 lbf/in^2 / 110 HB
		N.3.2	CuZn, CuSnZn		43500 lbf/in^2 / 90 HB
		N.3.3	CuSn, lead-free copper and electrolytic copper		49300 lbf/in^2 / 100 HB
	Magnesium alloys	N.4.1	Magnesium and magnesium alloys		70 HB
S	Heat-resistant alloys	S.1.1	Fe - basis	Annealed	98600 lbf/in^2 / 200 HB
		S.1.2			137800 lbf/in^2 / 280 HB
		S.2.1	Ni or Co basis	Annealed	121800 lbf/in^2 / 250 HB
		S.2.2			171100 lbf/in^2 / 350 HB
		S.2.3		Cast	156600 lbf/in^2 / 320 HB
	Titanium alloys	S.3.1	Pure titanium		5800 lbf/in^2
		S.3.2	Alpha + beta alloys		152300 lbf/in^2
		S.3.3	Beta alloys		203100 lbf/in^2 / 410 HB
H	Hardened steel	H.1.1		Hardened and tempered	46-55 HRC
		H.1.2		Hardened and tempered	56-60 HRC
		H.1.3		Hardened and tempered	61-65 HRC
		H.1.4		Hardened and tempered	66-70 HRC
	Chilled iron	H.2.1		Cast	400 HB
	Hardened cast iron	H.3.1		Hardened and tempered	55 HRC
O	Non-metal materials	O.1.1	Plastics, duroplastic		≤ 21800 lbf/in^2
		O.1.2	Plastics, thermoplastic		≤ 14500 lbf/in^2
		O.2.1	Aramid fibre-reinforced		≤ 145000 lbf/in^2
		O.2.2	Glass/carbon-fibre reinforced		≤ 145000 lbf/in^2
		O.3.1	Graphite		

* Tensile Strength at Rupture (Rm)

On the following 16 pages you will find an extension of the material examples to our usual indexes with additional international standards.

Overview of standards:

USA

Under **USA** several American standards are summarized

DIN

Deutsche **I**ndustrie **N**orm (German Standard)

AFNOR

Association **F**rancaise de **N**ormalisation (French Standard)

UNI

Unificazione **I**taliana (Italian Standard)

ČSN

Czechoslovakian Standard

BS

British **S**tandards

SIS

Standardiseringen **i S**verige (Swedish Standard)

UNE

Spanish Standard

JIS

Japanese **I**ndustrial **S**tandard

ГОСТ

Soviet Standard

UNS

Unified **N**umbering **S**ystem

	Index	Material number	USA	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	ГОСТ	UNS
P	P.1.1	1.5423	4520	16 Mo 5		16 Mo 5		1503-245-420					G 45200
		1.0037		St 37-2	E 24-2		11 343				STKM 12 C		
		1.0044	A 570 Gr. 40	St 44-2	E 28-2	Fe 430 B FN	11 443	4360-43 B	1412		SM 41 B		
		1.0116	A 573 Gr. 58	St 37-3	E 24-3; E 24-4	Fe 360 D FF	11 378	4360-40 C	1312; 1313			St 3 kp; ps; sp	
		1.0144	A 573 Gr. 70	St 44-3	E 28-3; E 28-4	Fe 430 D FF		4360-43 C	1412; 1414		SM 41 C	St 4 kp; ps; sp	
		1.0301	1010	C 10	AF 34 C 10; XC 10	C 10	12 010	045 M 10			S 10 C	10	G 10100
		1.0401	1015	C 15	AF3 7 C 12; XC 18	C 15; C 16	12 020	080 M 15	1350	F-111			G 10170
		1.0402	1020	C 22	AF 42 C 20	C 20; C 21	12 024	050 A 20	1450	F-112		20	G 10200
		1.0406	1025	C 25	AF 50 C 30	C 25	12 030	070 M 26					
		1.0570		St 52-3	E 36-3; E 36-4	Fe 510 B; C; D	11 523	4360-50 B	2132		SM 50 YA	17 GS	
		1.1121	1010	Ck 10	XC 10	C 10	12 010	045 M 10	1265	F-1510	S 10 C; S 9 CK	08; 10	G 10100
		1.1133	1022; 1518	20 Mn 5	20 M 5	G 22 Mn 3		120 M 19			SMnC 420		G 10220
		1.1141	1015	Ck 15	XC 15; XC 18	C 15; C 16	12 020	080 M 15	1370	F-1511	S 15 C; S 15 CK	15	G 10170
		1.1151	1023	Ck 22	XC 25; XC 18	C 20		050 A 20			S 20 C; S 20 CK	20	
		1.1158	1025	Ck 25	XC 25	C 25	12 030	070 M 26			S 25 C	25	G 10250
	P.1.2	1.0050	A 570 Gr. 50	St 50-2	A 50-2	Fe 490	11 500	4360-50 B	2172		SS 50	BSt 5 ps; sp	
		1.0060		St 60-2	A 60-2	Fe 590; Fe 60-2	11 600	4360-SSE; SSC			SM 58	St 6 ps; sp	
		1.0406	1025	C 25	AF 50 C 30	C 25	12 030	070 M 26					
		1.0420		GS-38									
		1.0446		GS-45									
		1.0481		17 Mn 4			11 748						
		1.0501	1035	C 35	AF 55 C 35	C 35	12 040	060 A 35	1550	F-113		35	G 10350
		1.0503	1045	C 45	AF 65 C 45	C 45	12 050	080 M 46	1650	F-114		45	G 10430
		1.0511	1040	C 40	AF 60 C 40	C 40	12 041						
		1.0528		C 30			12 031						
		1.0540		C 50									
		1.0552		GS-52									
		1.0558		GS-60									
		1.0619		GS-C 25									
		1.0711	1212	9 S 20		CF 9 S 22		220 M 07	220 M 07		SUM 21	SUM 21	G 12120
		1.0715	1213	9 SMn 28	S 250	CF 9 SMn 28	11 109	230 M 07	1912	F-211 / F-2111	SUM 22		G 12130
		1.0718	12 L 13	9 SMnPb 28	S 250 Pb	CF 9 SMnPb 28			1914	F-212 / F-2112	SUM 22 L		G 12134
		1.0721	1108	10 S 20	10 F 1	CF 10 S 20	10 110	210 M 15		F-2121			
		1.0722	11 L 08	10 SPb 20	10 PbF 2	CF 10 SPb 20				F-2122			
		1.0723		15 S 20				210 A 15	1922		SUM 32		
		1.0736	1215	9 SMn 36	S 300	CF 9 SMn 36		240 M 07		F-2113			G 12150
		1.0737	12 L 14	9 SMnPb 36	S 300 Pb	CF 9 SMnPb 36			1926	F-2114			G 12144
		1.1118		GS-24 Mn 6			42 2714						
		1.1120		GS-20 Mn 5									
		1.1131		GS-16 Mn 5									
		1.1138		GS-21 Mn 5									
		1.1142		GS-Ck 16									
		1.1151	1023	Ck 22	XC 25; XC 18	C 20		050 A 20			S 20 C; S 20 CK	20	
		1.1155		GS-Ck 25									
		1.1158	1025	Ck 25	XC 25	C 25	12 030	070 M 26			S 25 C	25	G 10250
		1.1178		Ck 30									
		1.1181	1035	Ck 35	XC 38 H1:XC 32	C 35		080 M 36	1572		S 35 C	35	G 10340
		1.1186	1040	Ck 40	XC 42 H1	C 40		080 M 40			S 40 C	40	
		1.1191	1045	Ck 45	XC 42	C 45		080 M 46	1672		S 45 C	45	G 10420
		1.1206	1050	Ck 50	XC 48 H1			080 M 50				50	
		1.1730		C 45 W	Y3 42								

	Index	Material number	USA	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	ГОСТ	UNS
P	P.1.3	1.0501	1035	C 35	AF 55 C 35	C 35	12 040	060 A 35	1550	F-113		35	G 10350
		1.0503	1045	C 45	AF 65 C 45	C 45	12 050	080 M 46	1650	F-114		45	G 10430
		1.0511	1040	C 40	AF 60 C 40	C 40	12 041						
		1.0528		C 30			12 031						
		1.0540		C 50									
		1.0726	1140	35 S 20	35 MF 4		11 140	212 M 36	1957	F-210.G			G 11400
		1.0727	1146	45 S 20	45 MF 4			212 M 44	1973				G 11460
		1.0728		60 S 20	60 MF 4								
		1.1178		Ck 30									
		1.1181	1035	Ck 35	XC 38 H1:XC 32	C 35		080 M 36	1572		S 35 C	35	G 10340
		1.1186	1040	Ck 40	XC 42 H1	C 40		080 M 40			S 40 C	40	
		1.1191	1045	Ck 45	XC 42	C 45		080 M 46	1672		S 45 C	45	G 10420
		1.1206	1050	Ck 50	XC 48 H1			080 M 50				50	
	P.1.4	1.0535	1055	C 55	AF 70 C55	C 55	12 060	070 M 55	1655			55	
		1.0601	1060	C 60	CC 55	C 60		080 A 62				60	G 10600
		1.0757		46 SPb 20									
		1.1203	1055	Ck 55	XC 55	C50		070 M 55			S 55 C	55	
		1.1221	1060	Ck 60	XC 60	C60		080 A 62	1665; 1678		S 58 C	60; 60G	G 10640
		1.1248	1078; 1080	Ck 75	XC 75	C 75	12 081	060 A 78	1774; 1778			75	G 10780
		1.1274	1095	Ck 101	XC 100			060 A 96	1870		SUP 4		G 10950
		1.1520		C 70 W1									
		1.1525	W 108	C 80 W1	Y1 90; Y1 80	C 80 KU						U8A	T 72301
		1.1545+G502	W 110	C 105 W1	Y1 105	C 100 KU			1880			U10A	T 72301
		1.1620		C 70 W2									
		1.1625	W 1	C 80 W2		C 80 KU		BW 1 B			SKC 3; SK 5; SK 6	U8; 80	T 72301
		1.1645		C 105 W2	Y2 105	C 100 KU					SK 3	U10	T 72301
		1.1663	W 112	C 125 W	Y2 120	C 120 KU					SK 2	U13	T 72301
		1.1673		C 135 W	Y2 140	C 140 KU					SK 1		
		1.1740		C 60 W	Y3 55						SK 7		
		1.1750	W 1	C 75 W				BW 1A				75	
		1.1820		C 55 W									
		1.1830		C 85 W	Y3 90						SK 5		
	P.1.5	1.0535	1055	C 55	AF 70 C55	C 55	12 060	070 M 55	1655			55	
		1.0601	1060	C 60	CC 55	C 60		080 A 62				60	G 10600
		1.1203	1055	Ck 55	XC 55	C50		070 M 55			S 55 C	55	
		1.1221	1060	Ck 60	XC 60	C60		080 A 62	1665; 1678		S 58 C	60; 60G	G 10640
		1.1231	1070	Ck 67	XC 68	C 70	12 071	060 A 67	1770			70	G 10700
		1.1274	1095	Ck 101	XC 100			060 A 96	1870		SUP 4		G 10950
		1.1520		C 70 W1									
	P.2.1	1.2162		21 MnCr 5	20 NC 5		19 487				SCR 420 H		
		1.2210	L 2	115 CrV 3	100 C 3	107 CrV 3 KU	19 421						T 61202
		1.2323		GS-48 CrMoV 6 7									
		1.2341		X 6 CrMo 4									
		1.2369		81 CrMov 42 16									
		1.2516		120 WV 4	110 WC 20	110 W 4 KU	19 711	BF 1					
		1.2542	S 1	45 WCrV 7		45 WCrV 8 KU	19 732	BS 1	2710				T 41901
		1.2550		60 WCrV 7	55 WC 20	55 WCrV 8 KU	19 735						
		1.2711		54 NiCrMoV 6	55 NCDV 6		19 662						
		1.2735		15 NiCr 14	10 NC 12		16 240				SNC 22		T 51606
		1.2762		75 CrMoNiW 6 7									
		1.2842	O 2	90 MnCrV 8	90 MV 8	90 MnVCr 8 KU	19 314	BO 2					T 31502

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P	P.2.1	1.5015		GS-8 Mn 7									
		1.5122		37 MnSi 4			13 240						
		1.5415	A 204 Gr. A	15 Mo 3	15 D 3	16 Mo 3		1501-240	2912				
		1.5419		GS-22 Mo 4									
		1.5621		GS-10 Ni 6									
		1.5622	A 350-LF 5	14 Ni 6	16 N 6	14 Ni 6							
		1.5633		GS-24 Ni 8									
		1.5638		GS-10 Ni 14									
		1.5732	3415	14 NiCr 10	14 NC 11	16 NiCr 11				F-1540	SNC 415 (H)		
		1.5752	3310; 9314	14 NiCr 14	12 NC 15		16 240	655 M 13		F-1540	SNC 815 (H)		G 33106
		1.5919		15 CrNi 6	16 NC 6	16 CrNi 4	16 220	S 107					
		1.5920		18 CrNi 8	20 NC 6		13 231						
		1.6221		GS-13 MnNi 6 4									
		1.6523	8620	21 NiCrMo 2	20 NCD 2	20 NiCrMo 2		805 M 20	2506	F-1522	SNCM 220 (H)		G 86170
		1.6587		17 CrNiMo 6	18 NCD 6	18 NiCrMo 7		820 A 16					
		1.6750		GS-20 NiCrMo 3 7									
		1.7003		38 Cr 2	38 C 2	38 Cr 2							
		1.7006	5045	46 Cr 2	42 C 2	45 Cr 2							
		1.7012		13 Cr 2									
		1.7015	5015	15 Cr 3	12 C 3		14 120	523 M 15			SCr 415 (H)	15Ch	G 50150
		1.7020		32 Cr 2									
		1.7030	5130	28 Cr 4				530 A 30				30Ch	
		1.7033	5132	34 Cr 4	32 C 4	34 Cr 4 (KB)		530 A 32			SCr 430 (H)	35Ch	G 51320
		1.7131	5115	16 MnCr 5	16 MC 5	16 MnCr 5	14 220	527 M 17	2511	F-1516 / F-1517	SCR 415	18ChG	G 51170
		1.7139		16 MnCrS 5						F-150D			
		1.7147	5120	20 MnCr 5	20 MC 5	20 MnCr 5	14 221				SMnC 420 (H)	18ChG	G 51200
		1.7149		20 MnCrS 5						F-1551			
		1.7218	4130	25 CrMo 4	25 CD 4 S	25 CrMo 4 (KB)	15 130	1717 CDS 110	2225		SCM 420; SCM 430	30ChM	G 41300
		1.7219		GS-26 CrMo 4									
		1.7220	4135; 4137	34 CrMo 4	35 CD 4	35 CrMo 4	15 131	708 A 37	2234		SCM 432; SCCrM 3	AS38ChGM	G 41350
		1.7262		15 CrMo 5	12 CD 4	12 CrMo 4					SCM 415 (H)		
		1.7264		20 CrMo 5	18 CD 4						SCM 421		
		1.7271		23 CrMoB 3 3									
		1.7311		20 CrMo 2						F-1523			
		1.7321		20 MoCr 4	20 CD 4								
		1.7335	A 182-F11; F12	13 CrMo 4 4	15 CD 3.5	14 CrMo 4 5		1501-620 Gr. 27	2216			12ChM; 15ChM	
		1.7337	A 387 Gr. 12 Cl. 2	16 CrMo 4 4	15 CD 4.5	14 CrMo 4 5		1501-620 Gr. 27	2216			15ChM	
		1.7357		GS-17 CrMo 5 5									
		1.7363		GS-12 CrMo 19 5									
		1.7377		GS-17 CrMo 9 10									
		1.7379		GS-18 CrMo 9 10									
		1.7380	A 182-F22	10 CrMo 9 10	10 CD 9.10	12 CrMo 9 10		1501-622 Gr. 31; 45	2218				J 21890
		1.7715		14 MoV 6 3				1503-660-440					
		1.7725		GS-30 CrMoV 6 4									
		1.8504		34 CrAl 6			14 340						
		1.8506		34 CrAlS 5									K 23745
		1.8521		15 CrMoV 5 9									
		1.0904	9255	55 Si 7	55 S 7	55 Si 8		250 A 53	2085; 2090			55S2	
	P.2.2	1.2067	L 3	100 Cr 6	Y 100 C 6			BL 3					T 61203
		1.2101		62 SiMnCr 4									
		1.2103		58 SiCr 8			19 452						

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P	**P.2.2**	1.2108		90 CrSi 5P									
		1.2162		21 MnCr 5	20 NC 5		19 487				SCR 420 H		
		1.2210	L 2	115 CrV 3	100 C 3	107 CrV 3 KU	19 421						T 61202
		1.2311		40 CrMnMo 7			19 520						
		1.2312		40 CrMnMoS 8 6	40 CMD 8 + S								
		1.2323		GS-48 CrMoV 6 7									
		1.2330	4135	35 CrMo 4	34 CD 4	35 CrMo 4		708 A 37	2234			35 HM	T 51620
		1.2332	4142	47 CrMo 4	42 CD 4	40 CrMo 4		708 M 40	2244				
		1.2419		105 WCr 6	105 WC 13	107 WCr 5 KU					SKS 31	ChWG	
		1.2510	O 1	100 MnCrW 4	90 MWCV 5	95 MnWCr 5 KU	19 314	BO 1	2140	F-5220	SKS 3		T 31501
		1.2542	S 1	45 WCrV 7		45 WCrV 8 KU	19 732	BS 1	2710				T 41901
		1.2550		60 WCrV 7	55 WC 20	55 WCrV 8 KU	19 735						
		1.2711		54 NiCrMoV 6	55 NCDV 6		19 662						
		1.2713	L 6	55 NiCrMoV 6	55 NCDV 7		19 662			F-520.S	SKT 4	5ChNM	T 61206
		1.2721		50 NiCr 13									
		1.2738		40 CrMnNiMo 8						F-5303			
		1.2826		60 MnSiCr 4									
		1.2833	W 210	100 V 1	Y1 105 V	102 V 2 KU	19 356	BW 2			SKS 43		T 72302
		1.2842	O 2	90 MnCrV 8	90 MV 8	90 MnVCr 8 KU	19 314	BO 2					T 31502
		1.3505	52100	100 Cr 6	100 C 6	100 Cr 6	14 100	534 A 99	2258	F-131 / F-1310	SUJ 2	SchCh 15	G 52986
		1.3520		100 CrMn 6			14 209						
		1.3561		44 Cr 2									
		1.3563		43 CrMo 4									
		1.5120		38 MnSi 4									
		1.5121		46 MnSi 4									
		1.5122		37 MnSi 5			13 240						
		1.5131		50 MnSi 4									
		1.5141		53 MnSi 4									
		1.5223		42 MnV 7			13 242						
		1.5710	3135	36 NiCr 6	35 NC 6		16 240	640 A 35			SNC 236		
		1.5736	3435	36 NiCr 10	30 NC 11	35 NiCr 9					SNC 631 (H)		
		1.5755		31 NiCr 14	18 NC 13			653 M 31			SNC 836		
		1.6511	9840	36 CrNiMo 4	40 NCD 3	38 NiCrMo 4 (KB)	16 341	816 M 40				40 ChN2MA	G 98400
		1.6513		28 NiCrMo 4									
		1.6546	8740	40 NiCrMo 2 2	40 NCD 2	40 NiCrMo 2 (KB)		311-Type 7			SNCM 240	38ChGNM	G 87400
		1.6565	4340	40 NiCrMo 6				311-Type 6			SNCM 439	40Ch2N2MA	
		1.6570		GS-30 NiCrMo 8 5									
		1.6580		30 CrNiMo 8	30 CND 8	30 NiCrMo 8		823 M 30		F-1272	SNCM 431		
		1.6582	4340	34 CrNiMo 6	35 NCD 6	35 NiCrMo 6 (KW)	16 342	817 M 40	2541	F-128 / F-1270	SNCM 447	38Ch2N2MA	
		1.6746		32 NiCrMo 14 5	35 NCD 14			830 M 31					
		1.6781		GS-18 NiCrMo 12 6									
		1.7003		38 Cr 2	38 C 2	38 Cr 2							
		1.7006	5045	46 Cr 2	42 C 2	45 Cr 2							
		1.7030	5130	28 Cr 4				530 A 30				30Ch	
		1.7033	5132	34 Cr 4	32 C 4	34 Cr 4 (KB)		530 A 32			SCr 430 (H)	35Ch	G 51320
		1.7034	5135	37 Cr 4	38 C 4	38 Cr 4	14 140	530 A 36			SCr 435 H	40Ch	
		1.7035	5140	41 Cr 4	42 C 4	41 Cr 4		530 M 40			SCr 440 (H)	40Ch	G 51400
		1.7045	5140	42 Cr 4	42 C 4 TS	41 Cr 4		530 A 40	2245		SCr 440	40Ch	
		1.7103		67 SiCr 5									
		1.7131	5115	16 MnCr 5	16 MC 5	16 MnCr 5	14 220	527 M 17	2511	F-1516 / F-1517	SCR 415	18ChG	G 51170
		1.7139		16 MnCrS 5						F-150D			

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P	P.2.2	1.7147	5120	20 MnCr 5	20 MC 5	20 MnCr 5	14 221				SMnC 420 (H)	18ChG	G 51200
		1.7149		20 MnCrS 5						F-1551			
		1.7176	5155	55 Cr 3	55 C 3	55 Cr 3		527 A 60	2253	F-1431	SUP 9 (A)	50ChGA	G 51550
		1.7218	4130	25 CrMo 4	25 CD 4 S	25 CrMo 4 (KB)	15 130	1717 CDS 110	2225		SCM 420; SCM 430	30ChM	G 41300
		1.7220	4135; 4137	34 CrMo 4	35 CD 4	35 CrMo 4	15 131	708 A 37	2234		SCM 432; SCCrM 3	AS38ChGM	G 41350
		1.7223	4142; 4140	41 CrMo 4	42 CD 4 TS	41 CrMo 4		708 M 40	2244		SCM 440	40 ChFA	G 41420
		1.7225	4142; 4140	42 CrMo 4	42 CD 4	42 CrMo 4	15 142	708 M 40	2244		SCM 440 (H)		G 41400
		1.7228	4150	50 CrMo 4	50 CR MO4			708 A 47			SCM 445 (H)	50ChFA	G 41470
		1.7323		20 MoCrS 4	20 CD 4 S								
		1.7325		25 MoCr 4	25 CD 4								
		1.7326		25 MoCrS 4	25 CD 4 S								
		1.7361		32 CrMo 12	30 CD 12	32 CrMo 12	15 230	722 M 24	2240	F-124A			
		1.7707		30 CrMoV 9			15 330						
		1.7709		21 CrMoV 5 7									
		1.7725		GS-30 CrMoV 6 4									
		1.7735		14 CrMoV 6 9	15 CDV 6								
		1.8159	6150	50 CrV 4	50 CV 4	51 CrV 4	15 260	735 A 50	2230	F-143 / F-1430	SUP 10	50ChGFA	G 61500
		1.8161		58 CrV 4			15 261						
		1.8507	A 355 Cl. D	34 CrAlMo 5	30 CAD 6.12	34 CrAlMo 7		905 M 31		F-1741			K 23545
		1.8509	A 355 Cl. A	41 CrAlMo 7	40 CAD 6.12	41 CrAlMo 7	15 340	905 M 39	2940	F-1740	SACM 645	38ChMJuA	K 24065
		1.8515		31 CrMo 12	30 CD 12	31 CrMo 12		722 M 24	2240	F-1712			
		1.8519		31 CrMoV 9						F-1721			
		1.8523		39 CrMoV 13 9		36 CrMoV 13 9		897 M 39					
		1.8550		34 CrAlNi 7									K 52440
		1.0904	9255	55 Si 7	55 S 7	55 Si 8		250 A 53	2085; 2090			55S2	
		1.1157	1039	40 Mn 4	35 M 5			150 M 36				40G	G 10390
		1.1165	1330	30 Mn 5	35 M 5			120 M 36			SMn 433 H; SCMn 2	30GSL	
		1.1167	1335	36 Mn 5	40 M 5		42 2715	150 M 36	2120		SMn 438 (H); SCMn 3	35G2; 35GL	G 13350
		1.1170	1330	28 Mn 6	20 M 5	C 28 Mn		150 M 28			SCMn 1	30G	
	P.2.3	1.2744		57 NiCrMoV 7 7									
		1.7131	5115	16 MnCr 5	16 MC 5	16 MnCr 5	14 220	527 M 17		F-1516 / F-1517	SCR 415	18ChG	G 51170
		1.7755		GS-35 CrMoV 10 4									
	P.2.4	1.2714		56 NiCrMoV 7									
		1.3505	52100	100 Cr 6	100 C 6	100 Cr 6	14 100	534 A 99	2258	F-131 / F-1310	SUJ 2	SchCh 15	G 52986
		1.7225	4142; 4140	42 CrMo 4	42 CD 4	42 CrMo 4	15 142	708 M 40	2244		SCM 440 (H)		G 41400
	P.3.1	1.2080	D 3	X 210 Cr 12	Z 200 C 12	X 210 Cr 13 KU	19 436	BD 3			SKD 1	Ch12	T 30403
		1.2201		G-X 165 CrV 12									
		1.2343	H 11	X 38 CrMoV 5 1	Z 38 CDV 5	X 37 CrMoV 5 1 KU	19 552	BH 11		F-5317	SKD 6	4Ch5MFS	T 28811
		1.2363	A 2	X 100 CrMoV 5 1	Z 100 CDV 5	X 100 CrMoV 5 1 KU	19 571	BA 2	2260	F-5227	SKD 12		T 30102
		1.2365	H 10	X 32 CrMoV 3 3	32 DCV 28	30 CrMoV 12 27 KU	19 541	BH 10			SKD 7	3Ch3M3F	T 20810
		1.2367		X 38 CrMoV 5 3									
		1.2379	D 2	X 155 CrVMo 12 1	Z 160 CDV 12	X 155 CrV-Mo 12 1 KU	19 573	BD 2		F-5211	SKD 11		T 30402
		1.2436		X 210 CrW 12	Z 200 CW 12	X 215 CrW 12 1 KU	19 437		2312	F-5213	SKD 2		
		1.2567		X 30 WCrV 5 3	Z 32 WCV 5	X 30 WCrV 5 3 KU	19 720				SKD 4		
		1.2581	H 21	X 30 WCrV 9 3	Z 30 WCV 9	X 30 WCrV 9 3 KU	19 721	BH 21			SKD 5	3Ch2W8F	T 20821
		1.2601		X 165 CrMoV 12		X 165 CrMoW 12 KU	19 572		2310				
		1.2606		G-X 37 CrMoW 5 1									
		1.2764		X 19 NiCrMo 4									
		1.2767		X 45 NiCrMo 4	Y 35 NCD 16	42 NiCrMo 15 7	19 655						
		1.2880		G-X 165 CrCoMo 12									
		1.2885		X 32 CrMoCoV 3 3 3	30 DCKV 28								

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P	**P.3.1**	1.3302		S 12-1-4			19 810						
		1.3318		S 12-1-2			19 802						
		1.3333		S 3-3-2		HS 3-3-2	19 820						
		1.3343	M 2	S 6-5-2	Z 85 WDCV 06-05-04-0	HS 6-5-2	19 830	BM 2	2722	F-5603	SKH 9; SKH 51	R6AM5	T 11302
		1.3346	H 41; M 1	S 2-9-1	Z 85 DCWV 08-04-02-0	HS 1-8-1		BM 1				H41	T 11301
		1.4943		X 4 NiCrTi 25 15	Z 6 NCTDV 25.15 B			HR 251; HR 52; HR 51			SUH 660		
		1.5662		G-X 8 Ni 9									
		1.5680	2515	12 Ni 19	Z 18 N 5								
	P.3.2	1.2080	D 3	X 210 Cr 12	Z 200 C 12	X 210 Cr 13 KU	19 436	BD 3			SKD 1	Ch12	T 30403
		1.2343	H 11	X 38 CrMoV 5 1	Z 38 CDV 5	X 37 CrMoV 5 1 KU	19 552	BH 11		F-5317	SKD 6	4Ch5MFS	T 28811
		1.2344	H 13	X 40 CrMoV 5 1	Z 40 CDV 5	X 40 CrMo 5 1 1 KU	19 554	BH 13	2242	F-5318	SKD 61	4Ch5MF1S	T 20813
		1.2363	A 2	X 100 CrMoV 5 1	Z 100 CDV 5	X 100 CrMoV 5 1 KU	19 571	BA 2	2260	F-5227	SKD 12		T 30102
		1.2365	H 10	X 32 CrMoV 3 3	32 DCV 28	30 CrMoV 12 27 KU	19 541	BH 10			SKD 7	3Ch3M3F	T 20810
		1.2367		X 38 CrMoV 5 3									
		1.2379	D 2	X 155 CrVMo 12 1	Z 160 CDV 12	X 155 CrVMo 12 1 KU	19 573	BD 2		F-5211	SKD 11		T 30402
		1.2567		X 30 WCrV 5 3	Z 32 WCV 5	X 30 WCrV 5 3 KU	19 720				SKD 4		
		1.2581	H 21	X 30 WCrV 9 3	Z 30 WCV 9	X 30 WCrV 9 3 KU	19 721	BH 21			SKD 5	3Ch2W8F	T 20821
		1.2606		G-X 37 CrMoW 5 1									
		1.2709		X 2 NiCoMoTi 18 9 5									
		1.2764		X 19 NiCrMo 4									
		1.2767		X 45 NiCrMo 4	Y 35 NCD 16	42 NiCrMo 15 7	19 655						
		1.2885		X 32 CrMoCoV 3 3 3	30 DCKV 28								
		1.3207		S 10-4-3-10	Z 130 WKCDV 10-10-04	HS 10-4-3-10	19 861	BT 42		F-5553	SKH 57		
		1.3243		S 6-5-2-5	Z 85 WDKCV 06-05-05	HS 6-5-2-5	19 852		2723	F-5613	SKH 55	R6M5K5	
		1.3246	M 41	S 7-4-2-5	Z 110 WKCDV 07-05-04	HS 7-4-2-5	19 851						T 11341
		1.3247	M 42	S 2-10-1-8	Z 110 DKCWV 09-08-04	HS 2-9-1-8		BM 42			SKH 51		T 11342
		1.3249	M 33; M 34	S 2-9-2-8				BM 34					T 11333
		1.3255	T 4	S 18-1-2-5	Z 80 WKCV 18-05-04-0	HS 18-1-1-5	19 855	BT 4			SKH 3		T 12004
		1.3265	T 5	S 18-1-2-10		HS 18-0-1-10	19 860	BT 5			SKH 4 A		T 12005
		1.3344	M 3 Cl. 2	S 6-5-3	Z 120 WDCV 06-05-04	HS 6-5-3		BM 4			SKH 52; SKH 53		T 11323
		1.3348	M 7	S 2-9-2	Z 100 DCWV 09-04-02	HS 2-9-2			2782				T 11307
		1.3401	A 128 (A)	G-X 120 Mn 12	Z 120 M 12	XG 120 Mn 12		Z 120 M 12			SCMnH 1	110G13L	
		1.5860		14 NiCr 18			16 523						
		1.5864		35 NiCr 18			16 640			F-122			
	P.3.3	1.6359		X 2 NiCrMo 18 8 5	Maraging 250								K 92890
	P.4.1	1.2083		X 42 Cr 13	Z 40 C 14	X 41 Cr 13 KU	19 435			F-5263	SUS 420 J 2		
		1.2316		X 36 CrMo 17	Z 38 CD 17	X 38 CrMo 16 1 KU							
		1.3543		X 102 CrMo 17	Z 100 CD 17								
		1.4001		G-X 7 Cr 13	Z 8 C 13 FF		17 020			F-8401			
		1.4002	405	X 6 CrAl 13	Z 6 CA 13	X 6 CrAl 13		405 S 17	2302	F-3111	SUS 405		S 40500
		1.4005	416	X 12 CrS 13	Z 12 CF 13	X 12 CrS 13		416 S 21	2380		SUS 416		S 41600
		1.4006	410; CA-15	X 10 Cr 13	Z 12 C 13	X 12 Cr 13	17 021	410 S 21	2302	F-3401	SUS 410	12Ch13	S 41000
		1.4008		G-X 8 CrNi 13	Z 12 CN 13 M		42 2904						
		1.4016	430	X 6 Cr 17	Z 8 C 17	X 8 Cr 17	17 040	430 S 15	2320	F-3113	SUS 430	12Ch17	S 43000
		1.4021	420	X 20 Cr 13	Z 20 C 13	X 20 Cr 13	17 022	420 S 37	2303	F-3402	SUS 420 J 1	20Ch13	S 42000
		1.4024		X 15 Cr 13	Z 13 C 13		17 021	420 S 29			SUS 410 J 1		
		1.4027		G-X 20 Cr 14	Z 20 C 13 M		42 2906	420 C 29			SCS 2	20Ch13L	
		1.4028		X 30 Cr 13	Z 30 C 13	X 30 Cr 13	17 023	420 S 45	2304		SUS 420 J 2	30Ch13	
		1.4031		X 38 Cr 13	Z 40 C 14	X 40 Cr 14	17 024		2304	F-3404	SUS 420 J 2	40Ch13	
		1.4034		X 46 Cr 13	Z 40 C 14	X 40 Cr 14	17 029	420 S 45		F-3405		40Ch13	
		1.4085		G-X 70 Cr 29									

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P	**P.4.1**	1.4104	430 F	X 12 CrMoS 17	Z 10 CF 17	X 10 CrS 17	17 140		2383	F-3403	SUS 430 F		S 43020
		1.4105		X 4 CrMoS 18						F-3114			
		1.4106		X 2 CrMoSiS 18 2 1									
		1.4107		G-X 8 CrNi 12			42 2904						
		1.4109		X 65 CrMo 14									
		1.4112		X 90 CrMoV 18									S 44003
		1.4113	434	X 6 CrMo 17	Z 8 CD 17.01	X 8 CrMo 17		434 S 17	2325	F-3116	SUS 434		S 43400
		1.4116		X 45 CrMoV 15						F-3422			
		1.4122		G-X 35 CrMo 17			17 137						
		1.4125	440 C	X 105 CrMo 17	Z 100 CD 17	X 105 CrMo 17					SUS 440 C		S 44004
		1.4136		G-X 70 CrMo 29 2									
		1.4405		G-X 5 CrNiMo 16 5									
		1.4407		G-X 5 CrNiMo 13 4									
		1.4510	XM 8; 430 Ti	X 6 CrTi 17	Z 8 CT 17	X 6 CrTi 17					SUS 430 LX	08Ch17T	S 43036
		1.4511		X 8 CrNb 17	Z 8 CNb 17	X 6 CrNb 17				F-3122	SUS 430 LX		
		1.4512	409	X 5 CrTi 12	Z 6 CT 12	X 6 CrTi 12		409 S 19		F-3121	SUH 409		S 40900
		1.4528		X 105 CrCoMo 18 2									
		1.4540		G-X 4 CrNiCuNb 16 4									
		1.4724		X 10 CrAl 13	Z 10 C 13	X 10 CrAl 12	17 125	403 S 17		F-3152		10Ch13SJu	
		1.4742	430	X 10 CrAl 18	Z 10 CAS 18	X 8 Cr 17		430 S 15		F-3153	SUS 430; SUH21		
		1.4761		G-X 120 CrSi 23									
		1.4762	446	X 10 CrAl 24	Z 10 CAS 24	X 16 Cr 26	17 153			F-3154			S 44600
		1.4931		G-X 22 CrMoV 12 1									
		1.4962		X 12 CrNiWTi 16 3									
		1.6982		G-X 3 CrNi 13 4									
	P.4.2	1.2316		X 36 CrMo 17	Z 38 CD 17	X 38 CrMo 16 1 KU							
		1.4000	403	X 6 Cr 13	Z 6 C 13	X 6 Cr 13	17 020	403 S 17	2301		SUS 403	08Ch13	S 40300
		1.4021	420	X 20 Cr 13	Z 20 C 13	X 20 Cr 13	17 022	420 S 37	2303	F-3402	SUS 420 J 1	20Ch13	S 42000
		1.4024		X 15 Cr 13	Z 13 C 13		17 021	420 S 29			SUS 410 J 1		
		1.4028		X 30 Cr 13	Z 30 C 13	X 30 Cr 13	17 023	420 S 45	2304		SUS 420 J 2	30Ch13	
		1.4031		X 38 Cr 13	Z 40 C 14	X 40 Cr 14	17 024		2304	F-3404	SUS 420 J 2	40Ch13	
		1.4034		X 46 Cr 13	Z 40 C 14	X 40 Cr 14	17 029	420 S 45		F-3405		40Ch13	
		1.4057	431	X 20 CrNi 17 2	Z 15 CN 16.02	X 16 CrNi 16	17 145	431 S 29	2321	F-3427	SUS 431	20Ch17N2	S 43100
		1.4059		G-X 22 CrNi 17									
		1.4086		G-X 120 Cr 29									
		1.4108		X 100 CrMo 13									
		1.4112		X 90 CrMoV 18									S 44003
		1.4116		X 45 CrMoV 15						F-3422			
		1.4120		G-X 20 CrMo 13									
		1.4122		G-X 35 CrMo 17			17 137						
		1.4138		G-X 120 CrMo 29 2									
		1.4313	CA 6-NM	X 5 CrNi 13 4	Z 5 CN 13.4	X 6 CrNi 13 04		425 C 11	2385		SCS 5		
		1.4340		G-X 40 CrNi 27 4									
		1.4464		G-X 40 CrNiMo 27 5									
		1.4542	630	X 7 CrNiCu 16 4 4	Z7 CNU 17 04 04 (17-4PH)						SCS 24; SUS 630		S 17400
		1.4545		X 5 CrNiCu 15-5	E-Z5 CNU 15 05 (15-5PH)								
		1.4710		G-X 30 CrSi 6									
		1.4718	HNV 3	X 45 CrSi 9 3	Z 45 CS 9	X 45 CrSi 8	17 115	401 S 45		F-3220	SUH 1	40Ch9S2	S 65007
		1.4729		G-X 40 CrSi 13									
		1.4740		G-X 40 CrSi 17									
		1.4743		G-X 160 CrSi 18									

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P	**P.4.2**	1.4745		G-X 40 CrSi 23									
		1.4747	HNV 6	X 80 CrNiSi 20	Z 80 CSN 20.02	X 80 CrSiNi 20		443 S 65			SUH 4		S 65006
		1.4776		G-X 40 CrSi 29									
		1.4823		G-X 40 CrNiSi 27 4									
		1.4923		X 22 CrMoV 12 1			17 134	762					
		1.4928		G-X 12 CrNiMoCoVN 12									
		1.4935		X 20 CrMoWV 12 1									S 42200
M	**M.1.1**	1.3941		G-X 4 CrNi 18 13									
		1.3944		G-X 5 CrNi 18 11									
		1.3952		G-X 4 CrNiMoN 18 14									
		1.3953		G-X 2 CrNiMo 18 15									
		1.3955		G-X 12 CrNi 18 11									
		1.3959		G-X 10 CrNiNb 16 13									
		1.4301	304; 304 H	X 5 CrNi 18 10	Z6 CN 18-09	X 5 CrNi 18 10	17 240	304 S 15	2332; 2333	F-3504	SUS 304	08Ch18N10	S 30400
		1.4303	308; 305	X 5 CrNi 18 12	Z 8 CN 18.12	X 8 CrNi 19 10		305 S 19			SUS 305	06Ch18N11	S 30500
		1.4305	303	X 10 CrNiS 18 9	Z8 CNF 18-03	X 10 CrNi 18 09	17 243	303 S 21	2346		SUS 303		S 30300
		1.4306	304 L	X 2 CrNi 19 11	Z3 CN 18-10	X 2 CrNi 18 11	17 249	304 S 12	2352; 2333	F-3503	SCS 19	03Ch18N11	S 30403
		1.4308	CF-8	G-X 6 CrNi 18 9	Z 6 CN 18.10 M		42 2930	304 C 15	2333	F-8411	SCS 13	07Ch18N9L	
		1.4311	304 LN	X 2 CrNiN 18 10	Z 2 CN 18 .10	X 2 CrNiN 18 11	17 249	304 S 62	2371		SUS 304 LN		S 30453
		1.4312		G-X 10 CrNi 18 8			42 2931						
		1.4401	316	X 5 CrNiMo 18 10	Z6 CND 17 12 02	X 5 CrNiMo 17 12	17 346	316 S 16	2347	F-3543	SUS 316		S 31600
		1.4404	316 L	X 2 CrNiMo 17 13 2	Z3 CND 17 12 02	X 2 CrNiMo 17 12	17 349	316 S 11	2348	F-3533	SUS 316 L		S 31603
		1.4406	316 LN	X 2 CrNiMoN 17 12 2	Z 2 CND 17.12 Az	X 2 CrNiMoN 17 12		316 S 61			SUS 316 LN		S 31653
		1.4408		G-X 6 CrNiMo 18 10			42 2940			F-8414			
		1.4413		G-X 4 CrNiMo 13-4									
		1.4429	316 LN	X 2 CrNiMoN 17 13 3	Z3 CND 17 11 03 Az	X 2 CrNiMoN 17 13		316 S 62	2375		SUS 316 LN		S 31653
		1.4435	316 L	X 2 CrNiMo 18 14 3	Z 2 CND 17.13	X 2 CrNiMo 17 13		316 S 12	2353		SCS 16; SUS 316 L	03Ch17N 14M2	S 31603
		1.4436	316	X 5 CrNiMo 17 13 3	Z 6 CND 17.12	X 5 CrNiMo 17 13		316 S 16	2343		SUS 316		S 31600
		1.4437		G-X 6 CrNiMo 18 12			42 2940						
		1.4438	317 L	X 2 CrNiMo 18 16 4	Z 2 CND 19.15	X 2 CrNiMo 18 15		317 S 12	2367		SUS 317 L		S 31703
		1.4439		G-X 3 CrNiMo 17 13 5						F-3544			
		1.4446		G-X 2 CrNiMo 17 13 4									
		1.4448		G-X 6 CrNiMo 17 13									
		1.4449		X 3 CrNiMo 18 12 3									
		1.4507	F61	X 2 CrNiMOCuN 25 6 3	Z3 CNDU 25 07 Az (Uranus 52 N)								S 32750
		1.4541	321	X 6 CrNiTi 18 10	Z 6 CNT 18.10	X 6 CrNiTi 18 11	17 248	321 S 12	2337		SUS 321	12Ch18N 10T	S 32100
		1.4546	348	X 5 CrNiNb 18 10		X 6 CrNiNb 18 11		347 S 18					S 34800
		1.4550	347	X 6 CrNiNb 18 10	Z10 CNNb 18-10	X 6 CrNiNb 18 11	17 245	347 S 17	2338	F-3552 / F-3524	SUS 347	08Ch18N 12B	S 34700
		1.4552		G-X 5 CrNiNb 18 9			42 2933			F-8413			
		1.4571	316 Ti	X 6 CrNiMoTi 17 12 2	Z 6 CNT 17.12	X 6 CrNiMoTi 17 12	17 348	320 S 31	2350	F-3535		10Ch17N-13M2T	S 31635
		1.4573	316 Ti	X 10 CrNiMoTi 18 12		X 6 CrNiMoTi 17 13		320 S 33				10Ch17N-13M3T	S 31635
		1.4580	316 Cb	X 6 CrNiMoNb 17 12 2	Z 6 CNDNb 17.12	X 6 CrNiMoNb 17 12		318 S 17		F-3536		08Ch16N-13M2B	S 31640
		1.4581		G-X 5 CrNiMoNb 18 10	Z 4 CNDNb 18.12 M	GX 6 CrMoNb 20 11	42 2941	318 C 17			SCS 22		
		1.4583	318	X 10 CrNiMoNb 18 12		X 6 CrNiMoNb 17 13							
		1.4821		X 15 CrNiSi 25-4	Z20 CNS 25 04								
		1.4825		G-X 25 CrNiSi 18 9			42 2932						
		1.4826		G-X 40 CrNiSi 22 9			42 2934						
		1.4828	309	X 15 CrNiSi 20 12	Z 15 CNS 20.12		17 251	309 S 24		F-3312	SUH 309	20Ch20N 14S2	S 30900
		1.4832		G-X 25 CrNiSi 20 14									
		1.4876	B 163	X 10 NiCrAlTi 32 20	Z10 NCAT 32-21 (Incoloy 800)		17 358	NA 15 (H)		F-3314	NCF 800		
		1.4878	321	X 12 CrNiTi 18 9	Z 6 CNT 18.12 (B)	X 6 CrNiTi 18 11	17 246	321 S 20	2337		SUS 321	12Ch18N 10T	

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M	**M.1.1**	1.4968		G-X 7 CrNiNb 16 13									
		1.4988		G-X 8 CrNiMoVNb 16 1									
		1.6901		G-X 8 CrNi 18 10									
		1.6902		G-X 6 CrNi 18 10									
		1.6905		G-X 5 CrNiNb 18 10									
	M.2.1	1.3964		G-X 4 CrNiMnMoN 19 1									
		1.4310	301	X 12 CrNi 17 7	Z 12 CN 17.07	X 12 CrNi 17 07		301 S 21			SUS 301		S 30100
		1.4465		G-X 2 CrNiMoN 25 25									
		1.4536		G-X 2 NiCrMoCuN 25 2									
		1.4539	904L	X 1 NiCrMoCu 25 20 5	Z2 NCDU 25 20 (Uranus B6)								N 08904
		1.4547	F44	X 1 CrNiMoCuN 20 18 17	Z1 CNDU 20 18 06 Az (254 SMO)								
		1.4568	17-7 PH	X 7 CrNiAl 17 7									
		1.4837		G-X 40 CrNiSi 25 12			42 2936						
		1.4840		G-X 15 CrNi 25 20									
		1.4841	314; 310	X 15 CrNiSi 25 20	Z 15 CNS 25.20	X 16 CrNiSi 25 20	17 255			F-3310	SUH 310	20Ch25N 20S2	S 31000
		1.4845	310 S	X 12 CrNi 25 21	Z 12 CN 25.20	X 6 CrNi 26 20	17 255	310 S24	2361		SUH 310;		S 31008
		1.4848		G-X 40 CrNiSi 25 20		GX 40 CrNi 26 20	42 2952						
		1.4849		G-X 40 NiCrSiNb 38 1									
		1.4852		G-X 40 NiCrNb 35 25									
		1.4855		G-X 30 CrNiSiNb 24 2									
		1.4857		G-X 40 NiCrSi 35 25									
		1.4864	330	X 12 NiCrSi 36 16	Z 12 NCS 37.18		17 253	NA 17		F-3313	SUH 330		N 08330
		1.4865		G-X 40 NiCrSi 38 18		GX 50 NiCr 39 19		330 C 40			SCH 15; SCH 16		
		1.4871	EV 8	X 53 CrMnNiN 21 9	Z 52 CMN 21.09	X 53 CrMnNiN 21 9		349 S 54		F-3217	SUH 35; SUH 36	55Ch-20G9AN4	S 63008
		1.4873		X 45 CrNiW 18 9	Z 35 CNWS 20.09	X 45 CrNiW 18 9		331 S 40			SUH 31		
	M.3.1	1.4339		G-X 32 CrNi 28 10									
		1.4347		G-X 8 CrNi 26 7									
		1.4410	F53	X 2 CrNiMoN 25 7 4	Z2 CND 25 07 04 Az					F-3552			
		1.4460	329 LN	X 8 CrNiMo 27 5	Z5 CND 25 05 AZ				2324		SUS 329 J 1		S 32900
		1.4462	329 A (F51)	X 2 CrNiMoN 22 5 3	Z2 CND 22 05 03 AZ (Uranus 45 N)		17 381			F-3308			S 31803
		1.4463		G-X 6 CrNiMo 24 8 2									
		1.4501	F55	X 2 CrNiMoCuWN 25 7 4	Z2 CNDUW 25 07 04 Az (Zeron 100)								S 32760
		1.4815		G-X 8 CrNi 19 10									
		1.4822		G-X 40 CrNi 24 5									
K	**K.1.1**	0.6010	A48-20 B	GG-10	Ft 10 D	G 10	42 2410		01 10-00		FC 10	Sc 10	
		0.6015	A48-25 B	GG-15	Ft 15 D	G 15	42 2415	Grade 150	01 15-00	FG-15	FC 15	Sc 15	
		0.6020	A48-30 B	GG-20	Ft 20 D	G 20	42 2420	Grade 220	01 20-00	FG-20	FC 20	Sc 20	
		0.6025	A48-40 B	GG-25	Ft 25 D	G 25	42 2425	Grade 260	01 25-00	FG-25	FC 25	Sc 25	
	K.1.2	0.6030	A48-45 B	GG-30	Ft 30 D	G 30	42 2430	Grade 300	01 30-00	FG-30	FC 30	Sc 30	
		0.6035	A48-50 B	GG-35	Ft 35 D	G 35	42 2435	Grade 350	01 35-00	FG-35	FC 35	Sc 35	
		0.6040	A48-60 B	GG-40	Ft 40 D		42 2440	Grade 400	01 40-00			Sc 40	
		0.6652		GGL-NiMn 13 7	L- NM 13 7			L-NiMn 13 7					
		0.6655	A 436 Type 1	GGL-NiCuCr 15 6 2	L-NUC 15 6 2			L-NiCuCr 15 6 2					
		0.6656	A 436 Type 1b	GGL-NiCuCr 15 6 3	L-NUC 15 6 3			L-NiCuCr 15 6 3					
		0.6660	A 436 Type 2	GGL-NiCr 20 2	L-NC 20 2			L-NiCr 20 2	05 23-00				
		0.6661	A 436 Type 2b	GGL-NiCr 20 3	L-NC 20 3			L-NiCr 20 3					
		0.6667		GGL-NiSiCr 20 5 3	L-NSC 20 5 3			L-NiSiCr 20 5 3					
		0.6676	A 436 Type 3	GGL-NiCr 30 3	L-NC 30 3			L-NiCr 30 3					
		0.6680	A 436 Type 4	GGL-NiSiCr 30 5 5	L-NSC 30 5 5			L-NiSiCr 30 5 5					
	K.2.1	0.7033		GGG-35.3			42 2303						
		0.7040	60 40 18	GGG-40	FGS 400-12	GS 400-12	42 2304	SNG 420/12	0717-02	FGE 38-17	FCD 40	VC 42-12	

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K	**K.2.1**	0.7043		GGG-40.3	FGS 370-17	GSO 42/17	42 2314	SNG 370/17	0717-15			VC 42-12	
		0.7050	65-45-12	GGG-50	FGS 500-7	GS 500/7	42 2305	SNG 500/7	0727-02	FGE 50-7	FCD 50	VC 50-2	
		0.7060	80-55-06	GGG-60	FGS 600-3	GS 600/3	42 2306	SNG 600/3	0732-03		FCD 60	VC 60-2	
	K.2.2	0.7070	100-70-03	GGG-70	FGS 700-2	GS 700-2	42 2307	SNG 700/2	0737-01	FGS 70-2	FCD 70	VC 70-2	
		0.7080	120-90-02	GGG-80	FGS 800-2	GS 800-2	42 2308	SNG 800/2				VC 80-2	
		0.7652		GGG-NiMn 13 7	S-NM 13 7			S-NiMn 13 7					
		0.7660	A 439 Type D-2	GGG-NiCr 20 2	S-NC 20 2			S-NiCr 20 2					
		0.7661	A 439 Type D-2B	GGG-NiCr 20 3	S-NC 20 3			S-NiCr 20 3					
		0.7665		GGG-NiSiCr 20 5 2	S-NSC 20 5 2			S-NiSiCr 20 5 2					
		0.7670	A 439 Type D-2C	GGG-Ni 22	S-N 22			S-Ni 22					
		0.7673	A 439 Type D-2M	GGG-NiMn 23 4	S-NM 23 4			S-NiMn 23 4					
		0.7676	A 439 Type D-3	GGG-NiCr 30 3	S-NC 30 3			S-NiCr 30 3					
		0.7677	A 439 Type D-3A	GGG-NiCr 30 1	S-NC 30 1			S-NiCr 30 1					
		0.7680	A 439 Type D-4	GGG-NiSiCr 30 5 5	S-NSC 30 5 5			S-NiSiCr 30 5 5					
		0.7683	A 439 Type D-5	GGG-Ni 35	S-N 35			S-Ni 35					
		0.7685	A 439 Type D-5B	GGG-NiCr 35 3	S-NC 35 3			S-NiCr 35 3					
		0.8065		GTW-65									
	K.3.1	0.8035		GTW-35-04			42 2536			GTW 35			
		0.8040		GTW-40-05			42 2540						
		0.8045		GTW-45-07									
		0.8055		GTW-55									
		0.8135		GTS-35-10	MN 35-10		42 2533	B 340/12		GTS 35			
		0.8145		GTS-45-06			42 2545	P 440/7		GTS 45			
		0.8155		GTS-55-04	MP 50-5		42 2555	P 510/4		GTS 55			
		0.8165		GTS-65-02	MP 60-3			P 570/3		GTS 65			
	K.3.2	0.8170		GTS-70-02	IP 70-2			P 690/2		GTS 70			
N	**N.1.1**	3.3307		Al99.85Mg0.5									
		3.3308		Al99,9Mg0,5									
		3.3315		AlMg1	5005 (AlMg1)					L-3350			
		3.3316		AlMg1.5									
		3.3317		Al99.85Mg1									
		3.3318		Al99.9Mg1									
		3.3326		AlMg1.8									
		3.3523		AlMg2.5									
		3.3525		AlMg2Mn0.3									
		3.3527		AlMg2Mn0.8									
		3.3535		AlMg3	5754								
		3.3537		AlMg2.7Mn									
		3.3555		AlMg5	5056 A								
		3.3561		G-AlMg5									
		3.3591		G-AlMg10									
		3.0205		Al99	1200 (A4)	9001/1	42 4009			L-3001			
		3.0255		Al99.5	1050 A	9001/2	42 4004			L-3051			
		3.0275		Al99.7	1070 A		42 4003			L-3071			
		3.0285		Al99.8	1080 A (A8)		42 4002			L-3081			
		3.0305		Al99.9									
		3.0505		AlMn0.5Mg0.5									
		3.0506		AlMn0.6									
		3.0515		AlMn1			42 4432			L-3810			
		3.0517		AlMnCu									
		3.0525		AlMn1Mg0.5	3005								

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N	**N.1.1**	3.0526		AlMn1Mg1									
		3.0615		AlMgSiPb									
		3.0915		AlFeSi									
	N.1.2	3.2307		Al99.85MgSi									
		3.2315	6082	AlMgSi1	6082	9006/4	42 4400						
		3.3206	6063	AlMgSi0,5	6060 (AGS)		42 4401			L-3441			
		3.3208		Al99.9MgSi									
		3.3210		AlMgSi0.7	6005 A								
		3.3211		AlMg1SiCu	6061								
		3.3345		AlMg4.5									
		3.3545	5083	AlMg4Mn	5086 (AG4MC)	9005/5				L-3322			
		3.3547	A95083	AlMg4,5Mn0,7	5083 (AlMg5Mn0,7)			N8		L-3321	A 5083		
		3.3549		AlMg5Mn									
		3.4335	7020	AlZn4,5Mg1	7020 (AZ5G)	9007/1	42 4441			L-3741			
		3.4337		Al99.8ZnMg									
		3.4345		AlZnMgCu0.5									
		3.4365	7075	AlZnMgCu1.5	7075 (AZ5GU)		42 4222			L-3710			
		2.1086		G-CuSn10Zn									
		3.1255	2014	AlCuSiMn	2014	9002/3							
		3.1305		AlCu2.5Mg0.5									
		3.1325	2017 A	AlCuMg1	2017 A (AU4G)					L-3120			
		3.1355	2024	AlCuMg2	2024 (AU4G1)	9002/4	42 4203			L-3140			
		3.1645		AlCuMgPb	2030 (AU4PB)		42 4254			L-3121			
		3.1655	2011	AlCuBiPb	2011 (AU5PbBi)	9002/5				L-3192			
		MFK											
	N.2.1	3.2581		G-AlSi12			42 4330						
		3.2583		G-AlSi12(Cu)			42 4330						
		3.3261		G-AlMg5Si			42 4515						
		3.3292		GD-AlMg9			42 4519						
		3.3541		G-AlMg3									
		3.3543		G-AlMg3(Cu)									
	N.2.2	3.2134		G-AlSi5Cu1Mg									
		3.2151		G-AlSi6Cu4			42 4357						
		3.2161		G-AlSi8Cu3									
		3.2341		G-AlSi5Mg									
		3.2371		G-AlSi7Mg			42 4334						
		3.2373		G-AlSi9Mg			42 4331						
		3.2381		G-AlSi10Mg			42 4331						
		3.2383		G-AlSi10Mg(Cu)			42 4331						
		3.3241		G-AlMg3Si									
		3.1371		G-AlCu4TiMg									
		3.1841		G-AlCu4Ti									
	N.3.1	2.0040		OF-Cu			42 3000						
		2.0060		E-Cu57			42 3001						
		2.0065		E-Cu58			42 3001						
		2.0070		SE-Cu									
		2.0076		SW-Cu									
		2.0090		SF-Cu			42 3003						
		2.0220		CuZn5			42 3200						
		2.0230		CuZn10			42 3201						
		2.0240		CuZn15			42 3202						

	Index	Material number	USA	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	ГОСТ	UNS
N	N.3.1	2.0250		CuZn20			42 3203						
		2.0261		CuZn28									
		2.0265		CuZn30			42 3210						
		2.0280		CuZn33			42 3212						
		2.0321		CuZn37		C2700	42 3213						
		2.0335		CuZn36									
		2.0360		CuZn40			42 3220						
		2.0460		CuZn20Al2									
		2.0470		CuZn28Sn1									
		2.0510		CuZn37Al1			42 3231						
		2.0530		CuZn38Sn1			42 3237						
		2.0730		CuNi12Zn24									
		2.0740		CuNi18Zn20									
		2.0830		CuNi25									
		2.0842		CuNi44Mn1									
		2.0853		CuNi1.5Si									
		2.0855		CuNi2Si			42 3054						
		2.0857		CuNi3Si									
		2.0872		CuNi10Fe1Mn									
		2.0875		CuNi9Sn2									
		2.0882		CuNi30Mn1Fe									
		2.0883		CuNi30Fe2Mn2									
		2.0918		CuAl5As									
		2.0920		CuAl8									
		2.0932		CuAl8Fe3									
		2.0936		CuAl10Fe3Mn2									
		2.0960		CuAl9Mn2									
		2.0966		CuAl10Ni5Fe4									
		2.0971		CuAl9Ni3Fe2									
		2.1016		CuSn4									
		2.1020		CuSn6									
		2.1030		CuSn8									
		2.1080		CuSn6Zn6									
		2.1191		CuAg0.1P									
		2.1203		CuAg0.1									
		2.1245		CuBe1.7									
		2.1247		CuBe2									
		2.1293		CuCrZr			42 3039						
		2.1310		CuFe2P									
		2.1522		CuSi2Mn									
		2.1525		CuSi3Mn									
		Ampco 16		CuAl10Fe3									
		Ampco 18		CuAl10.5Fe3.5									
		Ampco 8		CuAl6.5Fe2.5Sn									
				Ampco 8-16									
	N.3.2	2.0331		CuZn36Pb1.5			42 3214						
		2.0332		CuZn37Pb0.5									
		2.0372		CuZn39Pb0.5			42 3221						
		2.0540		CuZn35Ni2									
		2.0550		CuZn40Al2									
		2.0561		CuZn40Al1			42 3231						

	Index	Material number	USA	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	ГОСТ	UNS
N	**N.3.2**	2.0572		CuZn40Mn1			42 3234						
		2.0580		CuZn40Mn1Pb									
		2.0780		CuNi12Zn30Pb1									
		2.0790		CuNi18Zn19Pb1									
		2.1498		CuSP									
		2.1504		NiAlBz									
		2.1546		CuTeP									
		Ampco 12		CuAl9Fe3									
		Ampco 20		CuAl11Fe4									
	N.3.3	2.0371		CuZn38Pb1.5			42 3222						
		2.0375		CuZn36Pb3									
		2.0380		CuZn39Pb2			42 3223						
		2.0401		CuZn39Pb3									
		2.0402		CuZn40Pb2			42 3223						
		2.0410		CuZn44Pb2									
		2.0490		CuZn31Si1									
		2.0500		CuZn23Al6Mn-4Fe3									
		2.0771		CuNi7Zn39Mn-5Pb3									
		2.0978		CuAl11Ni6Fe5									
		2.1093		G-CuSn6ZnNi									
		2.1096		G-CuSn5ZnPb									
		2.1285		CuCo2Be									
		Ampco 21		CuAl13Fe4.5									
		Ampco 22		CuAl14Fe5									
		Ampco 25											
		Ampco 26											
				Ampco 18-26									
	N.4.1	3.5101		G-MgZn4SE1Zr1									
		3.5102		G-MgZn5Th2Zr1									
		3.5103		G-MgSE3Zn2Zr1									
		3.5105		G-MgTh3Zn2Zr1									
		3.5106		G-MgAg3Se2Zr1									
		3.5200		MgMn2									
		3.5312		MgAl3Zn									
		3.5470		GD-MgAl4Si1									
		3.5612		GD-MgAl6Zn1									
		3.5662		G-MgAl6									
		3.5812		G-MgAl8Zn1			42 4911						
		3.5912		GD-MgAl9Zn1			42 4911						
S	**S.1.2**	1.4980		X 5 NiCrTi 26 15									S66286
	S.2.1	1.3924		Ni54									
		1.3926		RNi12			42 3484						
		1.3927		RNi8			42 3484						
		2.4360		NiCu30Fe	Monel 400		42 3431						
		2.4610		NiMo16Cr16Ti	Hastelloy C-4								
		2.4617		NiMo28	Hastelloy B-2								
		2.4630		NiCr20Ti	Nimonic 75			HR 5					
		2.4668		NiCr19Fe18Nb5Mg	Inconel 718								
		2.4812		NiCr17Mo17FeW	Hastelloy C								
		2.4819		NiMo16Cr15W	Hastelloy C-276								
		2.4851		NiCr23Fe, Inconel 601	Inconel 601								

	Index	Material number	USA	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	ГОСТ	UNS
S	**S.2.1**	2.4856		NiCr22Mo9Nb	Inconel 625								
		2.4858		NiCr21Mo				NA 16			NCF 825		N 08825
		2.4951		NiCr20Ti	Nimonic 75			HR 5					
		2.4964		CoCr20W15Ni									
		2.4989		CoCr20NiW									
	S.2.2	2.4375		NiCu30Al	Monel K 500								
		2.4631		NiCr20TiAl	Nimonic 80 A			HR 401; 601			NCF 80 A		N 07080
		2.4634		NiCo20Cr15MoAlTi	Nimonic 105								
		2.4640		NiCr15Fe	Inconel 600								
		2.4654		NiCr20Co13Mo-4Ti4Al	Waspaloy								
		2.4662		NiCr13Mo6Ti3	Nimonic 901								
		2.4668		NiCr19Fe18Nb5Mg	Inconel 718								
		2.4816		NiCr15Fe	Inconel 600			NA 14			NCF 600		N 06600
		2.4952		NiCr20TiAl	Nimonic 80 A								
		2.4973		NiCr19Co11MoTi									
		2.4983		NiCr18Co18MoAlTi	Udimet 500								
	S.2.3	2.4670		G-NiCr13Al6MoNb	Nimocast 713								
		2.4674		NiCo15Cr10MoAlTi	Nimocast PK 24								
		2.4979		CoCr28MoNi									
	S.3.1	3.7024		Ti99,5									
		3.7025		Ti99,8									
		3.7034		Ti99,7									
		3.7055		Ti99,4									
		3.7064		Ti99,2									
		3.7124		TiCu2									
	S.3.2	3.7114		TiAl5Sn2									
		3.7144		TiAl6Sn2Zr4Mo2									
		3.7154		TiAl6Zr5									
		3.7165		TiAl6V4	T-A 6 V			TA 10 – TA 13					R 56400
		3.7174		TiAl6V6Sn2									
		3.7184		TiAl4Mo4Sn2				TA 45 – TA 51					
H	**H.1.1**	1.2311		40 CrMnMo 7			19 520						
		1.2312		40 CrMnMoS 8 6	40 CMD 8 + S								
		1.2316		X 36 CrMo 17	Z 38 CD 17	X 38 CrMo 16 1 KU							
		1.2365	H 10	X 32 CrMoV 3 3	32 DCV 28	30 CrMoV 12 27 KU	19 541	BH 10			SKD 7	3Ch3M3F	T 20810
		1.2567		X 30 WCrV 5 3	Z 32 WCV 5	X 30 WCrV 5 3 KU	19 720				SKD 4		
		1.2581	H 21	X 30 WCrV 9 3	Z 30 WCV 9	X 30 WCrV 9 3 KU	19 721	BH 21			SKD 5	3Ch2W8F	T 20821
		1.2738		40 CrMnNiMo 8						F-5303			
		1.2885		X 32 CrMoCoV 3 3 3	30 DCKV 28								
		1.4028		X 30 Cr 13	Z 30 C 13	X 30 Cr 13	17 023	420 S 45	2304		SUS 420 J 2	30Ch13	
		1.4031		X 38 Cr 13	Z 40 C 14	X 40 Cr 14	17 024		2304	F-3404	SUS 420 J 2	40Ch13	
		1.4034		X 46 Cr 13	Z 40 C 14	X 40 Cr 14	17 029	420 S 45		F-3405		40Ch13	
		1.4112		X 90 CrMoV 18									S 44003
		1.5122		37 MnSi 4			13 240						
		1.6358		X 2 NiCoMoTi 18 9 5									
		1.6582	4340	34 CrNiMo 6	35 NCD 6	35 NiCrMo 6 (KW)	16 342	817 M 40	2541	F-128 / F-1270	SNCM 447	38Ch2N2MA	
		1.7003		38 Cr 2	38 C 2	38 Cr 2							
		1.7006	5045	46 Cr 2	42 C 2	45 Cr 2							
		1.7030	5130	28 Cr 4				530 A 30				30Ch	
		1.7176	5155	55 Cr 3	55 C 3	55 Cr 3		527 A 60	2253	F-1431	SUP 9 (A)	50ChGA	G 51550
		1.0961	9262	60 SiCr 7	60 SC 7	60 SiCr 8					SUP 7		

	Index	Material number	USA	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	ГОСТ	UNS
H	**H.1.1**	1.1248	1078; 1080	Ck 75	XC 75	C 75	12 081	060 A 78	1774; 1778			75	G 10780
		1.1273		90 Mn 4									
	H.1.2	1.2083		X 42 Cr 13	Z 40 C 14	X 41 Cr 13 KU	19 435			F-5263	SUS 420 J 2		
		1.2323		GS-48 CrMoV 6 7									
		1.2343	H 11	X 38 CrMoV 5 1	Z 38 CDV 5	X 37 CrMoV 5 1 KU	19 552	BH 11		F-5317	SKD 6	4Ch5MFS	T 28811
		1.2367		X 38 CrMoV 5 3									
		1.2510	O 1	100 MnCrW 4	90 MWCV 5	95 MnWCr 5 KU	19 314	BO 1	2140	F-5220	SKS 3		T 31501
		1.2542	S 1	45 WCrV 7		45 WCrV 8 KU	19 732	BS 1	2710				T 41901
		1.2550		60 WCrV 7	55 WC 20	55 WCrV 8 KU	19 735						
		1.2606		G-X 37 CrMoW 5 1									
		1.2711		54 NiCrMoV 6	55 NCDV 6		19 662						
		1.2713	L 6	55 NiCrMoV 6	55 NCDV 7		19 662			F-520.S	SKT 4	5ChNM	T 61206
		1.2764		X 19 NiCrMo 4									
		1.2767		X 45 NiCrMo 4	Y 35 NCD 16	42 NiCrMo 15 7	19 655						
		1.4109		X 65 CrMo 14									
		1.4112		X 90 CrMoV 18									S 44003
		1.1157	1039	40 Mn 4	35 M 5			150 M 36				40G	G 10390
		1.1231	1070	Ck 67	XC 68	C 70	12 071	060 A 67	1770			70	G 10700
		1.1274	1095	Ck 101	XC 100			060 A 96	1870		SUP 4		G 10950
	H.1.3	1.2080	D 3	X 210 Cr 12	Z 200 C 12	X 210 Cr 13 KU	19 436	BD 3			SKD 1	Ch12	T 30403
		1.2101		62 SiMnCr 4									
		1.2162		21 MnCr 5	20 NC 5		19 487				SCR 420 H		
		1.2201		G-X 165 CrV 12									
		1.2210	L 2	115 CrV 3	100 C 3	107 CrV 3 KU	19 421						T 61202
		1.2341		X 6 CrMo 4									
		1.2379	D 2	X 155 CrVMo 12 1	Z 160 CDV 12	X 155 CrVMo 12 1 KU	19 573	BD 2		F-5211	SKD 11		T 30402
		1.2419		105 WCr 6	105 WC 13	107 WCr 5 KU					SKS 31	ChWG	
		1.2601		X 165 CrMoV 12		X 165 CrMoW 12 KU	19 572		2310				
		1.2721		50 NiCr 13									
		1.2735		15 NiCr 14	10 NC 12		16 240				SNC 22		T 51606
		1.2833	W 210	100 V 1	Y1 105 V	102 V 2 KU	19 356	BW 2			SKS 43		T 72302
		1.2842	O 2	90 MnCrV 8	90 MV 8	90 MnVCr 8 KU	19 314	BO 2					T 31502
		1.3505	52100	100 Cr 6	100 C 6	100 Cr 6	14 100	534 A 99	2258	F-131 / F-1310	SUJ 2	SchCh 15	G 52986
		1.4112		X 90 CrMoV 18									S 44003
		1.4125	440 C	X 105 CrMo 17	Z 100 CD 17	X 105 CrMo 17					SUS 440 C		S 44004
		1.8161		58 CrV 4			15 261						
		1.1520		C 70 W1									
	H.1.4	1.2363	A 2	X 100 CrMoV 5 1	Z 100 CDV 5	X 100 CrMoV 5 1 KU	19 571	BA 2	2260	F-5227	SKD 12		T 30102
		1.2436		X 210 CrW 12	Z 200 CW 12	X 215 CrW 12 1 KU	19 437		2312	F-5213	SKD 2		
		1.2880		G-X 165 CrCoMo 12									
		1.3202	T15	S 12-1-4-5			19 858						T 12015
		1.3207		S 10-4-3-10	Z 130 WKCDV 10-10-04	HS 10-4-3-10	19 861	BT 42		F-5553	SKH 57		
		1.3243		S 6-5-2-5	Z 85 WDKCV 06-05-05	HS 6-5-2-5	19 852		2723	F-5613	SKH 55	R6M5K5	
		1.3246	M 41	S 7-4-2-5	Z 110 WKCDV 07-05-04	HS 7-4-2-5	19 851						T 11341
		1.3247	M 42	S 2-10-1-8	Z 110 DKCWV 09-08-04	HS 2-9-1-8		BM 42			SKH 51		T 11342
		1.3249	M 33; M 34	S 2-9-2-8				BM 34					T 11333
		1.3257		S 18-1-2-15									
		1.3333		S 3-3-2		HS 3-3-2	19 820						
		1.3343	M 2	S 6-5-2	Z 85 WDCV 06-05-04-0	HS 6-5-2	19 830	BM 2	2722	F-5603	SKH 9; SKH 51	R6AM5	T 11302
		1.3344	M 3 Cl. 2	S 6-5-3	Z 120 WDCV 06-05-04	HS 6-5-3		BM 4			SKH 52; SKH 53		T 11323
		1.3346	H 41; M 1	S 2-9-1	Z 85 DCWV 08-04-02-0	HS 1-8-1		BM 1				H41	T 11301

	Index	Material number	USA	DIN	AFNOR	UNI	ČSN	BS	SIS	UNE	JIS	ГОСТ	UNS
H	**H.1.4**	1.3348	M 7	S 2-9-2	Z 100 DCWV 09-04-02	HS 2-9-2			2782				T 11307
		1.3355	T 1	S 18-0-1	Z 80 WCV 18-04-01	HS 18-0-1	19 824	BT 1			SKH 2	R18	T 12001
		1.1654		C 110 W									
	H.3.1	0.9620	A 532 I B NiCr-LC	G-X 260 NiCr 4 2				Grade 2 A	0512-00				
		0.9625	A 532 I A NiCr-HC	G-X 330 NiCr 4 2				Grade 2 B	0513-00				
		0.9630	A 532 I D Ni-HiCr	G-X 300 CrNiSi 9 5 2				Grade 2 C; D; E	0457-00				
		0.9635	A 532 II C 15% CrMo-	G-X 330 CrMo 15 3				Grade 3 A; B					
		0.9640		G-X 300 CrMoNi 15 2				Grade 3 A; B					
		0.9645	A 532 II D 20% CrMo-	G-X 260 CrMoNi 20 2				Grade 3 C					
		0.9650	A 532 III A 25% Cr	G-X 260 Cr 27				Grade 3 D	0466-00				
		0.9655	A 532 III A 25% Cr	G-X 300 CrMo 27 1				Grade 3 E					
O	**O.1.1**	EP											
		MF											
		PF											
		UP											
	O.1.2	PA											
		PC											
		PE											
		PI											
		PMMA											
		POM											
		PP											
		PS											
		PTFE											
		PVC											
	O.2.1	AFK											
	O.2.2	CFK											
		GFK											
	O.3.1	Graphit											

ISO designation system

ISO attribute	Feature Description
A	
ADJRG	Adjustment range
ADJRGR	Adjustment range radial
ALP	Clearance angle axial
AN	Clearance angle major
APMX	Depth of cut maximum
B	
B	Shank width
BD	Body diameter
BD_1	Body diameter, 1st cutting step
BD_2	Body diameter, 2nd cutting step
BD_3	Body diameter, 3rd cutting step
BD_4	Body diameter, 4th cutting step
BDRED	Body diameter, reduced
BDX	Body diameter maximum
BHTA	Body half taper angle
BN	Face land width
BS	Wiper edge length
BTED	Body taper end diameter
C	
CDX	Cutting depth maximum
CF	Central flat
CHW	Corner chamfer width
CHWTL	Flank chamfer width left hand
CLDIS_1	centerline distance 1
CLDIS_2	centerline distance 2
CLDIS_3	centerline distance 3
CND	Coolant entry diameter
CNT	Coolant entry, thread size
CODX	Parting off diameter, max.
CRE	Spot radius
CRKS	Pull stud thread size
CW	Cutting width
CXD	Coolant exit diameter
D	
D1	Fixing hole diameter
DAXN	Axial groove outside diameter minimum
DAXX	Axial groove outside diameter maximum
DC	Cutting diameter
DC_1	Cutting diameter, 1st cutting step
DC_2	Cutting diameter, 2nd cutting step
DCD	Cutting diameter drilling part
DCINTF	Interference cutting diameter
DCN	Cutting diameter minimum
DCONMS	Mounting spigot diameter
DCONWS	Connection diameter workpiece side
DCONWS_1	Connection diameter workpiece side
DCONWS_2	Connection diameter workpiece side
DCSKX	Countersunk diameter, max
DCX	Cutting diameter maximum
DF	Flange diameter
DFC	Functional diameter
DHUB	Hub diameter
DLN	Diameter lock nut
DMIN	Minimum bore diameter
DN	Neck Diameter
DRVS	Drive size

ISO attribute	Feature Description
G	
GAN	Insert rake angle
GB	Face land angle
H	
H	Shank height
HDD	Head diameter
HDW	head width
HF	Functional height
HLN	Lock nut height
HSUP	Support height
I	
IC	Inscribed circle diameter
IH	Insert hand
INSL	Insert length
K	
KAPR	Tool cutting edge angle
KCH	Corner chamfer angle
L	
L	Cutting edge length
L_1	Cutting edge length 1
L_2	Cutting edge length 2
L_3	Cutting edge length 3
LB	Body length
LB_1	Body length 1
LB_2	Body length 2
LCF	Length chip flute
LCOL	Collet length
LDRED	Reduced body diameter length
LE	Cutting edge effective length
LF	Functional length
LF_1	Functional length 1
LF_2	Functional length 2
LF_3	Functional length 3
LFSF	Distance to face
LH	Head length
LPCON	Connection protruding length
LPR	Protruding length
LS	Shank length
LSC	Clamping length machine side
LSCN	Clamping length minimum machine side
LSCX	Clamping length maximum machine side
LTA	length tool assembly
LU	Usable length
LUX	Usable length maximum
M	
MXC_R	Clamping force maximum
N	
NOF	Flute count
NT	Tooth count
O	
OAH	Overall height
OAL	Overall length
OAW	Overall width

Continued on next page

ISO designation system

ISO attribute	Feature Description
P	
PDPT	Profile depth insert
PDX	Profile distance ex
PDY	Profile distance ey
PHD	Pre-machined hole diameter
PL	Point length
PLGL	Plug length
PNA	Profile included angle
PRFA	Profile angle
PRFRAD	Profile radius
PRFRAD1	Profile radius 1
PRFRAD2	Profile radius 2
PRFRAD3	Profile radius 3
PSIR	Tool lead angle
R	
RA	Relief angle
RADH	Radial height
RADW	Radial width
RADWOF	Radial offset width
RAR	Relief angle rh
RCSK	Radius countersunk
RE	Corner radius
RE_1	Corner radius 1
RE_2	Corner radius 2
RE_3	Corner radius 3
REL	Corner radius left hand
RETL	Flank radius left hand
RETR	Flank radius right hand
RPMX	Rotational speed maximum
S	
S	Insert thickness
S1	Insert thickness total
SD	Step distance
SDL	Step diameter length
SDL_1	Step diameter length 1
SDL_2	Step diameter length 2
SZID	nominal size
T	
THID	Thread designation inside
THL	Thread cutting part length
THOD	Thread designation outside
THSZMS	Connection thread nominal size
THSZWS	Connection thread nominal size workpiece side
TP	Thread pitch
TPI	Threads per inch
TQX	Torque maximum
W	
W1	Insert width
WF	Functional width
WF2	Functional width 2
WT	Weight of item
Z	
ZEFP	Peripheral effective cutting edge count
ZNF	Face mounted insert count
ZNP	Peripheral mounted insert count


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